



HEATING COOLING CIRCULATORS

About **AMAR**

Serving the industry since 1974.

New 50000 sqft state-of-the-art manufacturing facility

Largest manufacturer of heating cooling circulators in India.

Inline with government's MAKE IN INDIA campaign.

An ISO 9001-2015 certified company.

Unmatched quality & safety standards

Manufacturing on CNC/VMC & automated machines

Prompt & efficient after sales service

Highly skilled & trained team of more than 200 personal

Single fluid closed loop system from -90°C to $+250^{\circ}\text{C}$

Heating bath circulators from ambient to $+200^{\circ}\text{C}$

Heating cooling bath circulators from -70°C to $+175^{\circ}\text{C}$

High temperature circulators from ambient to $+350^{\circ}\text{C}$

Chillers up to -30°C



SALIENT FEATURES

- High performance & energy efficient systems.
- Available for reactor volumes from 10 ml to 3000 ltr.
- Powerful pump for heat transfer fluid circulation.
- High pressure booster pump for flow reactors.
- Custom made systems for specific applications.
- Accurate & precise temperature control.
- Touch screen models.
- Eco-friendly & compact systems.
- Ex-proof systems for hazardous area.

APPLICATIONS

- Metal, GLR & Glass jacketed reactors (10 ml to 3000 ltr).
- High pressure autoclaves (100 ml to 2000 ltr).
- Micro & flow reactors.
- Rotary evaporators.
- Heat exchangers.
- Supercritical fluid extraction systems.
- Any other heat transfer applications.

In R&D centres, pilot plants & manufacturing facilities of fine & specialty chemicals, bulk drug pharmaceuticals, dyes, intermediates, paints, oils, agrochemical, oil & gas etc. industries.

SINGLE FLUID CLOSED LOOP SYSTEM



SALIENT FEATURES

- Temperature range: -90°C to +250°C
- Temperature controller type: PID cascade control
- Temperature display: Touch screen TFT display (7")
- Temperature control type: Jacket & / or process temperature control selectable
- Display resolution: 0.01°C
- Temperature sensors: RTD PT 100
- Temperature control accuracy: $\pm 0.5^\circ\text{C}$
- Heating: Electrical heating
- Cooling: Refrigeration system (CFC free refrigerants)
- Complete SS-304 Construction
- RS 485 communication port with SCADA software
- Multistep ramp soak programmable controller
- Data logging / recording optional
- Mounting on suitable caster wheels
- Suitable chillers for water cooled machines

STANDARD SAFETY FEATURES

- System over temperature cut-off: Independent
- Compressor over pressure cut-off
- Heater, pump & compressor overload cut-off
- Compressor over temperature cut-off
- Safety interlock pump no flow
- Compressor oil pressure difference cut-off

CLM SERIES (-90°C TO +200°C) - FOR LAB APPLICATIONS

Model	Temperature Range °C	Heating KW	Cooling power kW			Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
			0°C	-20°C	-30°C				
CLM-1	-30 to +200	1.5	0.6	0.3	0.1	18~20	0.4	475 x 400 x 800	M.24 Male
CLM-2	-35 to +200	2.5	0.8	0.5	0.25	30~35	0.4	420 x 520 x 875	M.24 Male
CLM-3	-35 to +200	3.6	1.2	0.7	0.3	30~35	0.4	450 x 600 x 900	M.24 Male
CLM-4W	-35 to +200	4.5	2.5	1.3	0.6	40~45	0.7	540 x 650 x 1250	M.42 Male
			0°C	-40°C	-60°C				
CLL-1	-75 to +180	1.5	0.6	0.6	0.3	30~35	0.4	600 x 650 x 1400	M.24 Male
CLL-2	-75 to +180	3	1.5	1.4	1.2	30~35	0.4	600 x 650 x 1400	M.24 Male
CLL-3W	-75 to +180	4.5	2.2	2.0	1.4	40~45	0.7	700 x 750 x 1500	M.42 Male
CLL-4W	-90 to +180	4.5	2.2	2.0	1.4	40~45	0.7	700 x 750 x 1500	M.42 Male

Note:

- The given cooling power is at 30°C ambient temperature. Increase in ambient temperature will affect performance of machine
- Suffix "W" in model is for water cooled machines
- The temperature range mentioned above is at outlet of the machine hence temperature inside the process / load may vary due to various factors like process design, distance, head, insulation etc.
- *Pump flow rates are at atmospheric pressure
- Since development is continuous process, the above specifications are subjected to change without prior notice.



