

ADVANCE -SERIES

HIGH TEMPERATURE MUFFLE FURNACE - 1400°C (ADVANCE)



An ISO 9001-2015 Certified Company

MODEL : MF - 14P / 12P (ADVANCE)



TECHNICAL SPECIFICATIONS

MODEL	MF - 14P (ADVANCE)	MF - 12P (ADVANCE)
Nbyjn vn !Uf n q/	2611'D	2311'D
X ps!joh!Uf n q/	2511'D	2261'D
Uf n q/!Bddv!bdz	_!2'D	_!2'D
I f byjoh!F rñn f out	Tjrr!po!Dbsc!jef -!x ju !f oeldpoof d!po- f bt jrr!sf qrrbf bcrñ/	Lbou brtB2!X jsf -!Dprr!Uzqf
Jbof s!Di bn cf s	Df sñ jdl!Cpbse!x ju !c!bt f !qrrbf !pgTjrr!po!Dbsc!jef - x ju !f byjoh!F rñn f out !qrrbf el!po!u f !upq!!!	Hppw! e!Sf gbdups!x ju !Gsf f rñ!sbejb!joh!! f byjoh F rñn f out !po!t jef t !
Jbt vrb!ypo	Df sñ jdl!Gcsf !pg! jsd!pojb!hsbef	Df sñ jdl!Gcsf
Dpot !avd!ypo	Usgqrr!x brñ!elx ju !bjs!jot vrb!ypo!po!u f !pvuf s t jef !Gps!N jojn brñ! !jo!Uf n q/!	Usgqrr!x brñ!elx ju !bjs!jot vrb!ypo!po!u f !pvuf s t jef !Gps!N jojn brñ! !jo!Uf n q/!
Cpez	Nbef !pgn jrr!t uf f rrevrñ!Qpx ef s!Dpb!f e!	Nbef !pgn jrr!t uf f rrevrñ!Qpx ef s!Dpb!f e!
Epps	I johf eluzqf !jot vrb!f elx ju !df sñ jdl!gcsf boeli bt !blw!f x joh!dbq/	I johf eluzqf !jot vrb!f elx ju !df sñ jdl!gcsf boeli bt !blw!f x joh!dbq/
Qpx f s!Dpouspm	TDS!voju!Qi bt f !Bohrñ!Ui zsjt ups*	Tprr!Tub!f !Sf rñz
Tf ot ps	Qld!Qlñ!Si !24& !!S!uzqf *	Ds!BM)L!uzqf *
Uf n q/!Dpousprñ Ebub!Mphh!joh	Mb!t u! N!Upvdi !Tdsf f o!UGU!ejt qrrbz!Ui f !qsgrrñ!pg!Uf n q/!w! l!jn f !dbolcf !t f ubt !ef t jef elvq!p!41!t uf qt)sñ q! pbl */!Sf brñjn f !Uf oel!hsbqi !jt !w!t jcrñ!Ui f !Ebub!pg!Ebu! -!Ujn f -!Qspdf t t !' !Tf u!Wbrñ! !pg!Uf n q/!bsf t upsf elu f !Ebub!dbolcf !epx orpbef el!po!QF!Oles!w! !bsf !w!f x f el!po!Fydf rñ!i f f u	
Tbg!z	Pw! s!dvssf ou!boe!Ti ps!Dj!sdv!ju!Qspuf d!po!Ui f sñ pdpvqrrñ!csf bl !brñsn /!! jhi !Uf n q/!brñsn /	
Qpx f s!T!vqqrñ	331!wprñ -!t johrñ!qi bt f !BD!t vqqrñ!d526!wprñ !u sf f !qi bt f !BD!t vqqrñ/	

INNER SIZE (W x H x D) mm	LOAD (KW) MF-14P-A	LOAD (KW) MF-12P-A	POWER SUPPLY
211!y!211!y!!336	3/6	3/6	331W!2!Qi bt f !BD
236!y!236!y!!361	4/1	4/1	331W!2!Qi bt f !BD
261!y!261!y!!411	5/1	5/1	331W!2!Qi bt f !BD
311!y!311!y!!411	7/1	6/1	526W!4!Qi bt f !BD
411!y!411!y!!411	8/1	7/1	526W!4!Qi bt f !BD

HIGH TEMPERATURE MUFFLE FURNACE - 1700°C



MODEL : MF - 17P

TECHNICAL SPECIFICATIONS

Maximum Temp.	1700°C
Working Temp.	1600°C / 1650°C
Temp. Accuracy	± 2°C
Heating Elements	Molybdenum discilicide (MoSi2) heating elements, easily replaceable.
Inner Chamber	Ceramic Brick /Board with heating elements placed on the side walls.
Insulation	Ultra high purity alumina low thermal mass insulation.
Construction	Tripple walled with air insulation on the outer side For Minimal Skin Temp.
Body	Made of mild steel duly Powder Coated
Door	Parallel action hinged type insulated with ceramic fibre and has a viewing cap.
Power Control	SCR unit (Phase Angle Thyristor)
Temp. Control	Microprocessor based Programmable Temperature Controller. Having 4 prog. x 6 segments. Dual display of Set & Actual Temp. with soft touch keys. With Thermocouple break protection & Cold junction compensation.
Sensor	Pt / Pt - Rh
Safety	High Speed Semi conductor Safety Fuse for over load protection. T.C. Broken Indication with automatic tripping. Soft start and stop facility, suitable for heating elements. Over current and Short Circuit Protection High Temp alarm.
Control Panel	Separate Control Panel with all Electrical Accessories.
Power Supply	415 Volts, 2/3 phase AC supply.



MODEL : MF-17P

INNER MUFFLE SIZE :

W x H x D	LOAD
150 x 150 x 300 mm	6.0 kw
150 x 150 x 150 mm	4.0 kw
200 x 200 x 200 mm	8.0 kw

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.

PROGRAMMABLE MUFFLE FURNACE - 1500°C

MODEL : MF - 14P

TECHNICAL SPECIFICATIONS

Maximum Temp.	1500°C
Working Temp.	1400°C
Temp. Accuracy	± 1°C
Heating Elements	Silicon Carbide Spiral / Rod type, with end connection, easily replaceable.
Inner Chamber	Ceramic Board with base plate of Silicon Carbide, with heating elements placed on the top.
Insulation	Ceramic Fibre of Zirconia grade
Construction	Tripple walled with air insulation on the outer side For Minimal Skin Temp.
Body	Made of mild steel duly Powder Coated
Door	Parallel action hinged type insulated with ceramic fibre and has a viewing cap.
Power Control	SCR unit (Phase Angle Thyristor)
Temp. Control	Microprocessor based programmable controller having 1 program x 16 segments (ramp / soak profile) Dual display of Set & Actual Temp. with soft touch keys. With Thermocouple break protection & Cold junction compensation.
Sensor	Pt / Pt - Rh 13%
Safety	Over current and Short Circuit Protection. Thermocouple break alarm High Temp. alarm
Control Panel	220 volts, single phase AC supply./415 volts, 3 phase AC supply (for 6 kw & above)



MODEL : MF-14P

INNER MUFFLE SIZE :

W x H x D	LOAD
100 x 100 x 125 mm	2.5 kw
125 x 125 x 250 mm	3.0 kw
150 x 150 x 300 mm	4.0 kw
200 x 200 x 300 mm	6.0 kw
300 x 300 x 300 mm	7.0 kw

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.

MUFFLE FURNACE - 1200°C / 950°C



An ISO 9001-2015 Certified Company

MODEL : MF-9M / MF-12M

TECHNICAL SPECIFICATIONS

Light Weight with ceramic Fiber wool insulation (instead of Brick insulation). Outer casing is made of double walled thick P.C.R.C. sheet, finished with attractive powder coating. Element are made of KANTHAL "A-1" wire in coil form. Insulation by Zirconia cerewool, which avoids loss of energy, this arrangement also assures the most uniform distribution of heat. A viewing cap is also provided on the door. Temperature controlled by "Microprocessor PID Digital Indicator cum Controller" fitted in the front of the Furnace. Dual display of process set temp. Temp. Accuracy $\pm 1^\circ\text{C}$.

To work on 220/230 Volts or 415/440 Volts A.C. 3 Phase supply. (For furnace load 6kw and above)



MODEL : MF-12M

MODEL	INNER MUFFLE SIZE	RATING
	W x H x D	
NG!23N	211!y!211!y!336!n n)5# y! 5# y! : #	3/6!L/X /
	236y!236!y!361!n n)6# y! 6# y! 21#	4/1!L/X /
N by!Uf n q! : 12311'D/	261!y!261!y!411!n n)7# y! 7# y! 23#	5/1!L/X /
X psl joh!Uf n q! : 12261'D/	311!y!311!y!411!n n)9# y! 9# y! 23#	6/1!L/X /
	311!y!311!y!561!n n)9# y! 9# y! 29#	9/1!L/X /
	411!y!411!y!411!n n)23#y!23#y!23#	7/1!L/X /
	411!y!411!y!561!n n)23#y!23#y!29#	: /1!L/X /
	411!y!411!y!711!n n)23#y!23#y!35#	23/1!L/X /

MODEL	INNER MUFFLE SIZE	RATING
	W x H x D	
NG! : N	211!y!211!y!336!n n)5# y! 5# y! : #	2/6!L/X /
	236y!236!y!361!n n)6# y! 6# y! 21#	3/1!L/X /
N by!Uf n q! : 61'D/	261!y!261!y!411!n n)7# y! 7# y! 23#	4/1!L/X /
X psl joh!Uf n q! : 11'D/	311!y!311!y!411!n n)9# y! 9# y! 23#	5/1!L/X /

PROGRAMMABLE FURNACE

MODEL : MF-9P / MF-12P

Same as above but with Profile Temperature controller, temperature maintained by the programmable microprocessor controller having minimum 1 programs x 16 Segments (ramp / soak profile).

Temp. Set Point Accuracy = $\pm 1^\circ\text{C}$.

MODEL	INNER MUFFLE SIZE
	W x H x D
NG: QdNG23Q	211!y!211!y!336!n n)5# y! 5# y! : #
	236y!236!y!361!n n)6# y! 6# y! 21#
	261!y!261!y!411!n n)7# y! 7# y! 23#
	311!y!311!y!411!n n)9# y! 9# y! 23#

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.



MODEL : MF-12P

BOTTOM LOADING FURNACE

MODEL : MBL - 15

TECHNICAL SPECIFICATIONS

- Maximum Temp. : 1500°C
- Working Temp. : 1400°C
- Heating Elements : Silicon Carbide Heating Element placed on two sides are easily replaceable.
- Insulation : High Density Ceramic Insulation.
- Construction : The furnace has opening at the Top and Bottom. The bottom lid is closed by Motorized Lifting, the crucible with the sample can be lifted for heating and lowered by push of a bottom (motorised)
- Control Panel : Placed on the side of the furnace with all components.
- Temp. Programmer : PID programmer having minimum 1 programs x 16 segments (ramp/soak.)
- Power Control : SCR Unit (Phase angle thyristor)
- Melting Capacity : 2-3Kg. (Aluminium), Size 150 x 150 x 200mm (W x L x H) OR 5-7Kg. (Aluminium), Size 200 x 200 x 250mm (W x L x H)
- Power Supply : 220Volts Single Phase 50Hz.

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.



MODEL : MBL-15

HIGH TEMPERATURE TUBE FURNACE



An ISO 9001-2015 Certified Company

MODEL : MT - 17P

TECHNICAL SPECIFICATIONS

Maximum Temp.	: 1700°C
Working Temp.	: 1600°C / 1650°C
Temp. Accuracy	: $\pm 2^{\circ}\text{C}$
Heating Elements	: Molybdenum disilicide (MoSi ₂) heating elements , easily replaceable .
Inner Chamber	: Ceramic Brick / Board , with heating elements placed on the side walls .
Insulation	: Ultra high purity alumina low thermal mass insulation.
Construction	: Tripple walled with air insulation on the outer side For Minimal Skin Temp.
Body	: Made of mild steel duly Powder Coated.
Tube Material	: High Purity Recrystallized Alumina
Tube Size	: Inner Dia. = 50 mm / Hot Zone length = 200 mm / Overall length = 700 mm
Gas Purging	: Ends of the tube have Stainless steel couplers with cooling attachment for purging of gases .
Power Control	: SCR unit (Phase Angle Thyristor) with current limit and soft start facility and Step Down Air Cooled Transformer.
Temp. Control	: Microprocessor based PID Programmable Temp. Controller. Dual display of Set & Actual Temp. with soft touch keys. With Thermocouple break Protection & Cold junction compensation.
Sensor	: Pt / Pt - Rh
Safety	: High Speed Semi conductor Safety Fuse for over load protection. T.C. Broken Indication with automatic tripping. Soft start and stop facility, suitable for heating elements Over current and Short Circuit Protection. High Temp alarm
Control Panel	: Separate Control Panel with all Electrical Accessories, placed on the bottom of the furnace.
Power Supply	: 415 Volts, 2/3 phase AC supply.



MODEL : MT-17P

OPTIONAL :

- (1) Recrystallized Alumina Tube with Couplers (Specify Dia. & Length)
- (2) Vacuum Pump, Rotary Double Stage Oil Filled, vacuum upto 10^{-3} torr.
- (3) Vacuum Gauge Analogue Type 0 - 76 Cm. of Hg.
- (4) Vacuum Gauge Digital / Analogue Pirani Gauge
- (5) Chiller unit with, Stainless Steel Tank and refrigeration system with water circulation pump (Model : MCC-8L)
- (6) Gas Flow Meter with valve, Flow Rate : upto 500sccm. (for Argon / Nitrogen Gas)
- (7) MFC, Flow rate upto 1000sccm for different gases.

