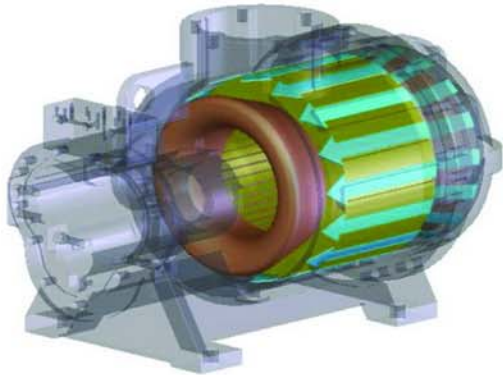


Design for low temperature application  
Screw compressor dedicated to  
R22, R404, R507

# Low Temperature Model LA Series Screw Compressor



# Highlights of LA Series Screw Compressor



## Wide Selection of Capacity

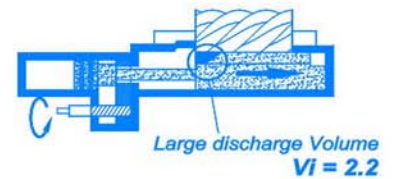
- 25 models with capacity densely covered between 25 and 500 USRT. More models establish a match between demand and supply of capacity.

## High-efficiency Motor

- Available for part winding start or star delta start
- Custom-made for specified voltage and frequency of power
- Design according to high-compression-ratio application and type of refrigerant
- Optimal design of slot inside motor casing
- Patented motor-cooling design in passage of refrigerant flow encompassing stator provides best dissipation of heat

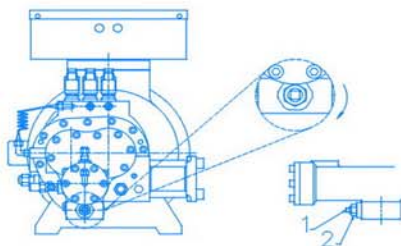
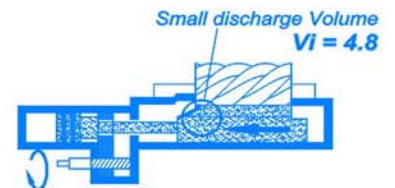
## Economizer Operation with Floating ECO Port

- Enhance cooling capacity as well as energy efficiency
- Sustain optimum medium pressure by vapor injection through specially-designed slots in slide valve and compression casing
- Position of medium pressure will vary with injection port in slide valve
- Effective under partial load and full load



## High-efficiency Screw Rotor Profile

- Advanced 5-to-6 rotor profile for low-temperature application
- Designed according to characteristics of refrigerants
- Hyper volume efficiency and minimum clearance



## Adjustable Volume Ratio

- Volume ratio ( $V_i$ ) could be adjusted continuously between 2.2 and 4.8 according to operation condition for LA-90 ~ 280.
- Eliminate loss of work due to over- or under-compression
- Adjusting by turns of rod corresponding to specific  $V_i$

## Versatile Application

- Universal to refrigerant R22, R404A, R507A
- Compressor designed for low-temperature application with SST as low as  $-50^{\circ}\text{C}$ .
- Design with external oil separator for condensing unit, parallel system and rack

## Dual Capacity Control

- Flange-on Solenoid coil easy for installation
- 3-step / 4-step or continuous (33%~100% / 25%~100%) capacity control system
- Interchangeable by varying control logic without modification of solenoid valves

### Long-life Bearing Structure

- High-quality bearings (radial and axial resistance)
- Additional two bearings for backward rotation
- Heavy-duty Design

### Other Advantages

- Low noise level and minute vibration
- Fewer quantity of parts in screw compressor than those in reciprocating compressor
- Easy for maintenance and overhaul
- Compact geometry easy for layout

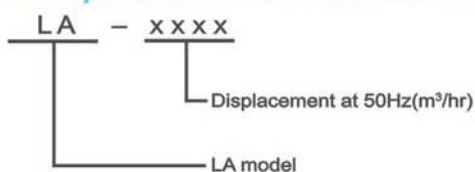
### Approval and Certification

- Production by SOP conformed to major quality standards
- Approved by ISO 9001-2000, UL, CE(PED), Electronic Apparatus for Explosive Atmospheres(EX, China), Lloyd's Register (Vessel) , Symbol of Excellence in Taiwan

### Total Protection & Accessories

1. Motor Temperature Sensor :
  - "Built-in"PT100 or 1000Ω installed in motor winding
  - Accurately reflect corresponding resistance (convert to temperature of motor)
  - Controller can precisely regulate Liquid injection and refrigerant volume accordingly.
2. PTC Discharge Temperature Thermistor & Motor Temperature Thermistor
  - Totally integrated
  - Effectively protect compressor in advance when any abnormal alarm occurs
3. Additional Cooling (Optional)
  - Oil cooler, oil injection to compression chamber, liquid injection to compression chamber and liquid injection to motor.
  - Combination of above functions according to operation conditions.
4. Oil Flow Switch and Oil Return Solenoid Valve
  - Ensure sufficient lubricant return to compressor for better lubrication, capacity control, cooling and sealing
5. External Oil Separator
  - Low oil carry-over
  - Finest demister with negligible pressure drop