SINGLE FLUID CLOSED LOOP SYSTEM



CPM SERIES (-60°C TO +200°C) - FOR PILOT APPLICATIONS

Model	Temperature Range °C	Heating KW	Cooling power kW			Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
			0°C	-20°C	-30°C				
CPM-1W	-35 to +200	6	4	2.2	1.3	50~55	1.0	560 x 650 x 1300	M.42 Male
CPM-2W	-35 to +200	9	7	3.5	1.8	50~55	1.0	600 x 690 x 1300	M.42 Male
CPM-3W	-30 to +200	12	12	6	3	80~90	1.5	700 x 750 x 1500	M.42 Male
CPM-4W	-30 to +200	18	15	7	3.5	80~90	1.5	750 x 790 x 1500	M.42 Male
			0°C	-40°C	-60°C				
CPL-1W	-60 to +200	6	6.5	3.2	1	50~55	1.0	750 x 790 x 1500	M.42 Male
CPL-2W	-60 to +200	9	12	6	1.5	80~90	1.5	750 x 790 x 1500	M.42 Male

CIM SERIES (-30°C TO +170°C) - FOR INDUSTRIAL APPLICATIONS

Model	Temperature Range °C	Heating KW	Cooling power kW			Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
			0°C	-20°C	-30°C				
CIM-1W	-30 to +170	21	25	11	8	100	1.5	1200x950x1600	M.42 Male
CIM-2W	-30 to +170	33	45	21	12	120	2	1400x950x1800	M.42 Male
CIM-3W	-30 to +170	45	70	30	17	120	2	1800x1000x1600	M.42 Male
CIM-4W	-30 to +170	66	90	45	24	120	2	2000x1200x2000	M.42 Male

Note:

- Suffix "W" in model is for water cooled machine
- The given cooling power is at 35°C ambient temperature. Increase in ambient temperature will affect performance of machine
- The temperature range mentioned above is at outlet of the machine hence temperature inside the process / load may vary due to various factors like process design, distance, head, insulation etc.
- *Pump flow rates are at atmospheric pressure
- Custom built models on request for larger capacity
- Since development is continuous process, the above specifications are subjected to change without prior notice.

HEAT TRANSFER FLUIDS

HTF Grade	Working temp. range
D12	-60 to +200°C
XLT	-80 to +180°C

HEATING BATH CIRCULATORS



STANDARD FEATURES

- Temperature range: ambient to +350°C
- Temperature controller type: PID
- External load and bath temperature controller
- Display resolution: 0.1°C
- Temperature sensors: RTD PT 100
- Temperature control accuracy: $\pm 0.5^\circ\text{C}$
- Heating: Electrical heating
- Cooling: Through internal cooling coil
- Complete SS-304 construction
- RS 485 communication port with SCADA software
- Multistep ramp soak programmable controller
- Optional: N₂ purging facility to prevent fuming
- Mounting on suitable caster wheels



Touch control panel
for HTC series



Flame proof control panel
for HTC series

HB SERIES (AMBIENT TO 200°C) - HEATING BATH

Model	Temperature Range	Heating kW	Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
HB-1	Amb. to +200	1	14~16	0.4	300 x 500 x 450	M.16 Male
HB-2	Amb. to +200	2	14~16	0.4	430 x 560 x 550	M.16 Male
HB-3	Amb. to +200	3	30~35	0.7	510 x 620 x 600	M.24 Male

HTC SERIES (AMBIENT TO 350°C) - HIGH TEMPERATURE CIRCULATOR

Model	Temperature Range	Heating kW	Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
HTC-1	Amb. to +350	3	30~35	0.7	410 x 410 x 700	M.24 Male
HTC-2	Amb. to +350	6	30~35	0.7	600 x 600 x 900	M.24 Male
HTC-3	Amb. to +350	12	50~55	1	900 x 900 x 1100	M.42 Male

- Control panel dimensions: 300 x 300 x 300 mm

Note:

- The temperature range mentioned above is at outlet of the machine hence temperature inside the process / load may vary due to various factors like process design, distance, head, insulation etc.
- In HTC series, machines with higher heating capacity also available on request
- In HTC series, flame proof options are available on request
- *Pump flow rates are at atmospheric pressure
- Since development is continuous process, the above specifications are subjected to change without prior notice.