PROGRAMMABLE TUBE FURNACE

MODEL : MT-11P & MT-14P

TECHNICAL SPECIFICATIONS

MODEL	MT-11P	MT-14P
N byjn v n !Uf n q/	2311'D	2611'D
X psl joh!Uf n q/	2211'D	2511'D
Uf n q/!Bddvsbdz	12'D	12'D
I f b y j o h ! F r h n f o u t	L b o u i b r h B 2 l x j s f - I D p j r h u z q f l x j u i	T j r j d p o l D b s c j e f l x j u i
	f o e l d p o o f d j p o /	f o e l d p o o f d j p o - f b t j m l s f q r b d f b c r h /
j b o f s D i b n c f s	D f s b n j d l S f g b d u p s z ! O C p b s e l x j u i l f b y j o h ! F r h n f o u t /	
j b t v r b j p o	D f s b n j d l G j c s f	D f s b n j d l G j c s f
D p o t u s d j p o	U s j q q r h l x b r h e l x j u i l b j s l j o t v r b j p o l p o l u f l p v d s t j e f l G p s N j o j n b r h l j o l U f n q /	
C p e z	N b e f l p g n j m l t u f f r e v m l Q p x e f s D p b u e	
U v c f l n b u f s j b m	B r n n j o b l p q j p o b r h l R v b s l *	
U v c f l T j j f	j b o f s E j b l > ! 7 6 n n ! O l p u l p o f l r h o h u l > ! 3 1 1 n n ! O P w f s b m l r h o h u l > ! 8 1 1 n n	
	e G v s o b d f l x j u i l w c f l p g e j g f s f o u E j b l - l l p u l p o f l r h o h u l ! P w f s b m l r h o h u l l d b o l b r h p l c f l n b e f	
	b t l q f s d v t u p n f s l s f r v j s f n f o u	
H b t ! Q v s h j o h	F o e t l p g u f l w c f l l b w l B r n n j o j n l d p v q r h s t l x j u i l d p p j o h l b u b d i n f o u l g p s l q v s h j o h l p g h b t f t /	
Q p x f s D p o u s p m	T T S l v o j u	T D S l v o j u l Q i b t f l B o h r h l U i z s j t u p s *
U f n q / ! D p o u s p m	N j d s p q s p d f t t p s l c b t f e l Q s p h s b n n b c r h l U f n q / ! D p o u s p m h s l x j u i l 2 l q s p h s b n l y l 2 7 l t f h n f o u t	
	j s b n q d p b l l q s p g r h l E v b r e j t q r b z l p g T f u l ! B d v b r l U f n q / l x j u i l p g l u p v d i l l f z t /	
	X j u i l U i f s n p d p v q r h l c s f b l l q s p u f d j p o l ! D p r e l v o d j p o l d p n q f o t b j p o /	
T f o t p s	D s l O B m	Q u l O Q u l ! S i ! 2 4 &
T b g l z	P w f s l d v s s f o u b o e l T i p s l D j s d v j u Q s p u f d j p o /	
	U i f s n p d p v q r h l c s f b l l b r h s n	
	I j h i l U f n q / l b r h s n	
Q p x f s l T v q q m	3 3 1 l w p n l - l t j o h r h l q i b t f l B D l t v q q m /	



MODEL : MT-14P

OPTIONAL FOR ALL TUBE FURNACE :

- (1) Alumina Tube / Quartz Tube with Couplers (Specify Dia. & Length)
- (2) Vacuum Pump, Rotary Double Stage Oil Filled, vacuum upto 10^{-3} torr.
- (3) Vacuum Gauge Analogue Type 0 - 76 Cm. of Hg.
- (4) Vacuum Gauge Digital / Analogue Pirani Gauge
- (5) Chiller unit with, Stainless Steel Tank and refrigeration system with water circulation pump (Model : MCC-8L)
- (6) Gas Flow Meter with valve, Flow Rate : upto 500sccm. (for Argon / Nitrogen Gas)
- (7) MFC, Flow rate upto 1000sccm for different gases.
- (8) Stainless steel high vacuum flanges for alumina / quartz tube

MODEL : MS-11 (V/H) & MS-14 (V/H)

TECHNICAL SPECIFICATIONS Vertical (V) or Horizontal (H)

MODEL	MS-11 (V / H)	MS- 14 (V / H)
N byjn vn !Uf n q/	2311'!!D	2611'!!D
X psl joh!Uf n q/	2211'!!D	2511'!!D
Uf n q/!Bddvsbdz	_,!2'D	_,!2'D
I f bujoh!F rhn f out	L bou brh!B2!x jsf -!Dpjrhuzqf x ju !f oe!dpooof dijpot /	T jrpod!dbscjef -!x ju !f oe dpooof dijpot -!f bt jre!sf qrbid bc rh
.bof s!Di bn cfs	Df sbn jcl!Sf gbdupsz!OCpbse	
.bt vrbypo	Df sbn jcl!Gjcsf	Df sbn jcl!Gjcsf ![jsdpobjb!hsbef
Dpot uvdjpo	Tqrl!Uzqf !!)!Wf sjclbrh!W!OI psl(poubrh) *!	
Cpez	Nbef !pgn jre!t uf f rievrn!Qpx f s!Dpbufe	
Nbyj!Uvcf !Tj(f !up cf !bcdpn n pebue	Ejb!>!81!n n !OI pu[pof !rhohu !>!331!n n !OPwf sbmrhohu !>!591!n n (WITHOUT TUBE)	
Qpx f s!Dpouspm	TTS!voju	TDS!voju!Qi bt f !Bohrh!Ui sjt ups*
Uf n q/!Dpouspm	Njcdpsqpdf t t pslc bt f e!Q.E!Ejhjubrh!t u!Opjod!Dpouspmrh! Evbrjejt qrbz!pgTf u' !BduvbrhUf n q/x ju !t pglupvdi !f zt !/ X ju !Ui f sn pdpvqrh!csf bl !qspuf dijpo! ! !Dpre!lvodijpoldpn qf ot bujpo!/ !	
Tf ot ps	Ds!OBM	Qu!OQu. !Si !24&
Tbf uz	Pwf sldvssf outboe!Ti psl!Djsdvju!Qspuf dijpo! !Ui f sn pdpvqrh!csf bl !brhsn ! ! jhi !Uf n q/!brhsn	
Qpx f s!Tvaam	331!wora -!t johrh!ai bt f !BD!t vaam/	



MODEL : MS-14(V)



MODEL : MS-11(H)

PROGRAMMABLE SPLIT TYPE FURNACE

MODEL : MS-11P (V/H) & MS-14P (V/H)

Same as above but with Programmable Controller having minimum 1 program x 16 segments (ramp / soak profile) instead of set point PID Controller.

TWO ZONE SPLIT TYPE FURNACE

MODEL : MST-11 (H) & MST-14 (H)

TECHNICAL SPECIFICATIONS

MODEL	MST-11 (H)	MST- 14 (H)
N byjn vn Uf n q/	[pof !2!>!2261!ID [pof !3!>!!!911!ID	[pof !2!>!2511!ID [pof !3!>!2111!ID
Uf n q/!Bddvsbdz	„!2!ID	„!2!ID
I f bjojh!F rhn f out	L bou brh!B2!x jsf -!Dpjrhuzqf x ju !f oe!dpooof d!jpot /	T j!dp!o!dbsc!jef -!x ju !f oe dpooof d!jpot -!f bt jn!sf qrb!cf bo rh/
.bof s!Di bn cfs	Df sbn jdl!Sf gbdupsz!O Cpbs	Df sbn jdl!Gjcsf ![jsc!pob!h!sbef
.bt vrbuzjo	Df sbn jdl!Gjcsf	
Dpot usv!d!jpo	Tqj!Uzqf !I) psj{ poubrh	
Cpe z	N bef !pgn jre!t uf f r!e vrn!Qpx ef s!Dpbu e	
N by!Uvcf !Tj{f !up cf !bd!pn n pebu e	Ej!b!>!81!n n !O! pu[pof !2!>!336!n n !O! pu[pof !3!>!561!n n !O Pw!sbm!rhohu !>!2111!n n !)!bqpspy!(WITHOUT TUBE)	
Qpx f s!Dpouspm	TTS!voju	TDS!voju!Q! bt f !Boh rh!Ui zsjt upst*
Uf n q/!Dpouspm	N jcspsq!d t t psc!bt f e!Q.E!Ejh jubrtf f u!Qpjd Dpouspm!s!joe jwjev br!ps f bdi ![pof !/!Evbr!e!jt qrb!z!pgTf u' !Bduvbt!Uf n q/!x ju !t pgl!upvd !f zt !/ X ju !Ui f sn pdpvqrh!csf bl !qsp!f d!jpo!! !Dpre!wrod!jpo!dpn qf ot b!jpo!	
Tf ot ps	Ds!OBr!tgsf bdi ![pof	Qu!OQu. !Si !24& !qpsf bdi ![pof
Tbg uz	Pw!s!cvssf outboe!Ti ps!Djcdv!ju!Qsp!f d!jpo!Ui f sn pdpvqrh!csf bl !br!sn ! jhi !Uf n q/!br!sn	
Qpx f s!Tvqqm	331!wpnt -!t johr!h!qi bt f !BD!t vqqr! /	



MODEL : MST-11(H)

OPTIONAL :

- (1) Alumina Tube / Quartz Tube with Couplers (Specify Dia. & Length)
- (2) Vacuum Pump, Rotary Double Stage Oil Filled, vacuum upto 10^{-2} torr.
- (3) Vacuum Gauge Analogue Type 0 - 76 Cm. of Hg.
- (4) Vacuum Gauge Digital / Analogue Pirani Gauge
- (5) Chiller unit with, Stainless Steel Tank and refrigeration system with water circulation pump (Model : MCC-8L)
- (6) Gas Flow Meter with valve, Flow Rate : upto 500cc / min. (for Argon / Nitrogen Gas)
- (7) MFC, Flow rate upto 1000sccm for different gases.
- (8) Stainless steel high vacuum flanges for alumina / quartz tube

PROGRAMMABLE TWO ZONE SPLIT TYPE FURNACE

MODEL : MST-11P (H) & MST-14P (H)

Same as above but with Programmable Controller having minimum 1 program x 16 segments (ramp / soak profile) instead of set point PID Controller.

THREE ZONE TUBE FURNACE

MODEL : MTZ - 12 / MTZ - 14

TECHNICAL SPECIFICATIONS

The Three Zone Tube Furnace offers excellent temp. uniformity as the heated length is divided into three zones, each with its own temp. controller and thermocouple. This system provides a longer uniform zone temp. than that achieved by using a single zone furnace.

CONSTRUCTION : The furnace is table mounted. The tubular furnace is opened at both ends, suitable to accommodate a tube of 65mm outer dia. The furnace is made of KANTHAL A1 modules, with elements embedded into the periphery, and are virtually free radiating.

HOT ZONE : The furnace has 3 zones, All zones are of length Ø225 mm. At the ends, the diameter of the opening is Ø65 mm to accommodate the quartz / alumina tube. Overall length of furnace 950 mm (approx.)

MTZ-12 : MAXIMUM TEMP : Upto 1200°C., Working Temp. 1100°C.

MTZ-14 : MAXIMUM TEMP : Upto 1400°C., Working Temp. 1350°C.

TEMP CONTROLLER : Each zone temp, is controlled by Seperate Programmable temp. Controllers. (1 Program x 16 steps)

POWER : 9KW Approx., 3 Phase, AC Supply.

SIZE : Overall length = 950mm, Dia = 65mm

with Quartz Tube / Alumina Tube (Size : OD=65mm / Length=1200mm) & Stainless Steel high vacuum flanges for maintaining vacuum of 10^{-2} torr at room temperature in tube & for gas purging.



MODEL : MTZ-12

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.

ROCKING TUBE FURNACE

MODEL : MRF-11P / 14P

TECHNICAL SPECIFICATIONS

MODEL	MRF-11P	MRF-14P
Maximum Temp.	1150°C	1400°C
Working Temp.	1000°C	1350°C
Temp. Accuracy	+ 1°C	+ 1°C
Heating Elements	Kanthal - A1 wire, Coil type wound on the tube.	Silicon Carbide Heating Rods
Tube	Alumina.	Alumina.
Tube Diameter	40mm	40mm
External Diameter of Furnace	250mm	400mm
Overall Length	400mm	600mm
Hot Zone Length	200mm	200mm
Rocking Angle	+ 30°	+ 30°
Insulation	Ceramic Fibre	Ceramic Fibre
Temp. Control	Microprocessor based Programmable (1 prog. x 16 segments) Temp. Controller, with ramp and soak segments. Dual display of Set & Actual Temp. with soft touch keys. With Thermocouple break protections & Cold junction compensation.	
Sensor	Cr / AL	Pt / Pt-Rh
Safety	Over current and Short Circuit Protection. Thermocouple break alarm. High Temp. alarm.	
Power Control	SSR Unit	Thyristor Control Unit
Power Supply	220V, 50Hz Single Phase AC only.	



MODEL : MRF-11P

OPTIONAL :

Data logger to store data upto 1 Lakh records, the data can be download in pen drive and viewed on PC in excel sheet.

RECTANGULAR FURNACE



An ISO 9001-2015 Certified Company

MODEL : MRF-100

TECHNICAL SPECIFICATIONS

Outer casing is made of double walled thick P.C.R.C Sheet, finished with attractive powder coating. Insulation is of ceramic fibre board or with refractory brick insulation. Element are made of KANTHAL "A-1" wire in coil form.

Inner muffle size : 24inch wide, 30 inch depth and 24inch high. Temperature of the furnace is controlled by programmable microprocessor based PID controller, (master – slave set up) with soft touch key pad and dual display of process and set temperature. Temperature set point accuracy $\pm 1^{\circ}\text{C}$. The power unit of the furnace is phase angle fired thyristor having smooth increase of current instead of pulse type. With digital 8 channel Data Recorder, the stored data can be transferred to the pen drive and viewed on PC in excel sheet. Maximum Temperature 1200°C . Working Temp. 1100°C . The heating Elements are placed on the two sides for uniform heating of the work space. The heating of the furnace is divided in 3 Zones, having Temp. Controller in master- slave set up with independent sensors and thyristors. This arrangement gives uniform temp in the furnace.

Rating is minimum 18 K.W. Suitable to work on 415/440 Volts A.C. 3 phase supply. As the furnace is required to heat reinforced concrete beams, etc, the base is heavy and able to support 100 kg weight. Suitable Insulated door arrangements is provided to insert and eject the specimens. The furnace is mounted and heavy 2/1/2ft (H) angle iron stand, with wheels for easy movement



MODEL : MRF-100

CYLINDRICAL FURNACE

MODEL : MCF-11 (V / H)

TECHNICAL SPECIFICATIONS

The tube furnace comprises of Alumina tube of Dia 50mm and length 250mm, with hot zone of 100mm at the centre. The tube has both ends open, from one end the thermocouple is placed. The cylindrical furnace can be oriented vertically or Horizontally (as ordered). The control panel of the furnace is separate having PID microprocessor controller, solid state relay, etc. Suitable to work on 220V, 50Hz AC only.



MODEL : MCF-11

TILTING FURNACE

MODEL : MTF-10

TECHNICAL SPECIFICATIONS

Maximum Temperature	: 1100°C
Crucible	: Silicon Carbide Pot
Capacity	: 10kg. (Aluminium)
Thermocouple	: K Type
Temp. Controller	: PID Digital Temperature Controller
Power Relay	: Contactor
Control Panel	: Separate
Tilting	: Manual
Fabrication	: Heavy Angle Iron Frame
Power Supply	: 415V, 3Phase AC



MODEL : MTF-10

HEATING MANTLE

MODEL : MHM - 1

TECHNICAL SPECIFICATIONS

Aluminium housing non - rusting, usable with round bottom flask, thick knitted fiber glass netting with energy controller.

Capacity : 50ml, 100ml, 250ml, 500ml, 1Ltrs., 2 Ltrs., 3 Ltrs., 5 Ltrs., 10 Ltrs.