### Compressor Nomenclature



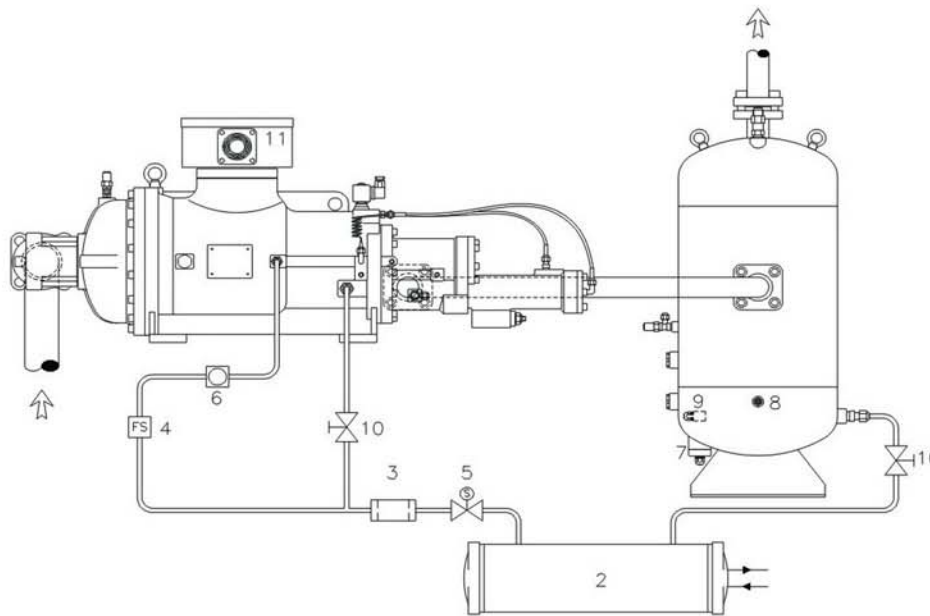
### Technical Data LA

MODEL	COMPRESSOR					MOTOR							Hydrostatic Pressure Test psi	WEIGHT lb				
	Displacement 60 / 50Hz	Rated Speed 60 / 50Hz	VI	Cap. Control (%)		Type	Nominal Hp		Starting-Up	Voltage (V)		Insulation			Protection			
				STEP	STEPLESS		60Hz	50Hz		60Hz	50Hz							
LA-90	64/53			33, 66, 100	33~100	3 Phase, 2 Pole, Squirrel Cage, Induction Motor	33	27	Y-Δ	208 220 230 380 440 480 575	Class F	PTC Protection		419				
LA-110	76/63			33, 66, 100	33~100		39	32										430
LA-120	86/72			33, 66, 100	33~100		45	37										485
LA-140	101/85			33, 66, 100	33~100		53	44										551
LA-170	119/99		2.2	33, 66, 100	33~100		62	52										573
LA-200	138/115		4.8	25, 50, 75, 100	25~100		74	62										661
LA-230	159/132			25, 50, 75, 100	25~100		85	71					PWS					717
LA-250	179/149			25, 50, 75, 100	25~100		93	77					DOL					838
LA-280	198/165			25, 50, 75, 100	25~100		101	84										915
LA-310	218/181			35, 50, 75, 100	35~100		110	91										1235
LA-340	240/200			35, 50, 75, 100	35~100		121	101						1279				
LA-370	259/215			35, 50, 75, 100	35~100		130	108						1323				
LA-410	288/240	3550/2950		25, 50, 75, 100	25~100		146	121			380 400 415			597	1587			
LA-470	334/277			25, 50, 75, 100	25~100		170	141						1764				
LA-510	360/299			35, 50, 75, 100	35~100		183	152						1709				
LA-550	388/323			25, 50, 75, 100	25~100		195	162						1874				
LA-580	413/343		2.2	35, 50, 75, 100	35~100		210	175						1808				
LA-620	438/364		2.6	35, 50, 75, 100	35~100		220	183			380 440 460 480 575			1918				
LA-710	505/420		3.0	35, 50, 75, 100	35~100		250	208						2370				
LA-790	560/466		3.5	35, 50, 75, 100	35~100		276	230	Y-Δ					2557				
LA-830	584/486			30, 50, 75, 100	30~100	290	234	DOL					2635					
LA-930	657/547			35, 50, 75, 100	35~100	334	278						2690					
LA-1090	771/641			35, 50, 75, 100	35~100	402	335						3153					
LA-1280	903/751			30, 50, 75, 100	30~100	471	392						3483					
LA-1520	1078/896			25, 50, 75, 100	25~100	534	443						3594					