HEAT TRANSFER FLUIDS FOR HB SERIES

HTF Grade	Working temp. range
S 50	Amb. to +200°C

HEAT TRANSFER FLUIDS FOR HTC SERIES

HTF Grade	Working temp. range
T 55	Amb. to +320°C
T 66	Amb. to +350°C



HEATING COOLING BATH CIRCULATORS



STANDARD FEATURES

- Temperature range: -70°C to +175°C
- Temperature controller type: PID
- External load and bath temperature controller
- Display resolution: 0.1°C
- Temperature sensors: RTD PT 100
- Temperature control accuracy: $\pm 0.5^\circ\text{C}$
- Heating: Electrical heating
- Cooling: Refrigeration System (CFC free refrigerants)
- Complete SS-304 Construction
- RS 485 communication port with SCADA software
- Multistep ramp soak programmable controller
- N₂ purging facility to prevent fuming
- Mounting on suitable caster wheels

HCB SERIES (-25°C TO +175°C) - HEATING COOLING BATH

Model	Temperature Range °C	Heating KW	Cooling power kW			Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
			0°C	-20°C	-25°C				
HCB-1	-25 to +175	1	0.4	0.2	0.05	14~16	0.4	300 x 500 x 650	M.16 Male
HCB-2	-25 to +175	2	1.1	0.7	0.3	14~16	0.4	420 x 520 x 1000	M.16 Male
HCB-3	-25 to +175	3	1.5	1.0	0.45	30~35	0.7	510 x 620 x 1050	M.24 Male

HCL SERIES (-70°C TO +100°C) - HEATING COOLING CRYO BATH

Model	Temperature Range °C	Heating KW	Cooling power kW			Pump Flow Max (lpm)*	Max Pump Pressure (bar)	Dimensions mm (W x D x H)	End Connection
			-20°C	-40°C	-60°C				
HCL-1	-70 to +100	1	0.4	0.3	0.2	14~16	0.4	610 x 700 x 1150	M.16 Male
HCL-2	-70 to +100	2	1.1	0.8	0.4	14~16	0.4	610 x 700 x 1150	M.16 Male
HCL-3	-70 to +100	3	1.5	1.2	0.6	30~35	0.7	700 x 700 x 1300	M.24 Male

Note:

- The given cooling power is at 30°C ambient temperature. Increase in ambient temperature will affect performance of machine
- The temperature range mentioned above is at outlet of the machine hence temperature inside the process / load may vary due to various factors like process design, distance, head, insulation etc.
- *Pump flow rates are at atmospheric pressure
- Since development is continuous process, the above specifications are subjected to change without prior notice.

HEAT TRANSFER FLUIDS

HTF Grade	Working temp. range
S 5	-70 to +100°C
S 20	-25 to +175°C

CHILLERS FOR LABORATORY APPLICATIONS



CHL SERIES (AMBIENT TO -15°C)

Model	Temperature Range °C	Cooling power in kW @ (Bath Fluid IPA)		Pump Flow (lpm)*	Dimensions mm (W x D x H)	End Connection
		0°C	-10°C			
CHL-1	Ambient to -15	0.35	0.15	12~14	330 x 370 x 550	3/8" Hose Nipple
CHL-2	Ambient to -15	0.7	0.3	12~14	360 x 460 x 600	1/2" Hose Nipple
CHL-3	Ambient to -15	1.2	0.6	25~30	550 x 650 x 700	1/2" Hose Nipple
CHL-4	Ambient to -15	2.4	1.5	30~35	450 x 650 x 1150	3/4" Hose Nipple
CHL-5	Ambient to -15	4.5	2.5	30~35	700 x 700 x 1200	3/4" Hose Nipple
CHL-6	Ambient to -15	10	6	55~60	1300 x 800 x 1600	1" Hose Nipple
CHL-7	Ambient to -15	15	8	70 ~ 75	1500 x 950 x 1700	1" Hose Nipple
CHL-8	Ambient to -15	20	12	85~90	1650 x 1100 x 1600	1" Hose Nipple

Note:

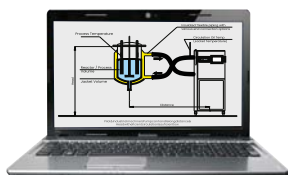
- The given cooling power is at 30°C ambient temperature. Increase in ambient temperature will affect performance of machine
- The temperature range mentioned above is at outlet of the machine hence temperature inside the process / load may vary due to various factors like process design, distance, head, insulation etc.
- *Pump flow rates are at atmospheric pressure
- Since development is continuous process, the above specifications are subjected to change without prior notice.