MODEL : MHM-1

THERMAL CVD FURNACE

MODEL : MCVD-11/14

TECHNICAL SPECIFICATIONS

1. Number of zone : One / Two / Three Zone (as per user requirement)
2. Heating temperature range : Upto 1200 °C / 1400 °C
3. Heating Element: Kanthal A-1 / Silicon Carbide
4. Temperature accuracy : $\pm 1^{\circ}\text{C}$
5. Furnace tube size : ID = 60 mm OD = 65mm, length = 1200mm.
6. Quartz tube with flanges : High purity fused quartz
Size: ID = 60mm, OD = 65mm, length = 1200 (for temp upto 1100°C).
7. Flanges : Stainless steel 304 flanges on both ends, these are high vacuum flanges with double silicon 'O' ring and metal ring. On one end provision for gas purging through valve and hinge door or ease of placing sample. At other end vacuum KF-25 connection for vacuum pump, KF-10 connection for vacuum gauge and release valve.
8. Heating rate : 15°C per Minute (max.) or user stable Each Hot Zone length : 200 mm length.
9. Display : 7" LCD Touch Screen HMI to control all vital operation of CVD i.e. temperature and gas flow. With Data logging of temperature and gas flow.
10. Construction : Horizontal and split type
11. Insulation : Vacuum formed Zirconia fiber
12. Shell Construction : MS body fabricated from heavy gauge sheet, powder coated for superior finish. Double layer body for low surface temp.
13. Temperature control : (1x30=30 segment) PID programmable Digital Temperature controller X 3 no. (separate for each zone)
14. Temperature sensor : 3 numbers (K type-1200°C / R type -1400°C)
15. Power control : Through the phase angle controlled SSR Unit/Thyristor Unit
16. Vacuum pump and gauge : In the range of 10^{-2} torr by using Direct of Drive Rotary pump of capacity 200ltr/min with SS 1" dia bellow and Analogue Pirani Gauge Range upto 10^{-3} torr with sensor having KF-10 fitting.
17. Gas purging arrangement.
18. Gas flow control : Through MFC / Rotameter (optional)
19. Gas mixing chamber : One unit kept between the Rotameters and the furnace
20. Furnace stand to height of 1 meter
21. Safety: Over current and short current protection, Thermocouple break down alarm, high temperature alarm.



OPTIONAL :

- 1) Chiller with Circulation Pump
- 2) Gas Cylinder With Regulator
- 3) Mass flow controller for different gases, flow rate upto 500 sccm or as required with digital display
- 4) Rotameter for different gases with needle valve.
- 5) Digital vacuum gauge (imported) with vacuum display upto 10^{-4} torr.

VACUUM FURNACE



MODEL : MVF - 1000

TECHNICAL SPECIFICATIONS

Furnace Structure	: Double layers steel casing with fan cooling Inner vacuum furnace chamber Size = 200 x 200 x 200mm (W x D x H) Suitable to keep Alumina tray of size = 150 x 150 x 50mm. Outer steel cylindrical chamber with vacuum & gas purging attachment.
Temperature Control	: Programmable PID Digital auto temp. control (1 prog. x 16 segments) Over-heat protection and thermocouple broken protection. Rate of Heating adjustable from 1 to 150C / min. Soak time can be set as desired.
Control Accuracy	: + / - 1°C
Temperature	: Working Temperature : 1100°C
Thermocouple	: K-Type
Gas Purging	: Purging gas inlet and outlet facility. Gas inlet in the bottom of the wall and gas outlet in the top of the opp. Wall (Diagonally opposite)
Power	: 4 KW
Control Panel	: Placed on the side or bottom of the furnace, with Temp. & Vacuum Indicator, Gas flow meter, switches, indicating etc.
Vacuum Pump and Valve	: Pumping rate : 200 lt. / min Vacuum Double stage pump 10-2 torr by mechanical pump (on pump head) KF-25 adapter and stainless steel pipe are connected between pump and tube flange with precision ball valve



OPTIONAL :

Gas flow meter 50 to 500 SCCM (gas to be specified)

SALT BATH FURNACE

MODEL : MSB-1000

TECHNICAL SPECIFICATIONS

Salt bath furnace for quenching up to 800°C
Bath Volume : Dia = 70cm, Depth = 70cm
Material of Crucible : SS 310, 8mm Thickness
Heating Element : Kanthal A1
Temp. Range : 150°C to 800°C
Temp. Control : $\pm 1^\circ\text{C}$
Operation : 6 to 12 HRS
Temp. Control : PID Temp. Control with contactor / Relay etc.
Construction : Cylindrical in shape, having top opening, with manual cover closing.
Heating element are placed on the circumference and over the height.
Insulation by ceramic fiber blanket with outer mild steel casing.
Power : 65 KW
Supply : 415V, 3 phase AC supply

ACCESSORIES (at extra cost)

- # MS steel Frame / Structure : Frame / Structure which has provisions for following purposes
To lift 200 Kg weight sample by motorised wire rope and pulley arrangement.
To move the sample Horizontally as well as vertically
- # MS angle Iron Table : To place the sample of 200kg weight.
Dimensions : Length = 900mm, Width = 600mm, Height = 600mm



OVEN / INCUBATOR



MODEL : MOP

TECHNICAL SPECIFICATIONS

Uf n qf sbvst !Dpoupm	QE!Njdsqspdf t t ps!Dpouptx ju !EvbrtEjt qrbz!pgTf u' !BduvbrtUf n q/
Dpot uvdujo	EpvcrlX brne-lbt jef ln bef !pgT bjoht t !T d f rt#15! ' !pvu sln bef !pg
	Njre!T d f rtEvre!Qpx ef slDpbu e
Epps	I johf eljot vrbu eleppslgu! elx ju li f bust t jt boudht l f u
I f bjoht!Frlh f ou	Ti f bu f e!Uvcvrb
Jbt vrbujo	I jhi !Rvbrijz!Njof sbtX ppm
Bjldjdvrbujo	Npupsjt f e!Cpx f s!gslVoigpsn ju!pgUf n q/
Usbt	T/T!X jsf !Nf t i !Ojdl rh!Qrbu e!3#!Op/*
Ujn f sl!Pqjpbtrh	:: ll s/
Qpx f slTvqqr	331W!61l { !Tjohrh!Qi bt f !BD

MODEL	TEMP. RANGE	RESOLUTION	TEMP. SET POINT ACCURACY
NPQ.81	Bn cjl ou, 6'D!pl!81'D	1/2'D	1/1'6'D
NPQ.361	Bn cjl ou, 6'D!pl!361'D	2/1'D	1/2'1'D
NPQ.461	Bn cjl ou, 6'D!pl!461'D	2/1'D	1/2'1'D

PROGRAMMABLE OVEN

All the above model can be fitted with programmable Temp. Controller with 1prog. x 16 segments (ramp / soak).

DEEP FREEZER

MODEL : MDH / MDV

TECHNICAL SPECIFICATIONS

Deep Freezer designed for quick freezing & storing at low temperature. Constructed double walled, Exterior is made of sheet steel powder coated. PUF INSULATION to minimise heat loss.

'ISI' marked hermetically sealed compressor, for CFC free refrigerant

Capillary controlled balanced hermetically sealed Refrigeration is most economical & trouble free.

Fitted with Microprocessor Digital Temp. Indicator-cum-controller.

Mounted on castor wheels for easy mobility.

Minimum Temp. = - 20°C / - 40°C (in AC Room)

NPEFMT	WPMNF)MUSFT*	JT.EFIE.NFOT.POT X !y!Ely!l !)DN*	N.QJNVN UFNQFSBUVSF	SFDPNNFOEFE WPMUBH!TUBCJMTFS
HORIZONTAL FREEZERS				
NEI .311	311!Mst /	9: !y!51!y!71	.31'D	3!L WB
NEI .511	511!Mst /	: 5!y!71!y!83	.31'D	5!L WB
VERTICAL FREEZERS				
NEW281	281!Mst /	61!y!61!y!79	.31'D	3!L WB
NEW281Y	281!Mst /	61!y!61!y!79	.51'D	3!L WB
NEW431	431!Mst /	76!y!76!y!87	.31'D	4!L WB
NEW431Y	431!Mst /	76!y!76!y!87	.51'D	4!L WB

DIGITAL HOT PLATE

MODEL : MP - 3D

TECHNICAL SPECIFICATIONS

Hot Plate Heavy duty Cast Iron Top for uniform heating.

Fitted with PID Temp. Controller. Useful for heating upto 350°C.

Available in following chamber size :

Length	x	Width	Rating
25	x	30 cm	1200 Watts
25	x	40 cm	1500 Watts
30	x	45 cm	2000 Watts



MODEL : MOP-250

INNER SIZES FOR ALL MODELS

No. Size of inside Chamber

Width x Ht. x Depth

- 2/ 461!y!461!y!461!n n !)25#y!25#y!25#
- 3/ 561!y!561!y!561!n n !)29#y!29#y!29#
- 4/ 561!y!711!y!561!n n !)29#y!35#y!29#
- 5/ 711!y!711!y!711!n n !)35#y!35#y!35#
- 6/ : 11!y!711!y!561!n n !)47#y!35#y!29#
- 7/ 711!y! : 11!y!711!n n !)35#y!47#y!35#



MODEL : MDV-170



MODEL : MDH-400



MODEL : MP-3D

ULTRASONIC HOMOGENIZER (PROBE SONICATOR)

MODEL : MS

TECHNICAL SPECIFICATIONS

Ultrasonic Homogenizers are recommended for homogenization and lysis of laboratory samples that do not require traditional grinding or rotor-stator cutting techniques for processing.

The METREX Ultrasonic Homogenizers offer precision engineering with all the necessary features to create a total system for ultrasonic disruption. In biological applications, Probe Sonicator is often used to disrupt cell membranes and release cellular contents. Probe Sonicator is also used to fragment molecules of DNA. Probe Sonicator is commonly used in nanotechnology for evenly dispersing nanoparticles in liquids and for breaking down particles to nano size.

Available in : LED or LCD control unit. (as ordered)

MAJOR FUNCTION

1. Auto-tuning and power control convenience for user.
2. Timer control the total working time for 1min. to 30min.
3. Display the remaining time on countdown state.
4. On/off impulse timer : make sure to deal with temperature sensitive sample.
On and Off be choosed to continue setting from 1s, 4s or 8s.
5. Menu operation, easy, direct type.

COMMON APPLICATIONS

1. Prepare Tissue, Prepare Emulsions, Immiscible Liquids
2. Accelerate Enzymatic Reactions, Accelerate Chemical Reactions, Stimulated Bacterial Activity
3. Disperse Solids, Degassing of Liquids, De-agglomerate Powders
4. Dissolve Powders, Dissolve Tablets, Emulsify Cosmetics
5. Extract DNA/ RNA, Extract Proteins, Emulsify Liposomes.

TECHNICAL PARAMETERS

1. Timer : digital 1 min-90min. adjustable. digital closed loop, open loop : 1s, 4s, 8s.
2. Temperature adjustment Max 99°C.
3. Piezoelectric frequency energy converter : Lead zirconatetitanate (PZT) pyroelectricceramics.
4. Standard probe : titanium alloy material Diameter (proble) : 3mm, 6mm, 10mm, 12mm.
5. Power Supply : AC 230, 50 Hz.



MODEL	MS / 150	MS / 250	MS / 500	MS / 750
Dbqbdjuz	2n rh!211n m	21n rh!311n m	36n rh!511n m	31n rh!811n m
N by!Ujq!Ejbn if s	407ln n	7ln n	7!023ln n	7!023ln n
V rusb! pojdlQpx f s	261IX	361IX	611IX	861IX
Gf r vf odz	31!LI {	31!LI {	31!LI {	31!LI {
Ujn f s	Dzdrija!P O P GG	Dzdrija!	Dzdrija!	Dzdrija!
Qpx f s!T vqqm	341!WBD	341!WBD	341!WBD	341!WBD

SOUND ENCLOSURE

Sonication produces high pitch noise that can cause discomfort to the user and anyone in the laboratory. The Sound Enclosure significantly reduces the noise to safe levels. The internal support collar is made to safely hold the converter and probe assembly within the box. The inside of the box is water resistant and the door is made from clear acrylic so you can view your probe and sample.

B.O.D. COOLING INCUBATOR



MODEL : MBI - 50

TECHNICAL SPECIFICATIONS

Double walled inside Stainless Steel 304 & outside made of mild steel duly powder coated. Chamber with shelf supports, allowing wide range of shelf positions & spacing Supplied with removable perforated Stainless Steel shelves. Full view inner Acrylic door allows inspection of sample without disturbing temp of working chamber. Outer double walled metal door with MAGNETIC GASKET, LOCK & KEY. Door operated illumination lamp. Cabinet mounted on Castor wheels, for ease of movement. Temp. is controlled by Microprocessor Digital Temp. Indicator cum controller. Air circulating system is provided by F.H. Motors with fan which keeps uniform temp. through out the chamber. In **B.O.D. Cooling Incubator** a quite running sealed, CFC FREE Compressor (ISI marked) with all its protective devices along with a fan cooled condensing unit are placed below the working chamber. Control Panel is provided at the top of cabinet with three nos. Indicator for Main, Heating & Cooling, Voltmeter etc.

OPTIONAL :

Chamber illumination with 3 nos. fluorescent tubes of 60 cm length (30cm length in 4cu. ft.) placed vertically along the black wall. Separate ON/OFF switch for tubes and min. temp. can be obtained from 10 to 50°C when all the Tubes are ON. With Timer 0-24 hours for regulating cyclic illumination condition fixed on the top of the chamber.

Humidity attachment with stainless steel water tank placed at the bottom & Digital humidity (% RH) controller.

Data logger with LCD display having memory to store 1 Lakh records of temp. & time. The data can be copied on pen drive & viewed on excel sheet on computer. The data logger can be used with both microprocessor as well as programmable digital temperature controllers.



MODEL : MBI-50

ADVANCE -SERIES

B.O.D. COOLING INCUBATOR (ADVANCE)

MODEL : MBI - 50 A

TECHNICAL SPECIFICATIONS

Temp. Range 5°C to 60°C. Double walled inside made of SS 304. Fitted with **LCD TOUCH SCREEN (HMI)**, having Colour display For temp. and storage of data. The data (Temp. + Date + Time) up to 10000 records (3 to 4 days) can be stored in the internal memory of the HMI which can be downloaded in the USB Pen Drive and easily seen on the PC on excel sheet.

OPTIONAL :

Chamber illumination with 3 nos. fluorescent tubes of 60 cm length placed vertically along the black wall. Separate ON/OFF switch for tubes and min. temp. can be obtained from 10° to 50°C when all the Tubes are ON.

Humidity attachment with stainless steel water tank placed at the bottom & digital humidity (% RH) controller.

TECHNICAL DATA

N pef m	Wpnan f)Dv/gr*	ubof stX psl joh!Tqbd f l !y!X !y!E!)n n *	Op/lpg T i f n f t	Uf n qf sbwst !Sboh f boe!Bcdvsbdz	Sf dln n f oef e Wpnbhf !T ubc jrf f s
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COOLING INCUBATORS

NCJ61	5!Dv/!Gu	721!y!566!y!521!n n	3	6'D!up!71'D!_!1/6'D	3!L WB
	7!Dv/!Gu	941!y!616!y!526!n n	4	6'D!up!71'D!_!1/6'D	3!L WB
	21!Dv/!Gu	986!y!681!y!661!n n	4	6'D!up!71'D!_!1/6'D	4!L WB
NCJ61B	23!Dv/!Gu	: 11!y!761!y!691!n n	4	6'D!up!71'D!_!1/6'D	4!L WB
	26!Dv/!Gu	: 11!y!811!y!761!n n	4	6'D!up!71'D!_!1/6'D	5!L WB

Supply : 220 Volts, 50 Hz, single phase AC supply.



MODEL : MBI-50A

VACUUM OVEN (MICROPROCESSOR CONTROLLED)



MODEL : MV

TECHNICAL SPECIFICATIONS

Microprocessor based Vacuum ovens are accurate and reliable.
Proportional Integral Derivative (PID) temperature control system continuously monitors rate of temp. change, eliminating temperature overshoot and undershoot.
Heaters are embedded on the periphery of the chamber (for cylindrical ovens) / tubular air heaters placed at the bottom of chamber (for rectangular ovens), providing excellent temperature uniformity and quick heating times.
The gap between the inner and outer wall is filled with special grade glass wool insulation.
Outer body is made of mild steel finished in attractive powder coating and inner chamber of stainless steel, with 2 Nos. wire mesh trays.
Moulded, Joint less door gasket and knob ensure a tight seal.
Fitted with bourden type dial gauge of range 0-30" Hg.
Gas valve allows evacuation & venting.
The front door has heat resistant glass window, for allowing viewing of samples.
(except for model : MV-3) # WITHOUT VACUUM PUMP



MODEL : MV-2

OPTIONAL :

- (1) DIGITAL VACUUM GAUGE
The units of vacuum can be set as desired i.e.
Torr, mm Hg, Bar, mille Bar Resolution = ± 1
Torr / mmHg / Millibar
- (2) VACUUM PUMP
Double Stage Direct Drive Rotary Oil Filled
Vacuum Pump Capacity : 100 Ltr. / min,
Motor : 0.25 HP, with solenoid valve to
prevent back flow of oil.

MODEL	TEMP. RANGE	TEMP. ACCURACY	INNER SIZE (MM)
NW2	SU, 6'D!UP!241'D	, 2'D	Dia x Depth (Cylindrical)
NW3	SU, 6'D!UP!361'D	, 2'D	2/!361!y!461!n n
NW4	SU, 6'D!UP!411'D	, 2'D	3/!411!y!486!n n
			L x W x D (Rectangular)
NW3S	SU, 6'D!UP!311'D	, 2'D	2/!411!y!411!y!411!n n
			3/!466!y!466!y!466!n n

LYPHOLIZER / FREEZE DRYER

MODEL : MFD-6 / MFD-12

TECHNICAL SPECIFICATIONS

Aesthetically designed cabinet gives a pleasant look. It is a free standing castor mounted unit. It is supplied with a powerful double stage vacuum pump.
Hermetically sealed compressor gives temperature upto -40°C (at ambient temp. 20°C)
Condenser trap is provided of stainless steel dished bottom for complete effluent removal.
Refrigerant coils made of copper are PUF insulated for maximum efficiency.
Temperature is adjustable upto -40°C and is maintained automatically by Microprocessor digital temp. controller.
Vacuum drum having 22.8 cm dia and 25.4cm height is made up of non magnetic stainless steel with plexiglass top cover and incorporates 6/ 12 quick seal valves/ports for manifold drying.
Double stage vacuum pump with gas blast giving vacuum 1×10^{-3} torr on Mc-leod Gauge. Fitted with Dial type Vacuum gauge. Suitable to work on 220V, 50 Hz AC supply.

Capacity : N GE. 7!!!; 14!rnf st!gps!7!f t ut
!!!!!!!!!!!!!!!!!!!!N GE. 23!; 16!rnf st!gps!23!f t ut



MODEL : MFD-12

UV CABINET

MODEL : MUV - 30 / MUV - 40

TECHNICAL SPECIFICATIONS

The U.V. Cabinet is made of mild steel sheet duly powder coated. It is fitted within 3 Nos. of tubes short-wave (254nm) + long-wave (365nm) + Fluorescent light. The Cabinet, with separate on / off switches for each tube light. The samples can be placed in the cabinet from the front door and viewed from the viewing window at the top of the cabinet.
MUV-40 : Same as above but with short wave filter.



MODEL : MUV-40

ROTARY VACUUM EVAPORATOR (BUCHI TYPE)

MODEL : MVB - 1111D

TECHNICAL SPECIFICATIONS

The rotating action of the evaporator increases the evaporation and insures even heating in the Microprocessor Digital Controlled Stainless Steel Boiling Water Bath. The solution to be concentrated is placed in the flasks, which rotates, mixing the solution and moving the liquid continuously upward. This action provides a large evaporating surface and the water bath prevents over heating on the hot inner wall of the flask. By careful control of the speed of rotation and of the heat input, forming and bumping can be minimized. Evaporation with flask rotation speed 30-200 RPM. The flask can be removed easily by moving the motor assembly UP / DOWN by the motorized mechanism by the Push of the button.

METREX Rotary Vacuum Evaporators are supplied with one liter evaporator and receiving flasks, a long steam duct, a condenser, an inlet feed tube, clamps a drive unit and a 3-wire rod with Electronic Digital Speed meter to show the speed of Evaporator Max. speed 180 RPM

SPECIAL FEATURES

- Safe : Non sparking motor reduces risk of fire.
- Versatile : Variable speed for a variety of uses.
- Up & Down Movement : Motorised by Push of a button.
- Speed Meter : Electronic Digital Speed Meter.
- Water Bath : Digital Temperature Controlled Stainless Steel Water Bath.
- Chemically Inert : Glass Parts/Flasks, No contamination of metal parts.
- Small & Large Volumes : Continuous feed of solvent into evaporator flask lets you handle large Volumes.
- Standardized : All glass parts easily replaceable.



MODEL : MVB-1111D

OPTIONAL :

1. ASPIRATOR VACUUM PUMP

Comprise fo a 10 Lt. Water tank and circulating pump. Built in feed water drain and overflow make it easy to change water. The water tank opens to the side of the unit for easy filling. Vacuum ports are suitable for 3/8" OD hose. Max. Vacuum = 700mm Hg./ 27 inch Hg. on dial gauge

2. CHILLER

Model : MCC-8L, with 8 Lt. tank capacity and temperature upto -20°C

ROTARY HIGH VACUUM PUMP (DOUBLE STAGE)

MODEL : MRV - 907

TECHNICAL SPECIFICATIONS

Smooth and Silent running, Low Power Consumption, High Ultimate Vacuum, Simple in Operation. Do-It-Yourself Repairing, Low working Temperature. Belt driven, oil filled.

Model	Capacity Lt/min	H.P. Motor
3TQ.36	36!M!h jo	1/36!! Q
3TQ.56	56!M!h jo	1/36!! Q
3TQ.86	86!M!h jo	1/61!! Q
3TQ.211	211!M!h jo	1/86!! Q
3TQ.261	261!M!h jo	2/11!! Q
3TQ.311	311!M!h jo	2/61!! Q
3TQ.411	411!M!h jo	3/11!! Q

Ult. Pump Vacuum (mm of Hg.) in the range of

	Double Stage
Cbrbt dDpt f e	1/112
Cbrbt dP qf o	1/116
Qvn q!SQN	611



MODEL : MRV-907

OPTIONAL :

Solenoid isolation valve to prevent back flow of oil.

DIRECT DRIVE VACUUM PUMP (DOUBLE STAGE)

MODEL : MRV - 908

TECHNICAL SPECIFICATIONS

Compact and light weight, Smooth and silent running, Gas Ballast system, Low Oil Charge, Low Power, High Ultimate Vacuum, Simple in Operation, Maintenance free working.

Model	Stage	RPM	H.P. Motor
ED.61	Epvcfh	2551	.
ED.211	Epvcfh	2551	.
ED.261	Epvcfh	2551	.
ED.311	Epvcfh	2551	.
ED.411	Epvcfh	2551	.

Ultimate Vacuum (mm of Hg.) in the range of

Cbrbt dDpt f e	1/112
Cbrbt dP qf o	1/116
Qvn q!SQN	2551



MODEL : MRV-908

OPTIONAL :

Solenoid isolation valve to prevent back flow of oil.

LAMINAR AIR FLOW BENCH (WOODEN) HORIZONTAL / VERTICAL CABINET



MODEL : MLA - 100

TECHNICAL SPECIFICATIONS

The bench is made of thick ply board, and reinforced with teak wood where ever necessary. All visible surface are laminated with white Decolam Lamination. The filter seat has rubber padding for a perfect rubber to rubber sealing. The panels are made of Perspex sheet duly framed in Anodized Aluminium frame with transparent door. **The work table is also covered with satin finish stainless steel 304.** At the suction end the unit is provided with washable pre-filters. The pre filters have an efficiency of 90% down to 10 micron particle size. At the Delivery end, the unit is provided with Super air H.E.P.A. Filters, comprising of non woven microfibre glass pleated media. The pleats are separated by corrugated aluminium foil separators. Initial pressure drop is less then 25mm W.G. at rated flow D.O.P. efficiency is better then 99.97% down to 0.3 microns particle size. The H.E.P.A. filters are protected by a plastic grill. The Blower assembly consists of a ¼ H.P. Electric Motor of "American Universal" or equivalent make, and balanced blowers. The unit is illuminated by Fluorescent tube light & U.V. germicidal light (for Sterilization). Fitted with static pressure manometor (acrylic body) and cock for gas. Designed to provide a work area conforming to class 100 of revised US Federal standards 209-E.



MODEL : MLA-100 (H)

LAMINAR AIR FLOW BENCH (STAINLESS STEEL 304) HORIZONTAL / VERTICAL CABINET

MODEL : MLA - 100S

TECHNICAL SPECIFICATIONS

Same as above - but complete body made of Stainless Steel 304 sheet and reinforced with Stainless Steel Pipe.

WORK SPACE L X W X H ft.	HEPA FILTER	FTL	UV LIGHT
3'0" x 3'0" x 3'0"	3'0" x 3'0" x 17"	2'0" x 3'0" x 11"	2'0" x 2'6" x 11"
4'0" x 3'0" x 3'0"	4'0" x 3'0" x 17"	3'0" x 3'0" x 11"	2'0" x 2'6" x 11"
5'0" x 3'0" x 3'0"	5'0" x 3'0" x 17"	3'0" x 3'0" x 11"	2'0" x 4'1" x 11"
7'0" x 3'0" x 3'0"	4'0" x 3'0" x 17" .13'0"	3'0" x 5'1" x 11"	2'0" x 4'1" x 11"



MODEL : MLA-100S (H)

BIOSAFETY CABINET (STAINLESS STEEL 304)

MODEL : MBC - 100S

TECHNICAL SPECIFICATIONS

The bench is made of Stainless steel sheet 304 grade with transparent front door. **The work table is also covered with stain finish Perforated Stainless Steel 304 Sheet.** At the Delivered end, the unit is provided with Super air H.E.P.A. Filters D.O.P. efficiency is better then 99.97% down to 0.3 microns particle size. The H.E.P.A. filters are protected by a grill. The Blower assembly consists of a ¼ H.P. Electric Motor and balanced blowers. The entire Blower assembly is mounted on a frame thereby ensuring that no noise or vibrations are generated. In the Biosafety cabinet 70% of the filtered air is recirculated and 30% is exhausted through a VIRUS BURNOUT UNIT comprising of HEPA Filter, heater & UV tube thus destroying all the harmful micro organisms before entering the atmosphere (Type A2). Fitted with MICROPROCESSOR LCD CONTROLLER, heaving automatic sterilization by UV Light with timer when the door is closed. FL Light & blower are switched on when bench is ready to use. User Friendly alphanumeric commands. Filter use & change time alarm. Fitted with static pressure manometor (acrylic body) and cock for gas, with 10ft. exhaust ducting

WORK SPACE L X W X H ft.	HEPA FILTER	FTL	UV LIGHT
3'0" x 3'0" x 3'0"	3'0" x 3'0" x 17"	2'0" x 3'0" x 11"	2'0" x 2'6" x 11"
4'0" x 3'0" x 3'0"	4'0" x 3'0" x 17"	3'0" x 3'0" x 11"	2'0" x 2'6" x 11"
5'0" x 3'0" x 3'0"	5'0" x 3'0" x 17"	3'0" x 3'0" x 11"	2'0" x 4'1" x 11"
7'0" x 3'0" x 3'0"	4'0" x 3'0" x 17" .13'0"	3'0" x 5'1" x 11"	2'0" x 4'1" x 11"

OPTIONAL :

1. Digital air velocity meter (0-200fpm).
2. Digital differential pressure gauge.



MODEL : MBC-100S

FUME HOOD



MODEL : MFH - 100 G

This is a Auto by pass type fume hood model designed for use in academic and research settings. This model gives great functionality for its price. It is extremely spacious and employs a no frills approach to fume hood design to give academic institutions and startups a product that is exactly suited to their needs.

Outer Body : GI Sheet in pleasing powder coated finish.

Vertical Sash : Vertical rising counter-balanced sash , Made of toughened float Glass for impact resistance Smooth and light sash operation. Easily removable hinged top panel.

Inner Walls : Highly Chemical resistant laminated inner work walls.

Electrical Utilities : Factory wired electrical sockets and switches, with Fire retardant wires, Built-in starter for blower.

Ergonomic utilities : PP oval sink for easy drainage, with Black granite top.

Valves : High quality Indian Service valves, allowing for extremely precise flow ,control, far greater than regular ball valves. Color coded brass fitting for gas connections.

OPTIONAL :

Apparatus Grid : Grid Structure for attaching and laboratory suspending laboratory equipment.

Base Cabinet : For Apparatus storage, Chemical storage cabinets with castor wheels.



MODEL : MFH-100 G

FUME HOOD (STAINLESS STEEL 304)

MODEL : MFH - 100S

Same as above but chamber made of Stainless Steel 304 with exhaust system.

The storage compartment below are made of GI sheet duly powder coated.

Sizes For : MFH-100 G / MFH-100 S / MFH-100

WORK SPACE L X W X H ft.	EXHAUST DUCT Dia (inch)	FTL
5'3" X 3'3" X 3'3"	4"	3'1" X 3'1" X 3'1"
7'3" X 3'3" X 3'3"	5"	2'1" X 5'1" X 3'1"
8'3" X 3'3" X 3'3"	5"	2'1" X 5'1" X 3'1"

Any other size as per customer order can also be fabricated.



MODEL : MFH-100S

ULTRASONIC BATH

MODEL : MUB - 33

High frequency electrical energy is converted into ultrasound waves by means of ultrasonic Transducers, which are bonded on the base of S.S Cleaning Tank. These high frequency sound waves create in the liquid countless, Microscopic vacuum Bubbles which rapidly expand and collapse. This phenomenon is CAVITATION. These bubbles act like miniature high speed brushes, driving the liquid in to all openings and minute recesses of the object immersed and the object is perfectly cleaned.

Digital Timer	26 IN Jo/1041 IN Jo/	Outer Body	Tubjorht t IT d f m
Power Input	341 Wpnt	Temp. Controller	Ejhjubm
Transducers	Jh qpsf eIQ UIT boelx judi	Ultrasonic Cutoff	Bd81 IEf h ID/
Tray	T/T ISpeIUzqf	U/S Frequency	44 ILi {
Lid	T/T IMeIQOrbt yjd	Input	281 IBD!. I381 W!BD

Tank Capacity	2/6 IMu/	3/6 IMu/	4/6 IMu/	6/6 IMu/	: /1 IMu/
Power O/P watts	61 IX	71 IX	211 IX	261 IX	361 IX
Tank Size (L x W x H) mm	346 ly!246 ly!71	356 ly!256 ly!81	411 ly!261 ly!211	361 ly!261 ly!261	411 ly!311 ly!261



MODEL : MUB-33

ULTRASONIC CHILLER

MODEL : MUB - 33 C

Inner & Outer chamber of SS 304. Chiller Temp. 10 to 25°C. with digital temperature controller. Ultrasonic frequency of 33khz, with digital timer 0-30 min. Capacity : 10 ltr. /20 ltr.