OPTIONAL ACCESSORIES

- Synthetic heat transfer fluid for wide temperature range (non toxic & non flammable)
- SCADA software for PC operated / programmable heating or cooling machines with online & historical data Logging.
- Flexible SS hose pipes with insulation for fluid circulation
- Purge panel for complete unit to use in Ex-proof area
- Flame proof panel for remote set point



(a)



(b)



(c)

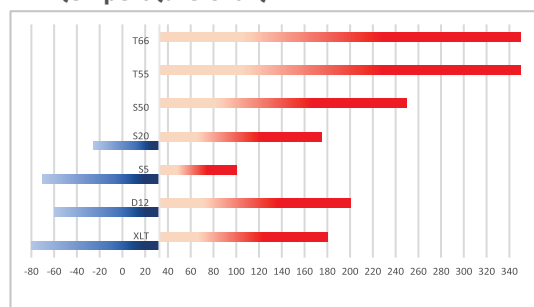


(d)



(e)

HTF temperature chart





APPLICATIONS USING VARIOUS MODELS

CLM for AMaR-3 &
AMaR-4P flow reactors



Heating cooling bath for high
pressure polystest reactor system



Heating cooling bath & chiller
for supercritical fluid circulation



Heating cooling bath
for microreactor



APPLICATIONS USING VARIOUS MODELS



CLM for AMaR-2
microreactor



Heating cooling bath
for microreactor



Heating cooling bath
for glass reactor



CLL-2 with 50 ltr reactor



Heating cooling bath
for flow reactor





SPECIFICATIONS FOR ALL MODELS

Model	Temperature range °C	Heating power in Kw	Cooling power in Kw @						Bath volume filling/total	Bath opening/depth mm		Display resolution	Temperature stability	Display type	Pump flow lpm	Maximum pressure bar	HTF end connection	Dimensions mm	Supply voltage	Maximum current	Machine version	Ambient temperature	Cooling water flow and pressure	
			Cooling power in Kw @							LxW/D														
			0°C	-20°C	-30°C	-40°C	-60°C																	
CLM-1	-30...+200	1.5	0.6	0.3	0.1	—	—	—	—	—	0.01	±0.5	Touch	18~20	0.3	M-24	475x400x800	1-ph 230 VAC	10A	Air cooled	10°C~35°C	—		
CLM-2	-35...+200	2.5	0.8	0.5	0.25	—	—	—	—	—	0.01	±0.5	Touch	30~35	0.4	M-24	420x520x875	3-ph 420 VAC	10A	Air cooled	10°C~35°C	—		
CLM-3	-35...+200	3.6	1.2	0.7	0.3	—	—	—	—	—	0.01	±0.5	Touch	30~35	0.4	M-24	450x600x900	3-ph 420 VAC	12A	Air cooled	10°C~35°C	—		
CLM-4	-35...+200	4.5	2.5	1.3	0.6	—	—	—	—	—	0.01	±0.5	Touch	40~45	0.7	M-42	540x650x1250	3-ph 420 VAC	15A	Air cooled	10°C~35°C	250 lph/3 bar		
CLL-1	-75...+180	1.5	0.6	0.6	0.6	0.6	0.3	—	—	—	0.01	±0.5	Touch	30~35	0.4	M-24	600x650x1400	3-ph 420 VAC	15A	Air cooled	10°C~35°C	—		
CLL-2	-75...+180	3	1.5	1.5	1.5	1.4	1.2	—	—	—	0.01	±0.5	Touch	30~35	0.4	M-24	600x650x1400	3-ph 420 VAC	18A	Air cooled	10°C~35°C	—		