ENVIRONMENTAL CHAMBER



MODEL : MEC

TECHNICAL SPECIFICATIONS

These Environmental Test Chambers can satisfy a variety of environmental conditions. They are especially suitable for the simulation of fixed temperature and relative humidity values above freezing point. Constructed of double walls, the exterior is made of sheet steel, the interior of stainless steel 304. A flush fitting insulated door has leak proof gasket. The shelf position of trays is adjustable. The rear chamber of the interior is fitted with a refrigeration evaporator, heater and powerful air circulating fan to create a positive air flow through the chamber. A hermetically sealed ISI mark, CFC Free compressor below the chamber provides temperatures below ambient. The same compartment houses a boiler with an immersion heater and water level controller for creating humidity. Safety circuit which cuts of system and stops unit in case of malfunction of Controller. Audio Visual alarm with cut out for low water level. The control panel comprises of ON/OFF switches, Microprocessor based Digital Temp. Indicator & Humidity Indicator-cum-controller (Direct display of Humidity in % RH), indicating lamps and protective fuses.



MODEL : MEC-10

STABILITY CHAMBER

MODEL : MSC

Same as above but with-

The chambers have outer body of SS 304 (dull finish) and inner chamber of SS 316

Validation protocol for IQ, OQ, PQ as per ICH guidelines

Model	Volume (cu.ft.)	Inner Chamber H x W x D mm	Trays	Temp. Range & Accuracy (°C)	Humidity Range & Accuracy [%RH]	Voltage Stabiliser
NFD.710NTD.7	7	941!y!616!y!526	4	21'D.71'D ₁ 1/6'D	56& !.!: 6& _4&	3!LWB
NFD.2110NTD.21	21	986!y!681!y!661	4	21'D.71'D ₁ 1/6'D	56& !.!: 6& _4&	4!LWB
NFD.2310NTD.23	23	: 11!y!761!y!691	4	21'D.71'D ₁ 1/6'D	56& !.!: 6& _4&	4!LWB
NFD.2610NTD.6	26	: 11!y!811!y!761	4	21'D.71'D ₁ 1/6'D	56& !.!: 6& _4&	5!LWB

Supply : 220 Volts, 50 Hz, single phase AC supply.

OPTIONAL : (for MEC & MSC both)

Chamber illumination with 3 nos. fluorescent tubes of 60 cm length placed vertically along the black wall. Separate ON/OFF switch for tubes and min. temp. can be obtained from 10 to 50°C when all the Tubes are ON. With Timer 0-24 hours for regulating cyclic illumination condition fixed on the top of the chamber.

Data logger with LCD display having memory to store 1 Lakh records of temp., humidity (%RH) & time. The data can be copied on pen drive & viewed on excel sheet on computer.

Surge tank of capacity 100Ltr. made of plastic having water circulation pump & automatic water filling arrangement to fill the humidity tank automatically. This ensures uninterrupted operation of the chamber for 4 to 5 days.



MODEL : MSC-10

LABORATORY REFRIGERATOR /COLD CABINET

MODEL : MCR-12

TECHNICAL SPECIFICATIONS

These cabinet are designed for storing of culture, specimen & reagents in laboratories.

Inside made of Plastic with adjustable shelves.

Frost Free chamber. Outer body GI Powder Coated

Full View front vacuum glass door.

Microprocessor Digital Temp. Indicator cum controller

Temperature Range and Accuracy 0°C to 12°C

Capacity: 100/300/400 lt.



MODEL : MCR-12

MODEL : MEC-A

TECHNICAL SPECIFICATIONS

- The Chamber is aesthetically design with most latest technology and software.
- 7 inch TFT Touch screen HMI with display of temp., humidity & Illumination, PLC Based Programmable Controllers, 4 Program upto 10 steps (total 40 steps) for each profile to control each parameter such as temperature, humidity & illumination individually, for day and night .
- Inside chamber of heavy gauge stainless steel 304 with SS trays . Outer body of mild steel, powder coated.
- Audio visual alarm for all three parameters of light, temperature & humidity with manual set option for the limit.
- Programmable auto simulation of all parameters (Light, Temperature & Humidity) same as like environment, inside the working chamber.
- User friendly programs for complete control of all / any parameter during the experiment.
- Double wall door with observation window
- Power backup system (30 min) to read out the running experiment parameters during power failure
- Specially designed compressor technology to get stable humidity in respect to the set temperature.
- Three step illumination controlled through PLC to control the photo periodic cycle of the chamber 24×7 with microprocessor based programmable automated day-night natural simulation system.
- High accuracy with advance technology for humidity and de-humidity control. The triple walled back of chamber provided with air circulation fans for uniform maintenance of the temperature & humidity throughout the chamber.
- High Temperature protection to protect the samples by auto shut down the unit.
- Temperature range 5°C to 60 ±0.5°C accuracy (Light Off) and 10°C to 60 ±0.5°C accuracy (Light On) with humidity 45% to 95 ±3% to 5% RH
- Data logging of Temp. & Humidity with date & time in internal memory and can be transferred to USB pen drive. Option for screen shot web interface with complete operation from any other PC / Laptop (through static IP)
- Suitable number of LED lamps to provide illumination.
- The system is supplied with Automatic voltage stabilizer.



MODEL	(L x W x D) mm	CAPACITY	STABILIZER (KVA)	SHELVES
NFD.7B	941y616y526	281!n!d7!dv g/	4	4
NFD.21B	986y681y661	381!n!d21!dv g/	4	4
NFD.23B	: 11y761y691	451!n!d23!dv g/	5	5
NFD.26B	: 11y811y761	521!n!d26!dv g/	5	5

ORBITAL INCUBATOR SHAKER



An ISO 9001-2015 Certified Company

MODEL : MO / MRS

TECHNICAL SPECIFICATIONS

Orbital shaking incubators are specially designed to have combined advantage of a closely controlled incubation with orbital shaking. Suitable for floor/bench top application.

Constructed of double walls, the exterior is made of M.S. Sheet and Interior of Stainless Steel (304).

The plexiglass inner door makes it possible to inspect specimen without disturbing the temperature.

Outer Door is made of Toughened Glass window in Frame with lock & Key.

Air Circulating fan creates positive air flow through the incubator, and maintains uniform temp.

With 1 no. perforated Stainless Steel adjustable trays.

Incubator Shaker (Refrigerated Model) incorporates hermetically sealed ISI marked CFC Free compressor housed below the incubator to provide temperature below ambient.

Drive : Triple Eccentric Counter balanced drive with permanently lubricated ball bearing ensures high stability and reliability. With Brushless Induction Drive Motor, maintenance free.

Automatic Restart : Automatic restart at preset speed in case of Power Failure.

Safety : Auto cut off in case of overshoot of temp., short circuit protection by MCB / Glass Fuse, Shaking stops when door is opened.

OPTIONAL :

1. Clamps for Holding Conical Flask 100 ml., 150 ml., 250 ml., 500 ml., 1000 ml., 2000 ml.
2. Chamber illumination with fluorescent tube (2 No.)
3. Chamber illumination with U.V. Tube (1 No.)
4. Cyclic timer for illumination control.
5. Digital Timer of 99 hrs., for timing the shaking operation.
6. Voltage Stabilizer with high / low voltage cut and time delay.
7. Maximum chamber temperature upto 80°C.
8. Maximum Speed Upto 400 RPM.



MODEL : MO-100C

Model	NST.2111)Of odi !Upq* NON-REFRIGERATED	NST.2111D)Of odi !Upq* REFRIGERATED	NPI.1211 NON-REFRIGERATED	NPI.1211D REFRIGERATED	NPI.1361 NON-REFRIGERATED	NPI.1361D REFRIGERATED
X ps! johlDbqbdjuz	236!nd	236!nd	291!nd	291!nd	361!nd	361!nd
Uf n q!Sboh	Bn c!f ou !6'D!up!71'D	6'D!up!71'D	Bn c!f ou !6'D!up!71'D	6'D!up!71'D	Bn c!f ou !6'D!up!71'D	6'D!up!71'D
Uf n q!Dpoupm	QE!N!jdspqpdf t t ps!Cbt f e					
Uf n q!Bddvbdz	1/2'D!1/5'D					
Ti bl johlTqf f e	Vb!bc!r!N!jdspqpdf t t ps!Dpoupm!-lx ju !E!jh!ub!SQN!E!jt qrbz					
Tqf f e!Sboh	31!up!41!sqn /!_!2!sqn /					
P sc!ub!E!jb	2: !n n /					
Jbof sT!(f !X !y!E!yl! *	61!y!61!y!61!dn /!		63!y!63!y!79!dn /		71!y!71!y!81!dn /	
P w! sbm!j!(f !X !y!E!yl! *	71!y!81!y! 6!dn /		77!y!85!y!239!dn /		77!y!85!y!239!dn /	
Qrb!up!sn !T!j!(f	56!y!56!dn /		59!y!59!dn /		62!y!62!dn /	
Ti bl johl!Usbz	Vojw! s!b!Qrb!up!l!p!b!dpn n pebu! j!ou! s!f! b!shf bc!r!hd!dn qt!pg!bt t ps! e!t!(f !t!gs!e!j! s! ou!dbqbdjuz!pg!dpod!j!b!r!h!t! t /					
Nby!Qrb!up!sn	: !Gbt !t!y!61!n m!036!Gbt !t!y!211!n m!0		27!Gbt !t!y!61!n m!047!Gbt !t!y!211!n m!0		36!Gbt !t!y!61!n m!05: !Gbt !t!y!211!n m!0	
Dbqbdjuz	27!Gbt !t!y!361!n m!06!Gbt !t!y!211!n m!0		36!Gbt !t!y!361!n m!08!Gbt !t!y!211!n m!0		47!Gbt !t!y!361!n m!0: !Gbt !t!y!211!n m!0	
Qpx f s!Tvqqm	331!v!p!r!-!6!i {-!BD!t!johl!q! bt f !t!vqqm					

ORBITAL SHAKER (BENCH TOP)

MODEL : MRS-100V

TECHNICAL SPECIFICATIONS

The unit has base assembly fabricated from heavy mild steel sections. The simple and sturdy design makes the units suitable for continuous operation.

Compact counter balanced drive mechanism ensuring high stability and reliability even in continuous operation & uneven load distribution.

Stepless Microprocessor frequency control ensures gentle start/stop and variable speed.

Brushless induction drive motor practically maintenance free.

Variable speed from 30 RPM to 300 RPM \pm 1 RPM. Digital display of RPM.

Automatic restart at preset speed in case of power failure.

Platform size = 45 x 45cm (universal platform). Suitable for 220V. / 50Hz AC supply.



MODEL : MRS-100V

ADVANCE -SERIES

REFRIGERATED INCUBATOR SHAKER-PLC & HMI BASED (ADVANCE)



An ISO 9001-2015 Certified Company

MODEL : MRS / MO (ADVANCE)

TECHNICAL SPECIFICATIONS

Orbital shaking incubator are specially designed to have combined advantage of closely controlled incubation / storage – temperature with orbital shaking (Stackable Units).

Constructed of double walls, the exterior is of GI sheet duly powder coated and Interior are made of Stainless Steel 304 grade mirror finish The plexiglass inner door makes it possible to inspect specimen without disturbing the temperature. Outer Door is made of Double Glass window in Frame with lock & Key.

Air Circulating fan creates positive air flow through the incubator, and maintains uniform temp. With 1 no. perforated Stainless Steel adjustable trays, and 1 no. moisture proof socket provided inside the chamber for running any other device Incubator Shaker (Refrigerated Model) incorporates hermetically sealed ISI marked CFC Free compressor housed below the incubator to provide temperature below ambient.

Illumination : with fluorescent tube of 30cm length (3 No.) with Cyclic timer and UV light (1 no.).

Shaking Motion : Orbital with variable frequency drive having gentle start & stop function.

Temperature Range : 5°C to 60°C \pm 0.1 to 0.4°C (Optional : upto 80°C)

Speed Range : 20 to 300 rpm (Optional : upto 400 rpm)

Process Control Display :

7 inch TFT Touch Screen HMI with large easy to read display Screen clearly indicates Speed, Temperature and alarm condition.

Display clearly visible in the dark. Temp. and speed deviation alarm.

PLC based programmable controller to automate parameter changes Time, temperature shaking having 4 programs 10 steps each for timed studies. Program end alarm System is able to maintain set point during power interruption and restart when power resumes.

Data logging of Temp., RPM with Date & Time in internal memory and can be transferred to USB pen drive.

Trend graph of Temp. & RPM with time, with programmable cyclic control of Illumination.

Option for screen shot, Web interface with complete operation from any other PC or Laptop (through static IP)

Safety features :

Audio Visual alarm for High Temp. and rpm deviation from set value. Shaking stop when door is opened. Resumption of operation after power failure.



MODEL	MRS-100 C A (Bench Top) REFRIGERATED	MO-100 C A REFRIGERATED	MO- 250 C A REFRIGERATED
WORKING CAPACITY	236l	291l	361l
TEMP. RANGE	6'D'up/71'D	6'D'up/71'D	6'D'up/71'D
TEMP. CONTROL	QND/Cbt f e-Qsphsn n bcrf/x jü IUGUjejt qtbz		
TEMP. ACCURACY	_1/2'D..1/5'D		
SHAKING SPEED	Vbqbcrl/Njdsqspdf t t p s Dpouprfhe-lx jü IEjhjübf6QNI E jt qtbz		
SPEED RANGE	31lup/411!sqn I _12sqn /		
ORBITAL DIA	2: n n /		
INNER SIZE	61ly/61ly/61dn /I)X ly/Elyll *	63ly/63ly/79ldn I)X ly/Elyll *	71ly/71ly/81ldn I)X ly/Elyll *
PLATFORM SIZE	56ly/56ldn /	59ly/59ldn /	62ly/62ldn /
SHAKING TRAY	Vojw st bnfQbupsn l up/bddpn n pebu ljou sdi bnf bcrf/dan q/pdbt t psd eli jü f t!gslejgt sf oudbqbdjuz/pgdpojdobgbt l t /		
MAX. PLATFORM CAPACITY	: l Gbt l t ly/611!n m!d36!Gbt l t ly/211!n m!d	27!Gbt l t ly/611!n m!d47!Gbt l t ly/211!n m	36!Gbt l t ly/611!n m!d5: !Gbt l t ly/211!n m
	27!Gbt l t ly/361!n m!d6!Gbt l t ly/211!n m	36!Gbt l t ly/361!n m!d8!Gbt l t ly/211!n m	47!Gbt l t ly/361!n m!d: !Gbt l t ly/211!n m
POWER SUPPLY	311!vpm -!61i {-!BD!t johm!qi btf l t vaqm		

OPTIONAL :

Humidity Probe, Gasing Manifold, Photosynthetic Light Bank, Voltage Stabilizer.