CLL-3	-75...+180	4.5	2.2	2.2	2.1	2	1.4	—	—	—	0.01	±0.5	Touch	40~45	0.7	M-42	700x750x1500	3-ph 420 VAC	20A	Water cooled	10°C~35°C	250 lph/3 bar		
CLL-4	-90...+180	4.5	2.2	2.2	2.1	2	1.4	—	—	—	0.01	±0.5	Touch	40~45	0.7	M-42	700x750x1501	3-ph 420 VAC	20A	Water cooled	10°C~35°C	250 lph/3 bar		
CPM-1	-35...+200	6	4	2.2	1.3	—	—	—	—	—	0.01	±0.5	Touch	50~55	1	M-42	560x650x1300	3-ph 420 VAC	15A	Water cooled	10°C~35°C	400 lph/3 bar		
CPM-2	-35...+200	9	7	3.5	1.8	—	—	—	—	—	0.01	±0.5	Touch	50~55	1	M-42	600x690x1300	3-ph 420 VAC	35A	Water cooled	10°C~35°C	700 lph/3 bar		
CPM-3	-30...+200	12	12	6	3	—	—	—	—	—	0.01	±0.5	Touch	80~90	1.5	M-42	700x750x1500	3-ph 420 VAC	50A	Water cooled	10°C~35°C	1200 lph/3 bar		
CPM-4	-30...+200	18	15	7	3.5	—	—	—	—	—	0.01	±0.5	Touch	80~90	1.5	M-42	750x790x1500	3-ph 420 VAC	50A	Water cooled	10°C~35°C	1500 lph/3 bar		
CPL-1	-60...+200	6	6.5	6.5	6.5	3.2	1	—	—	—	0.01	±0.5	Touch	50~55	1	M-42	750x790x1500	3-ph 420 VAC	40A	Water cooled	10°C~35°C	650 lph/3 bar		
CPL-2	-60...+200	9	12	12	12	6	1.5	—	—	—	0.01	±0.5	Touch	80~90	1.5	M-42	750x790x1500	3-ph 420 VAC	50A	Water cooled	10°C~35°C	1200 lph/3 bar		
CIM-1	-30...+170	21	25	11	8	—	—	—	—	—	0.01	±1	Touch	100	1.5	M-42	1200x950x1600	3-ph 420 VAC	65A	Water cooled	10°C~35°C	2500 lph/3 bar		
CIM-2	-30...+170	33	45	21	12	—	—	—	—	—	0.01	±1	Touch	120	2	M-42	1400x950x1800	3-ph 420 VAC	75A	Water cooled	10°C~35°C	4500 lph/3 bar		
CIM-3	-30...+170	45	70	30	17	—	—	—	—	—	0.01	±1	Touch	120	2	M-42	1800x1000x1600	3-ph 420 VAC	95A	Water cooled	10°C~35°C	7000 lph/3 bar		
CIM-4	-30...+170	66	90	45	24	—	—	—	—	—	0.01	±1	Touch	120	2	M-42	2000x1200x2000	3-ph 420 VAC	110A	Water cooled	10°C~35°C	9000 lph/3 bar		
HCB-1	-25...+175	1	0.4	0.2	0.05	—	—	8/10	150x130/140	0.1	±0.5	LED/LCD	14~16	0.4	M-16	300x500x650	1-ph 230 VAC	8A	Water cooled	10°C~35°C	—	—		
HCB-2	-25...+175	2	1.1	0.7	0.3	—	—	12/16	155x100/150	0.1	±0.5	LED/LCD	14~16	0.4	M-16	420x560x1000	1-ph 230 VAC	12A	Air cooled	10°C~30°C	—	—		
HCB-3	-25...+175	3	1.5	1	0.45	—	—	21/27	200x140/170	0.1	±0.5	LED/LCD	30~35	0.7	M-24	510x620x1050	3-ph 420 VAC	8A	Air cooled	10°C~30°C	—	—		
HCL-1	-70...+100	1	—	0.4	—	0.3	0.2	8/10	150x130/140	0.1	±0.5	LED/LCD	14~16	0.4	M-16	610x700x1150	1-ph 230 VAC	15A	Air cooled	10°C~30°C	—	—		
HCL-2	-70...+100	2	—	1.1	—	0.8	0.4	12/16	155x100/150	0.1	±0.5	LED/LCD	14~16	0.4	M-16	610x700x1150	1-ph 230 VAC	20A	Air cooled	10°C~30°C	—	—		
HCL-3	-70...+100	3	—	1.5	—	1.4	0.6	21/27	200x140/170	0.1	±0.5	LED/LCD	30~35	0.7	M-24	700x700x1300	3-ph 420 VAC	15A	Air cooled	10°C~30°C	—	—		
HB-1	Amb...+200	1.5	Through internal cooling coil						8/10	120x140/150	0.1	±0.5	LED/LCD	14~16	0.4	M-16	300x500x450	1-ph 230 VAC	6A	—	10°C~30°C	—	—	
HB-2	Amb...+200	2	Through internal cooling coil						12/16	200x150/150	0.1	±0.5	LED/LCD	14~16	0.4	M-216	420x560x550	1-ph 230 VAC	10A	—	10°C~30°C	—	—	
HB-3	Amb...+200	3	Through internal cooling coil						21/27	200x150/170	0.1	±0.5	LED/LCD	30~35	0.7	M-24	510x620x600	3-ph 420 VAC	8A	—	10°C~30°C	—	—	
HTC-1	Amb...+350	3	Through internal cooling coil						—	—	0.1	±0.5	LED/LCD	30~35	0.7	M-24	410x410x700	1-ph 230 VAC	18A	—	10°C~30°C	—	—	
HTC-2	Amb...+350	6	Through internal cooling coil						—	—	0.1	±0.5	LED/LCD	30~35	0.7	M-24	600x600x900	3-ph 420 VAC	12A	—	10°C~30°C	—	—	
HTC-3	Amb...+350	12	Through internal cooling coil						—	—	0.1	±0.5	LED/LCD	50~55	1	M-42	900x900x1100	3-ph 420 VAC	22A	—	10°C~30°C	—	—	
			0°C -10°C																					
CHL-1	Amb...-15	—	0.35	0.15	—	—	—	—	—	—	0.1	±2	LED/LCD	12~14	0.3	M-24	330x370x550	1-ph 230 VAC	6A	Air cooled	10°C~30°C	—	—	
CHL-2	Amb...-15	—	0.7	0.3	—	—	—	—	—	—	0.1	±2	LED/LCD	12~14	0.3	M-24	360x460x600	1-ph 230 VAC	8A	Air cooled	10°C~30°C	—	—	
CHL-3	Amb...-15	—	1.2	0.6	—	—	—	—	—	—	0.1	±2	LED/LCD	25~30	0.5	M-24	550x650x700	1-ph 230 VAC	12A	Air cooled	10°C~30°C	—	—	
CHL-4	Amb...-15	—	2.4	1.5	—	—	—	—	—	—	0.1	±2	LED/LCD	30~35	0.6	M-24	450x650x1150	3-ph 420 VAC	6A	Air cooled	10°C~30°C	—	—	
CHL-5	Amb...-15	—	4.5	2.5	—	—	—	—	—	—	0.1	±2	LED/LCD	30~35	0.6	M-24	700x700x1200	3-ph 420 VAC	8A	Air cooled	10°C~30°C	—	—	
CHL-6	Amb...-15	—	10	6	—	—	—	—	—	—	0.1	±2	LED/LCD	55~60	1	M-24	1300x800x1600	3-ph 420 VAC	25A	Air cooled	10°C~30°C	—	—	
CHL-7	Amb...-15	—	15	8	—	—	—	—	—	—	0.1	±2	LED/LCD	55~60	1	M-24	1500x950x1700	3-ph 420 VAC	32A	Air cooled	10°C~30°C	—	—	
CHL-8	Amb...-15	—	20	12	—	—	—	—	—	—	0.1	±2	LED/LCD	80~90	1.5	M-24	1650x1100x1600	3-ph 420 VAC	45A	Air cooled	10°C~30°C	—	—	

OUR VALUED CLIENTELE



Divis Laboratories Ltd.



GUJARAT FLUOROchemicals LIMITED



LARSEN & TOUBRO



MOMENTIVE performance materials

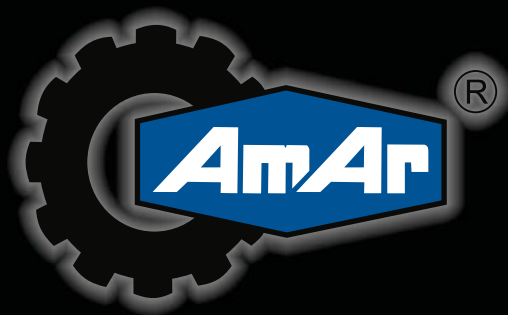


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