REFRIGERATED STACKABLE INCUBATOR SHAKER



MODEL : MSS / MSS - (ADVANCE)

TECHNICAL SPECIFICATIONS

Orbital shaking incubator are specially designed to have combined advantage of closely controlled incubation/ storage – temperature with orbital shaking (Stackable Units) .

Constructed of double walls, the exterior is of GI sheet duly powder coated and Interior are made of Stainless Steel 304 grade mirror finish

The plexiglass inner door makes it possible to inspect specimen without disturbing the temperature. Fold down outer Door is made of Double Glass window in Frame with lock & Key.

Air Circulating fan creates positive air flow through the incubator, and maintains uniform temp. With 1 no. perforated Stainless Steel adjustable trays.

Incubator Shaker (**REFRIGERATED MODEL**) incorporates hermetically sealed ISI marked CFC Free compressor housed below the incubator to provide temperature below ambient.

ILLUMINATION: with fluorescent tube of 30cm length (2 No.) with Cyclic timer and UV light (1 no.)

SHAKING MOTION : Orbital with variable frequency drive having gentle start & stop function.

TEMPERATURE RANGE : 5°C to 60°C \pm 0.1 to 0.4°C (Optional : upto 80°C.)

SPEED RANGE : 20 to 300 RPM (Optional : upto 400 RPM)

PROCESS CONTROL FOR (ADVANCE SERIES) : 7 inch TFT Touch Screen HMI with large easy to read display. Screen clearly indicates speed temperature and alarm condition. Display is clearly visible in the dark. Temp. and speed deviation alarm PLC based programmable controller to automate parameter changes Time, temperature shaking having 4 programs 10 steps each for timed studies. With Program end alarm System is able to maintain set point during power interruption and restart when power resumes Data logging of Temp., RPM with Date & Time in internal memory and can be transferred to USB pen drive. Trend graph of Temp. & RPM with time. Programmable cyclic control of Illumination. Option for screen shot, Web interface with complete operation from any other PC or Laptop (through static IP)

PROCESS CONTROL FOR (BASIC SERIES) : PID Temp. controller, with 0-24 hr Illumination Timer control and Digital RPM Display with Timer control

SAFETY FEATURES : Audio Visual alarm for High Temp. and rpm deviation from set value .Spill proof and provision for easy cleaning in case of a spill. Shaking stop when door is opened. Resumption of operation after power failure.



MODEL : MSS-120

MODEL	MSS-180 / MSS-180 (ADVANCE)	MSS-120 / MSS-120 (ADVANCE)
X ps joh!Dbqbdjuz	291!ns'	231!ns'
Uf n q!Sboh	6'D!up!71'D	
Uf n q!Bddvsbdz	, 1/2'D!.1/5'D	
Tqf f e!Sboh	31!up!411!sqn !_!sqn /	
P sc!ubrtE!jb	2: n n /	
Joof sT!j{f	76!y!76!y!53!dn /!X !Y!E!y!! *	61!y!61!y!51!dn /!X !Y!E!y!! *
P w! sbn! j{f	251!y!96!y!86!dn /!X !Y!E!y!! *!bqqspy/	71!y!81!y!96!dn /!X !Y!E!y!! *!bqqspy/
Qrbupsn IT!j{f	71!y!71!dn /	56!y!56!dn /
Ti bl joh!Usbz	Vojw! s brtQrbupsn !up!bddpn n pebf !jou! sldi bshf bc!rh!d!dn qt !pgbt t psf elt !j{f t !g!ps!ejgf s! oudbqbdjuz!pgdpodjbr!ybt ! t /	
N by!Qrbupsn !Dbqbdjuz	47!Gbt ! t !y!611!n r!071!Gbt ! t !y!211!n r!0 5: !Gbt ! t !y!361!n r!023!Gbt ! t !y!211!n r!	: !Gbt ! t !y!611!n r!036!Gbt ! t !y!211!n r!0 27!Gbt ! t !y!361!n r!06!Gbt ! t !y!211!n r!
Qpx f sT!vqqm	331!wp!r! -!61i { -!BD!t joh!rh!qi bt f !t vqqm	

SEED GERMINATOR



MODEL : MSG

TECHNICAL SPECIFICATIONS

Designed for conducting various experiments on seeds under different parameters of temp., humidity etc.

It is of double wall construction. Inner chamber is made of Stainless Steel 304 & outer cabinet is made of MS sheet, duly pre treated & finished with epoxy powder paint.

Stainless Steel water reservoir at the bottom provides 90% to 95% RH fixed humidity (**not adjustable**).

Temperature from 5°C to 50°C $\pm 1^\circ\text{C}$ is controlled by Microprocessor Digital temperature controller.

A inner transparent acrylic door is provided to view the germination of seed inside the chamber without opening the door, thus no temperature/humidity loss.

Air circulation ensure uniform temperature & humidity inside the chamber.

A heater is provided for temperature control inside the chamber.

The CFC free compressor is placed below the chamber.



MODEL : MSG-12

Model	MSG-12	MSG-12D	MSG-12DC
Di bn cf s	SINGLE	DOUBLE	DOUBLE
Jbof sTj(f lpgDi bn cf s	: 21Y!666!Y!716	: 21Y!666!Y!716	: 21Y!666!Y!716
l l !y!X !y!E*!n n	: 21Y!666!Y!716	: 21Y!666!Y!716	: 21Y!666!Y!716
Jbof sDi bn cf s	Tubjorht t !T d f r#15	Tubjorht t !T d f r#15	Tubjorht t !T d f r#15
Dbqbdjz!pgf bdi !Di bn cf s!rd*	416!MU/	416!MU/	416!MU/
Usbzt !jolf bdi !Di bn cf s	9	9	9
Uf n q!Sbohf !l)2t dDi bn cf s	6'D! !61'D!_!2'D	6'D! !61'D!_!2'D	6'D! !61'D!_!2'D
Uf n q!Sbohf !l)3oe!Di bn cf s*	...	Bn cjf ou, 6'D! !61'D!_!2'D	6'D! !61'D!_!2'D
l vn jeje!Sbohf !l)& !SI *	: 6& !_!4& SI !l)gyf e*	: 6& !_!4& SI !l)gyf e*	: 6& !_!4& SI !l)gyf e*

Tvqqm;l331Wpnd -l61l { -lt johrlqi bt f lBD!t vqqm/

OPTIONAL :

- Adjustable humidity from 45%-95% RH. With Digital humidity indicator cum controller.
- Interior illumination by 3 Nos. 60cm Fluorescent light with 0-24 hr. timer for cyclic illumination (separate for each chamber)
- Surge tank of capacity 100Ltr. made of plastic having water circulation pump & automatic water filling arrangement to fill the humidity tank automatically. This ensures uninterrupted operation of the chamber for 4 to 5 days.



MODEL : MSG-12D

VENTED CHEMICAL STORAGE CABINET

MODEL : MCS - 6

TECHNICAL SPECIFICATIONS

- Inner size** : 61" (W) x 18" (D) x 72" + 15" (H) inch
- Indicator/Controller** : Indicator for filter replacement
- Cabinet material** : PCRC sheet duly powder coated from outside with rust resistant three layer special epoxy coating from inside.
- Trays** : 5 no. of adjustable trays (SS304 grade, coated with highly chemical/ acid resisting epoxy coating.
- Chemical fume filter** : Pre filter and Activated carbon filter to exhaust out all the fumes.



ADVANCE -SERIES

PLANT GROWTH CHAMBER (ADVANCE)



MODEL : MGC (ADVANCE)

TECHNICAL SPECIFICATIONS

- Plant Growth Chamber is aesthetically design with most latest technology and software.
- Touch Screen HMI TFT Display with PLC having 4 Programme upto 10 steps (total 40 steps) steps for each profile to control each parameter such as temperature, humidity & illumination individually, for day and night .
- Inside chamber of heavy gauge stainless steel 304 with SS trays. Outer body of mild steel, powder coated.
- Audio visual alarm for all three parameters of light, temperature & humidity with manual set option for the limit.
- Programmable auto simulation of all parameters (Light, Temperature & Humidity) same as like environment; inside the working chamber to grow plants like in nature.
- User friendly programme for complete control of all/any parameter during the experiment.
- Double wall door with observation window.
- Specially designed compressor technology to get stable humidity in respect to the set temperature.
- Three step illumination controlled through PLC to control the photoperiodic cycle of the chamber 24x7 with automated day-night natural simulation system. The result gives broad based light spectrum ideally suited for plant growth.
- High accuracy with advance technology for humidity and de-humidity control. The triple walled back of chamber provided with air circulation fans for uniform maintenance of the temperature & humidity throughout the chamber.
- High Temperature protection to protect the samples by auto shut down the unit.
Temperature range 5°C to 60 ±0.5°C accuracy (Light Off) and 15°C to 60 ±0.5°C accuracy (Light On) with humidity 45% to 95 ±3% to 5% RH
- Data logging of temp. & humidity with date & time in internal memory and can be transferred to USB pen drive. Option for screen shot, web interface with complete operation from any other PC/ Laptop (through static IP)
- Suitable number of LED lamps to provide illumination from both sides.
- The system is supplied with heavy duty wire mesh stainless steel trays.



PLANT GROWTH CHAMBER

MODEL : MGC

TECHNICAL SPECIFICATIONS

Inside made of Stainless Steel 304 quality outside Mild Steel duly powder coated. Fitted with cooling, heating, humidity and lighting arrangement. Temperature range. 5°C to 60°C ± 1°C. Temperature can be obtained from 15°C to 60°C ± 1°C., when all lights from two sides are 'ON'.

Temperature is controlled by microprocessor temp. & humidity controller. Different temp. & humidity can be set in °C and % RH. The cycles can be repeated as desired. Interior illumination is control by cyclic digital timer for setting day & night cycles.

Above Growth chamber is complete with Humidity control from 45% to 95% ± 3% RH.

The humidity is maintained by stainless steel water tank with heater & blower, fitted at the bottom of the chamber. Cooling by refrigeration system placed below the chamber and heating by ss tubular heaters.

Provided with heavy duty wire mesh stainless steel trays.



MODEL : MGC-20

MODEL	(W x H x D) mm	CAPACITY	STABILIZER (KVA)	SHELVES
NHD.21!d21B	681!y!986!y!661	386!MJ!d21!Dv!IGu	4	4
NHD.31!d31B	886!y! 11!y!886	651!MJ!d31!Dv!IGu	5	5
NHD.41!d41B	946!y!2311!y!946	951!MJ!d41!Dv!IGu	6	6

OPTIONAL :

- Surge tank of capacity 100Ltr. made of plastic having water circulation pump & automatic water filling arrangement to fill the humidity tank automatically. This ensures uninterrupted operation of the chamber for 4 to 5 days.
- Voltage Stabilizer.

FULL VISIBILITY BATH / HIGH PRECISION WATER BATH



An ISO 9001-2015 Certified Company

MODEL : MHP / MFV

TECHNICAL SPECIFICATIONS

Useful for Crystal Growth Studies, for determination of Kinematic Viscosity and other laboratory applications requiring precise control of temp. and need of visibility. The bath maintains precise temp. for long duration of time. Microprocessor PID temp. controller gives accuracy of temp upto $\pm 0.1^{\circ}\text{C} / \pm 0.01^{\circ}\text{C}$ (Optional). The bath is rectangular in shape. Inside tank made of Stainless steel 304. On two sides toughed glass window is provided for full visibility of samples. Stirrer is cushioned with vibration absorbing rubber pads. Fluorescent light is provided for viewing of the samples (optional). Viscometer tray is provided for holding 4/8 viscometer (optional)

* Model MHP 1 is without glass windows at front & back



MODEL : MFV-1

OPTIONAL :

- PID Temp. controller of accuracy $\pm 0.01^{\circ}\text{C}$
- Temp. controller for Programming of Ramp / Soak profiles
- Any other size as per customer requirements can be designed.

MODEL	SIZE (L x W x H) mm	TEMP. RANGE & ACCURACY
N I Q.2	536!Y!376!Y!351	Bn c jf ou 6'D! !211'D_1/2'D
N GW 2	536!Y!376!Y!351	Bn c jf ou 6'D! !211'D_1/2'D
N GW 211	311!y!361!y!411!D436!y!361!y!411	Bn c jf ou 6'D! !211'D_1/2'D
N GW 21	311!y!361!y!411!D436!y!361!y!411	21'D! !1'D_1/2'D
	5!Wt dpn f uf s!Q9!Wt dpn f uf s	

CRYOSTAT CIRCULATING BATH / CHILLER

MODEL : MCC

TECHNICAL SPECIFICATIONS

Convenient to use on table or floor

External Circulation function with powerful circulation pump with contact parts of stainless steel / P.P / Brass

Control of temp. with Microprocessor temp. controller

Excellent safety with heater cut off on over heating

Separate power switches for both functions of Cooling and Circulation of liquid

Low noise level for the operation in a sealed space.

Model	MCC - 5L	MCC - 8L	MCC - 12L
Cbu !vprn f !M/*	6!M/	9!M/	23!M/
Uf n qf sbwst	Uf n qf sbwst	.31'D! !51'D! !Pqjpboblvqpl!211'D*	.41'D! !51'D! !Pqjpboblvqpl!211'D*
	Bddvsbdz	1/3'D	
	Dpousprfhs	Q.E!N!jdsqpsdf t t p!Dpousprfhs	
Nbu! sbm	Cbu	Tubjorht t !t f f h! T415	
	Fyuf sobm	Nj!e!T!f f r!e v m!Qpx ef s!Dpbf e	
I f b!s	611X	2111X	2611X
Qvn q	Dqbcbjuz!O! f jhi u	23!M!On jo/	23!M!On jo/
	Cbu !X yEyl *!n n	251!y!361!y!311	281!y!421!y!311
	Pw! sbm!X yEyl *!n n	441!y!541!y!711	441!y!541!y!711
	Upq!pqf o!X yEyl *!n n	251!y!91	281!y!241
			336!y!271
Tb!f uz	Pw! s!Dvss! ou!g!t f !OPw! s!Uf n q!ldv!pgg		
Sf g!hf sbup!x bu!	DGD!Gef f	291!X	361!X
Tvq!m	331WBD!611 {-!T!johm!Qi bt f		511!X



MODEL : MCC-8L

OPTIONAL :

Voltage Stabilizer

OIL BATH

MODEL : MOB - 2

TECHNICAL SPECIFICATIONS

Temperature controlled by PID Microprocessor Digital Temp. Controller. Double walled Inside Stainless Steel 304, outside mild steel. Temp. Range 50° to $250^{\circ}\text{C} \pm 1^{\circ}\text{C}$. Fitted with magnetic Stirrer at the bottom (without oil).

Capacity : 2Ltr.



MODEL : MOB-2

WATER BATH INCUBATOR SHAKER (Micro Processor Controlled)



MODEL : MMI / MMO

TECHNICAL SPECIFICATIONS

SHAKING MOTION : RECIPROCATING / ORBITAL

Water bath incubator shaker is of sturdy construction with outer body made of mild steel sheet duly powder coated and inner chamber made of stainless steel grade 304.

The gap between the inner and outer chamber is filled with effective insulation.

Temp. is controlled by Microprocessor PID Temp. controller, with dual display of temp. (process & set value).

A variable speed motor is fitted to provide shaking of the tray, the speed of the motor can be varied through a stepless electronic regulator fitted in the panel.

The shaking tray moves on four wheels / balls (Reciprocating), Eccentric Cam (Orbital).

With Digital RPM Indicator

In Refrigerated Model, Temp. below ambient is achieved by hermetically sealed CFC FREE compressor (ISI Mark) placed below the water bath with other refrigeration accessories. (Bench Top / Floor Model)

For above ambient temp. stainless steel immersion type heating elements are provided inside the bath.

The bath is provided with a stainless steel pyramidal shaped lid and a drainplug.



MODEL : MMI-100



MODEL : MMI-100C



MODEL : MMO-200C

OPTIONAL :

Ti bl joh!Sbdl t lps!N N.Jl. l211 l)2*! l)3*

27!Op/!y!36n r!DpojdbrrGbt l
23!Op/!y!61n r!DpojdbrrGbt l
: !Op/!y!211n r!DpojdbrrGbt l
6!Op/!y!361n r!DpojdbrrGbt l
5!Op/!y!611n r!DpojdbrrGbt l
3!Op/!y!2111n r!DpojdbrrGbt l
31!Op/!y!36n n !ejb!f t ulwcf

Ti bl joh!Sbdl t lps!N N.Jl. l211 l)4*

NN.Jl. l211D-INNP l. l311 l' INNP l. l311D

31!Op/!y!36n r!DpojdbrrGbt l
27!Op/!y!61n r!DpojdbrrGbt l
23!Op/!y!211n r!DpojdbrrGbt l
: !Op/!y!361n r!DpojdbrrGbt l
7!Op/!y!611n r!DpojdbrrGbt l
5!Op/!y!2111n r!DpojdbrrGbt l
41!Op/!y!36n n !ejb!f t ulwcf

MODEL	SHAKING TRAY (L x W x D) mm	Temp. Range and Accuracy	RPM	SHAKING TYPE
NNJ211	2'!386!y!386!y!86	Bn c!f ou, l6'D.211'D_1/3'D	41!.l261	SFD.QSPDBWOH
	3'!386!y!386!y!261			
	4'!511!y!411!y!261			
NNJ211D	!!!511!y!411!y!261	21'D!.l211'D!_1/3'D	41!.l261	SFD.QSPDBWOH
NNP.311	!!!511!y!411!y!311	Bn c!f ou, l6'D!.l211'D!_1/3'D	41!.l291	P.S.C.W.B.M
NNP.311D	!!!511!y!411!y!311	21'D!.l211'D!_1/3'D	41!.l291	P.S.C.W.B.M

Tvjubcrh!up!pqf sbu lpol331W!61dz-lt johr!lqi bt f lBDlt vqqr!porm/

AUTOCLAVE (VERTICAL)



MODEL : MA - 10D

TECHNICAL SPECIFICATIONS

Double Wall Construction, Inside & outside made of Stainless Steel 304, with Stainless Steel Basket.
RADIAL LOCKING SYSTEM (chrome plated) and paddle lifting, with water level arrangement.
Lid made of Stainless Steel 304 plate.
Provided with built - in safety valve, pressure gauge, pressure release valve.
With Automatic Pressure switch, pressure is adjustable from 5 to 20 psi \pm 1 psi.
Suitable to operate on 220V, single phase AC supply.

INNER SIZE :

E.B)NN*	361	411	461	561	661
EFQUI)NN*	561	611	661	711	861



MODEL : MA-10D

AUTOCLAVE (TRIPPLE WALLED) / DRY STEAM STERILIZER

MODEL : MA - 10T

TECHNICAL SPECIFICATIONS

Triple wall construction, all three wall inner, jacket, outer are made of stainless steel 304, with S.S Basket.
RADIAL LOCKING SYSTEM (chrome plated) and paddle lifting, with water level arrangement.
Lid made of Stainless Steel Plate 304.
Provided with built - in safety valve, pressure gauge, pressure release valve.
With Automatic Pressure switch, pressure is adjustable form 5 to 20 psi \pm 1 psi.
Suitable to operated on 220v, single phase AC supply.

OPTIONAL : for MA-10D / MA-10T

Automatic Low water Level cut off
Digital Automatic Temp. Controller with Timer
(to sterilize the samples for set time after sterilization Temp. is achieved)

INNER SIZE :

E.B)NN*	361	411	461	561	661
EFQUI)NN*	561	611	661	711	861



MODEL : MA-10T

FULLY AUTOMATIC DELUXE AUTOCLAVE (VERTICAL)

MODEL : MA - 10FA

TECHNICAL SPECIFICATIONS

Sturdy double walled construction with boiler/inner chamber made of stainless steel 304 sheet. Outer shell is made of Stainless steel duly polished. Lid is made of Stainless steel plate 304 and is tightened by radial locking system (chrome plated) with paddle lifting. Moulded, joint less gaskets are made of Neoprene rubber. Fitted with Microprocessor based temp. Controller having 16 x 2 Character LCD display which enables automatic purging of cold air, sterilizing hold time and cycle end with automatic exhaust of pressure. All steps are user settable. The cycle is completed without any human intervention.
Autoclaves are fitted with water level arrangements to indicate water position inside the boiler, pressure gauge, Air/steam release cock, vacuum breaker, drain valve, solenoid valve, spring loaded safety valve, Automatic Pressure switch, low water level cut off and drain. Supplied complete with S.S. basket, cord and plug to work on 220 Volts, 50 cycles AC supply.

INNER SIZE :

E.B)NN*	361	411	461	561	661
EFQUI)NN*	561	611	661	711	861



MODEL : MA-10FA

HIGH PRESSURE HORIZONTAL STERILIZER / AUTOCLAVE



MODEL : MA - 10H

TECHNICAL SPECIFICATIONS

Construction : Triple walled with steam jacket and separate boiler.

Inner chamber and steam jacket are made up of Heavy gauge S.S. 304 Sheet with leak proof argon-arc welding. The sterilizer has single piece S.S 304 Door. All the sterilizers are hydraulically tested to withstand 2.5 times the working pressure. Mounted on tubular steel frame with ground leveling screwed flanges. The Outer jacket is wrapped with asbestos sheet or glass wool to minimize the heat losses and is covered by polished Stainless steel sheet for that elegant appearance.

Steam Generator : Made of heavy Stainless Steel 304. Heavy ring mounted in front of the boiler with water gauge glass for water level indication Fitted with flange type S.S heating elements and low water level cutoff device Fitted with water inlet and outlet valves.

Pressure Control : The "PIEZOSTAT" (Pressure Control device) is incorporated in all electrically operated sterilizer. It economizes on power consumption and reduces the frequent opening of the steam release

Heating Elements : Flanged type, immersion heating elements are made of high grade material.

Safety Door : Sterilizer has hinged radial-locking door and cannot be opened when under pressure.

Single Point Control : Complete sterilizing cycle is controlled from one point with the help of "Multiport Valve" fitted at front top. Two speeds of steam exhaust are available; fast and slow. Easily readable jacket and chamber pressure on gauges mounted on the multi port valve. A moisture trap is fitted in the chamber discharge line to absorb the condensate automatically to prevent moistening of the subject matter to be sterilized.

OTHER FEATURES :

- Triple Safety : the Sterilizer is provided with the triple safety features. At the boiler level by a PIEZOSTAT which automatically limits the pressure to the required set value and a spring loaded safety valve in case of its failure which releases the steam to keep pressure within the safety limits. At the chamber level, a spring loaded safety valve to release the steam in case the pressure exceeds the safety limit. All these safety features function independent of one another and sequentially i.e. one takes over the charge in case of other's failure.
- A plug screen prevents the discharge line from choking. The plug is easily removable for daily cleaning.
- A Dial thermometer / Digital Temp. Indicator is provided to show the chamber temperature.
- Vacuum breaker is provided to break vacuum in case of formation of vacuum due to steam Condensation.

OPERATING TEMPERATURE :

Sterilizing temp. : 121°C / 134°C
 Sterilizing Pressure : 1.2 to 1.5 kg / cm² (15psi to 22psi)
 Power Requirement : Suitable to operate on 415 V volts. 3ph, 50Hz, AC supply.



MODEL : MA-10H

FULLY AUTOMATIC HORIZONTAL STERILIZER / AUTOCLAVE

MODEL : MA - 10H (FA)

TECHNICAL SPECIFICATIONS

The construction of Autoclave is similar to Horizontal model Autoclaves (MA-10H), BUT FITTED WITH Microprocessor based temp. controller which enables automatic purging of cold air, sterilizing hold time and cycle end with automatic exhaust of pressure. All steps are user settable. The cycle is completed without any human intervention. Also fitted with low water level arrangement, solenoid valves and other accessories as standard feature. Suitable to operate on 415V, 3phase AC supply.

RECTANGULAR HORIZONTAL STERILIZER

CAPACITY	LENGTH (mm)	HEIGHT (mm)	DEPTH (mm)
291lms/	561	561	: 11
336lms/	611	611	: 11
411lms/	611	611	2311
651lms/	771	771	2361
: 83lms/	: 11	: 11	2311
2326lms/	: 11	: 11	2611

CYLINDRICAL HORIZONTAL STERILIZER

CAPACITY	DIA (mm)	DEPTH (mm)
86lms/	511	711
261lms/	511	2211
286lms/	611	: 11
291lms/	661	861
351lms/	611	2311
396lms/	661	2311



MODEL : MA-10H (FA)

OPTIONAL ATTACHMENT AT EXTRA COST :

1. SS 316/304 Loading / Unloading Trolley Carriage.
2. Steel (Power Coated) Tubular Transfer trolley for carriage.
3. Double Door System.
4. Chamber Inside, Outside, Jacket & Door of Stainless Steel 316 instead 304.
5. Water Ring Vacuum Pump to create vacuum of 24 inch Hg (at30°C).
6. High pressure feed water pump, for automatic filling of water into steam generator under pressure.

ADVANCE -SERIES

HIGH PRESSURE HORIZONTAL STERILIZER / AUTOCLAVE (ADVANCE)



An ISO 9001-2015 Certified Company

MODEL : MA-10HR (ADVANCE) / MA-10H (ADVANCE)

TECHNICAL SPECIFICATIONS

Robust and rigid construction designed for all type of bulk sterilization which are commonly needed in Medical, Agricultural and Pharmaceutical Institutions.

CONSTRUCTION : Triple walled with steam jacket and Separate boiler. Inner chamber and steam jacketed are made up of Heavy gauge S.S 304 with leak proof argon-arc welding.

All the sterilizers are hydraulically tested to withstand 2.5 time the working pressure. Mounted on tubular steel frame with ground leveling screwed flanges.

The Outer jacket is wrapped with asbestos sheet or glass wool and is covered by polished Stainless Steel 304.

STEAM GENERATOR : Made of heavy Stainless 304 with gauge. Glass for water level indication. Fitted with flange type S.S. heating elements and Automatic low water level cutoff device of protect the former from burning out dry.

PRESSURE CONTROL : The "PIEZOSTAT" (Pressure Control Device) economize on power consumption and reduces. The frequent opening of the steam release valve.

HEATING ELEMENTS : Flanged type, immersion heating elements are made of high grade material.

SAFETY DOOR : The sterilizer has single piece S.S. 304 Door :

Sterilizer hinged radial-locking door and cannot be opened when under pressure.

PROCESS CONTROL : Microprocessor with HMI facility with datalogger with display of chamber temperature, cycle, low water level. Recording facility with date, temp. time, batch no., cycle no., alarm indicator. Complete automatic cycle without any human intervention. The data can be retrieved in PEN Drive and viewed on PC and print out can be taken on printer.

Complete sterilizing cycle is controlled automatically.

Easily readable jacket and chamber pressure on gauges.

A moisture trap is fitted in the chamber discharge line to absorb the condensate automatically to prevent moistening the subject matter to be sterilized.

OTHER FEATURES :

- Triple Safety : the Sterilizer is provided with the triple safety features. At the boiler level by a PIEZOSTAT which automatically limits the pressure to the required set value and a spring loaded safety valve in case of its failure which releases the steam to keep pressure within the safety limits. At the chamber level, a spring loaded safety valve to release the steam in case the pressure exceeds the safety limit. All these safety features function independent of one another and sequentially i.e. one takes over the charge in case of other's failure.
- A plug screen prevents the discharge line from choking. The plug is easily removable for daily cleaning.
- A Dial thermometer / Digital Temp. Indicator is provided to show the chamber temperature.
- Vacuum breaker is provided to break vacuum in case of formation of vacuum due to steam Condensation.

OPERATING TEMPERATURE :

Sterilizing temp. : 121°C / 134°C

Sterilizing Pressure : 1.2 to 1.5 kg / cm² (15psi to 22psi)

Power Requirement : Suitable to operate on 415 V volts. 3ph, 50Hz, AC supply.

RECTANGULAR HORIZONTAL STERILIZER

CAPACITY	LENGTH (mm)	HEIGHT (mm)	DEPTH (mm)
291 ltrs/	561	561	: 11
336 ltrs/	611	611	: 11
411 ltrs/	611	611	2311
651 ltrs/	771	771	2361
: 83 ltrs/	: 11	: 11	2311
2326 ltrs/	: 11	: 11	2611

OPTIONAL ATTACHMENT AT EXTRA COST :

1. SS 316/304 Loading / Unloading Trolley Carriage.
2. Steel (Power Coated) Tubular Transfer trolley for carriage.
3. Double Door System.

CYLINDRICAL HORIZONTAL STERILIZER

CAPACITY	DIA (mm)	DEPTH (mm)
86 ltrs/	511	711
261 ltrs/	511	2211
286 ltrs/	611	: 11
291 ltrs/	661	861
351 ltrs/	611	2311
396 ltrs/	661	2311

4. Chamber Inside, Outside, Jacket & Door of Stainless Steel 316 instead 304.
5. Water Ring Vacuum Pump to create vacuum of 24 inch Hg (at 30°C).
6. High pressure feed water pump, for automatic filling of water into steam generator under pressure.



PROGRAMMABLE SPIN COATING UNIT



An ISO 9001-2015 Certified Company

MODEL : MSCU - 10P

TECHNICAL SPECIFICATIONS

- Stainless Steel Working Chamber (removable), size 6 inch dia, with transparent photo resist lid with interlock safety switch.
- Speed : 500 - 8000 RPM (Optional : upto 10000 RPM)
- Accuracy $< \pm 0.5\%$ of Full Speed
- Microprocessor Programmable Speed control with respect to time.
- Pre set editable program of 16 step per program with maximum of 4 programs.
- Real time display of RPM, time and program steps.
- Nonvolatile program memory.
- Input & control through soft touch key pad.
- Solenoid Vacuum release switch
- Vacuum chuck : Derlin made circular substrate holders of Dia 0.5", 1.0", 1.5", 2.0".
- Microprocessor control AC brush less motor.
- Acceleration 2000 rpm/sec. or more user settable.
- Calibration option.
- Vacuum Dial gauge.
- Frame : Epoxy coated MS and Aluminium.
- Facility for interlocking with Vacuum Pump.
- Tubing for Vacuum.
- Gas Purging attachment for Nitrogen.
- Spill drainage facility.
- To operate on $230V \pm 10\%$, 1 phase 50Hz AC only.
- Maximum Power 200W, Current 1.5 Amp.
- Vacuum Pump : Oil Free Diaphragm Type Vacuum Pump.



MODEL : MSC-10P

SPIN COATING UNIT

MODEL : MSCU - 10

TECHNICAL SPECIFICATIONS

- Stainless Steel Working Chamber (removable), size 6 inch dia, with transparent photo resist lid with interlock safety switch.
- Speed : 500-8000 RPM. (Optional : upto 10000 RPM)
- Microprocessor Speed Control.
- Digital Speed Indicator.
- Vacuum Dial Gauge.
- Solenoid Vacuum Release Switch.
- Digital Timer 1 to 999 sec.
- Vacuum chuck : Derlin made circular substrate holders of Dia 0.5", 1", 1.5" & 2.0".
- Lid cover of acrylic with interlock safety switch
- Frame : Epoxy coated MS and Aluminium
- Facility for interlocking with Vacuum Pump.
- Tubing for Vacuum.
- Gas Purging Attachment..
- To operate on $230V \pm 10\%$, 1 phase 50HZ AC only.
- Vacuum Pump : Oil Free Diaphragm Type Vacuum Pump.



MODEL : MSC-10

DIGITAL MELTING POINT APPRATUS

MODEL : MT - 115

TECHNICAL SPECIFICATIONS

Digital Melting Point Apparatus with in built Silicon Oil Bath and Stirrer adjustable heating rate and stirrer speed. Range upto 275°C with readability of 1°C



MODEL : MT-115

SIEVE SHAKERS

MODEL : MRT - 900 / MGS - 80

TECHNICAL SPECIFICATIONS

MODEL	MRT - 900	MGS - 80
TYPE	SP1.1UBQ	H zsbup sz
MOTION	Djsdvrb's! !Ubqqjoh!bdjpo	Wjcsbjpoc zlf ddf oujdldbn !' !t qsjoh t
MOUNTING	Gpps!)l f bwz!Evuz*	Gpps!dCf odi !Upq!)Mhi dEvuz*
MOTOR	* !! Q!BD-!Tjohrh!Qi bt f	* !! Q!BD-!Tjohrh!Qi bt f
SPEED	Gy!Tqf f e	Gy!Tqf f e
SIEVES	31!dn !Ejb/ly!7!op/	31!dn !Ejb/ly!7!op/
TIMER	1!.!71!n jo!n f di bojdbtrUjn f s	1!.!71!n jo!n f di bojdbtrUjn f s

ACCESSORIES : T.FWFT!n bef !jollpouht t!c sbt t!gbn f !pg31!dn !y!6!dn !Ejb/ly!l f jhi d!gs
ejgg sf odu f ti !t j!f t-lbt lqf s!JT!dCTT!dBTUN!t uboebset /

FLUCCOLATOR (JAR TEST APPARATUS)

MODEL : MFJ - 6 / MFJ - 4

TECHNICAL SPECIFICATIONS

Fluclulator (jar Test Apparatus) for Four / Six Jars of 1 ltr. Capacity, Provided with speed control from 20 to 120 RPM \pm 10 RPM, stirrer are driven by PMDC motor V-belt & pulley drive. Entire unit is mounted on angle iron frame, with side support rods. Stainless Steel rods with lifting knobs & Stirring Paddle. Paddle can disengaged individually without interruption of other stirrer, spacing between rods permit use of 1000ml. Glass Breakers, rest directly on illuminated white acrylic sheet. With Digital speed indicator. Suitable for 220 Volts, 50cy AC only (without Beaker)

TECHNICAL DATA

MODEL	CAPACITY	SPEED
MFJ - 6	7ly!2111 !n m	31!.!231!SQN !_!21!SQN
MFJ - 4	5ly!2111 !n m	31!.!231!SQN !_!21!SQN

HYDRAULIC PRESS (HAND OPERATED)

MODEL : MHP - 12

TECHNICAL SPECIFICATIONS

Compact Laboratory Hydraulic Press Capable of Producing force about 12 Ton, Hand-Operated commonly used for making Pellets with Pressure Gauge and lever **WITHOUT DIE**.

BALL MILL

MODEL : MLB - 181

TECHNICAL SPECIFICATIONS

Laboratory Ball Mill for mixing and grinding electrically operated having capacity from few gm. To ½ Kg. fitted with variable speed DC gear motor with the maximum 100 RPM. The jar is made of Stainless 304 and having S.S. 304 ribs easily removable for cleaning with Stainless Steel balls of dia 10mm to be put in the jar for mixing and grinding powders. Jar is interchangeable and easily removable light in weight and compact unit to operate on 220 volts 50cy Ac only.

WILLY MILL

MODEL : MLB-179 A/B/C

TECHNICAL SPECIFICATIONS

Two stationary blades and rotor with four cutting edges, which revolves high speed to produce a shearing action which minimizes loss of moisture due to heat.

- A) Small with ¼ HP Motor
- B) Medium with ½ HP Motor
- C) Large with 1 HP Motor
With 20, 40, 60 mesh sieve.



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MODEL : MRT-900



MODEL : MGS-80



MODEL : MFJ-6



MODEL : MHP-12



MODEL : MLB-181



MODEL : MDB-179B

OVEN UNIVERSAL (MEMMERT TYPE)



An ISO 9001-2015 Certified Company

MODEL : MOU - 250-D / 300-D

Temperature is controlled by PID Digital Temperature Controller from $RT+5^{\circ}C$ to $250^{\circ}C \pm 1^{\circ}C$. Beaded Heating Elements are placed in ribs at the bottom and sides with air circulating fan. Double walled, inside made of Stainless Steel 304 & outer body of Mild steel sheet finished with attractive powder coating paint with S.S. wire mesh nickel plated trays. To work on 220/230 Volts A.C.

Inner Chamber Size

W	x	H	x	D	Trays	
411	!	y!	411	!	n n	3
466	!	y!	466	!	n n	3
566	!	y!	566	!	n n	3

W	x	H	x	D	Trays
566	!	716	!	566	n n 3
716	!	211	!	566	n n 4
716	!	211	!	716	n n 4



MODEL : MOU-250

INCUBATOR

MODEL : MI - 70

Temperature is controlled by PID Digital Temperature Controller from $RT+5^{\circ}C$ to $70^{\circ}C \pm 0.5^{\circ}C$. Beaded Heating Elements are placed in ribs at the bottom and sides. Double walled, inside Stainless Steel 304 and outside sheet mild steel finished with attractive powder coated paint. Door has double glass viewing window, with air circulating fan. S.S. wire mesh nickel plated trays. To work on 220/230 Volts A.C.

Inner Chamber Size

W	x	H	x	D	Trays	
411	mm	411	mm	411	mm	3
466	mm	466	mm	466	mm	3
566	mm	566	mm	566	mm	3

W	x	H	x	D	Trays
566	!	716	!	566	n n 3
716	!	211	!	566	n n 4
716	!	211	!	716	n n 4



MODEL : MI-70

WATER BATH (SEROLOGICAL)

MODEL : MSB-40

Complete inner chamber made of HIGHLY POLISHED STAINLESS STEEL 304. Outer Chamber is made of Mild Steel Sheet, finished with powder coated paint. Gap between the walls is filled with special grade glass wool. Pyramidal shaped cover (Stainless Steel) and perforated removable diffuser are standard accessories.

Temperature is controlled by PID Digital Temperature Controller from ambient to $90^{\circ}C \pm 0.5^{\circ}C$

Suitable to operate on 220v, single phase, 50Hz AC Supply. (without racks)

Inner Chamber Size

W	x	H	x	D	Racks	
411	mm	361	mm	286	mm	3
436	mm	411	mm	286	mm	5

W	x	H	x	D	Racks
566	y!	411	y!	286n n	7
711	y!	411	y!	286n n	9

OPTIONAL :

i) High speed stirrer with stainless steel stirring rod and speed regulator.



MODEL : MSB-40

RECTANGULAR WATER BATH

MODEL : MWB - 30

Double walled chamber made of Stainless Steel 304 and outer wall made of thick mild steel sheet duly finished in attractive powder coating paint. The gap between outer and inner walls is filled with special grade glass wool insulation. The concentric rings are of S.S. 304. The temp. is controlled by PID Digital Temperature Controller from $5^{\circ}C$ above room temp. to $90^{\circ}C \pm 0.5^{\circ}C$. Suitable to operate on 220V, 1ph, 50 Hz, AC supply.

Size of the chamber

W	x	H	x	D	
411	mm	361	mm	211	mm
411	mm	361	mm	211	mm

W	x	H	x	D																			
461	!	511	!	211	!	n	n	x	ju	!	23	!	i	pr	nt	!	pg	86	n	n	!	ej	b



MODEL : MWB-30

DRY BATH INCUBATOR

MODEL : MDB - 70

24 Holes for 12mm tubes, temp. $\pm 5^{\circ}C$ above ambient to $70^{\circ}C$. Maximum heating power 125W, Temperature Controller PID, Timer 1 min to 99 minutes, LCD Display for time & temperature, Anodized Aluminum block. 220V AC Supply. Available with Buzzer alarm & Overheat protection.



MODEL : MDB-70

ICE FLAKING MACHINE



An ISO 9001-2015 Certified Company

MODEL : MIF

SALIENT FEATURES

- Fully Automatic microprocessor control
- Stainless Steel construction
- Continuous Ice Flakes Output
- CFC free compressor
- Low water level indication
- Overload protection
- Noiseless operation
- Compact Design and low maintenance

TECHNICAL SPECIFICATIONS

MODEL	MIF - 30	MIF - 50	MIF - 100
Dbqbdjuz!pgubf!gbl joh!)l h!qf sl35!i st/*	41!! h	61!! h	211!! h
T upsbhf !Dbqbdjuz!)l h!j !bqq/*	8!! h	21!! h	31!! h
T upsbhf !cjo	BCT!Qbt yd		
Dppjrh!Nf u pe	Bjs		
Bn c!f ou! n qf sbw!f	Cf rpx !41'D!gslpqyn vn !x ps! joh		
Dpot u!cljpo	T ubjorft t !T u f m		
Opjt f !rhv! m	=63eC		
X bu slTvqqre	4!05!jodi !CTQ		
Sf g!hf sbou	S245B		
!bqv!Qpx f s	291X	391X	531X
Qpx f slTvqqre	BD!331W061!! {		
Ejn f ot jpo!My!X !y!! !n n *	411y5: 4y658	491!y!654!y!833	659y722y994
Hsptt !X f jhi u	47! h	56!! h	75! h



MODEL : MIF-100

BOMB CALORIMETER (DIGITAL)

MODEL : MBC - 30

'METREX' Bomb Calorimeter provides a simple and inexpensive method for determination of heat of combustion of organic matter and the calorific value & sulphur content of solid & liquid fuel. The outfit supplied is complete for analysis as per the method recommended by British Standard Institution BS 1016.

TESTING OF BOMB

In accordance with the requirement of the Institute of Petroleum, a works certificate is issued with each Bomb. This certificate gives the results of hydraulic testing under a pressure of 300 atmospheres (4400 psi) maintained for a period of ten minutes without any sign of leakage.

CALORIMETER VESSEL

The vessel is made up of copper and is Chromium plated or S.S. It includes a Bomb support.

WATER JACKET

The outer container of Jacket is made up of Stainless Steel. The top is closed by the backelite cover called combined lid.

OFFSET STIRRER

The stirring mechanism supplied gives sufficient turbulence for effective stirring. It consists of an impeller stirrer driven at a constant speed of approximately 800 rpm.

ELECTRONIC FIRING UNIT WITH DIGITAL BECKMANN THERMOMETER

The unit incorporates a digital beckmann thermometer for the precise measurement of the rise in temperature and electronic circuitry that provides the electrical means for firing the samples.

CRUCIBLE : A Stainless Steel crucible of 8 ml. capacity which fits in the standard supporting ring provided with the outfit.



MODEL : MBC-30

AUTOMATIC BOMB CALORIMETER

MODEL : MBC - 30A

SAME AS MBC-30, BUT WITH MICROPROCESSOR AUTOMATIC FIRING & CONTROL UNIT

- 128x64 graphical LCD Display
- 20 Keys Keypad
- Temperature Resolution : 0.01°C
- 1000 logs internal memory with date and time
- In built Thermal Printer for printout
- USB interface for sending data to PC.
- Real time clock with battery backup.
- Automatic measurement & mathematical calculation of calorific value & water equivalent.



KJELDAHL DIGESTION UNIT

MODEL : MMK - 193

TECHNICAL SPECIFICATIONS

This apparatus is used for estimation of Nitrogen content in the Substance by digestion in flask of capacity 500ml. Without glass parts and Clamps . Unit of 6 Test Mantle with 6 energy Regulators



MODEL : MMK-193

KJELDAHL DISTILLATION UNIT

MODEL : MKA - 191

TECHNICAL SPECIFICATIONS

This is useful for distillation purpose for 500 ml. Flasks (Without glass parts & clamps) Unit of 3/6 Test Mantle Type with 3/6 Energy Regulators



MODEL : MKA-191

COLONY COUNTER

MODEL : MCC - 4

TECHNICAL SPECIFICATIONS

A 100 mm dia lens covers the entire illumination field and its magnifications assure highly accurate results. Maximum colony count possible up to 9999, LED display with touch marking pencil.



MODEL : MCC-4

CONDUCTIVITY METER

MODEL : MCM - 10

3½ digit LED display with facility for automatic temp. compensation & digital cell constant. Along with cond. Cell & temperature probe (Table Model)



MODEL : MCM-10

POTENTIOMETER

MODEL : MT - 32

Digital Potentiometer for Redox Potential Measurement. 3½ digit LED Display, Range 0 to ± 1999 mv. Resolutions 1 mv Accuracy $\pm 1\%$, power supply 230V $\pm 10\%$ AC.



MODEL : MT-32

DIGITAL PH METER

MODEL : MPM - 20

Ph	:	0-14.00 pH
Resolution	:	0.01 pH
Temp. Compensation	:	Manual/Auto



MODEL : MPM-20

INFRARED MOISTURE BALANCE

MODEL : MIR - 1

TECHNICAL SPECIFICATIONS

Infra red Moisture Balance is used for determination of the moisture contents of materials which do not undergo chemical changes when exposed to infrared radiation.

The instrument consists of a 250 watts infra red lamp, a sensitive torsion balance and Electronic Regulator/Transformer heat control device all housed in a compact cabinet. The instrument is directly calibrated in percentage of moisture between 0% and 100%. Capacity : 5 / 10 / 20gm.



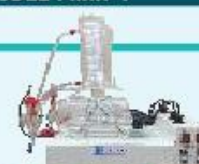
MODEL : MIR-1

ALL GLASS DOUBLE DISTILLATION UNIT (HORIZONTAL / VERTICAL)

MODEL : MHDU - 3 / MVDU - 1

TECHNICAL SPECIFICATIONS

Horizontal Model	Vertical Model
3.5 ltr. per hr. with electronic low water level cut off.	1.5 ltr. per hr. with electronic low water level cut off.



MODEL : MHDU-3