*Number of clockwise turns and corresponding volume ratio  
in models LA-90 ~ LA-280*

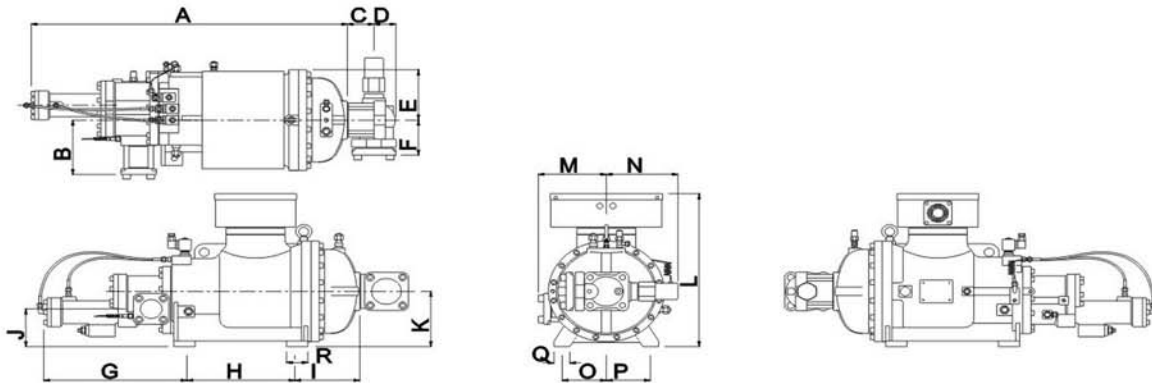
Turns	0	2	4	6	8	10	12	14	16	18	20	22	24
VI(LA-90)	2.2	2.37	2.58	2.84	3.15	3.61	4.17	4.77	-				-
VI(LA-110)	2.2	2.33	2.49	2.68	3.09	3.53	4.11	4.74	-				-
VI(LA-120)	2.2	2.34	2.5	2.68	3.07	3.53	4.07	4.75	-				-
VI(LA-140)	2.2	2.31	2.44	2.59	2.84	3.14	3.46	3.83	4.30	4.75			
VI(LA-170)	2.2	2.30	2.41	2.53	2.80	3.12	3.45	3.80	4.23	4.71			
VI(LA-200)	2.2	2.33	2.49	2.67	2.9	3.2	3.62	4.17	4.77				
VI(LA-230)	2.2	2.32	2.46	2.62	2.84	3.14	3.55	4.1	4.75				
VI(LA-250)	2.2	2.2	2.2	2.31	2.43	2.62	2.84	3.09	3.38	3.71	4.03	4.39	4.76
VI(LA-280)	2.2	2.3	2.41	2.52	2.66	2.81	3.0	3.22	3.48	3.76	4.06	4.41	4.77

*Recommended installation of lubricant circuit*



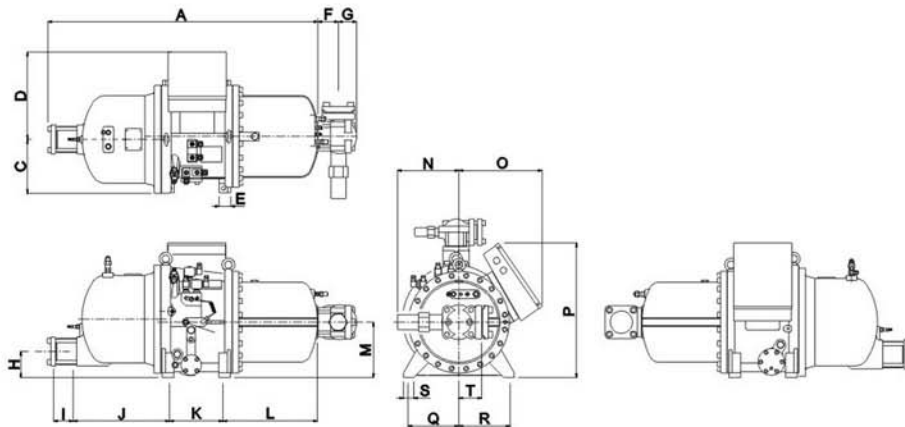
- |                           |                           |
|---------------------------|---------------------------|
| 1. External oil separator | 7. Oil level switch       |
| 2. Oil cooler             | 8. Oil temperature sensor |
| 3. Oil filter             | 9. Oil heater             |
| 4. Lubricant flow switch  | 10. Stopvalve             |
| 5. Solenoid valve         | 11. Compressor            |
| 6. Sight glass            |                           |

**LA-90~LA-280 Outline**



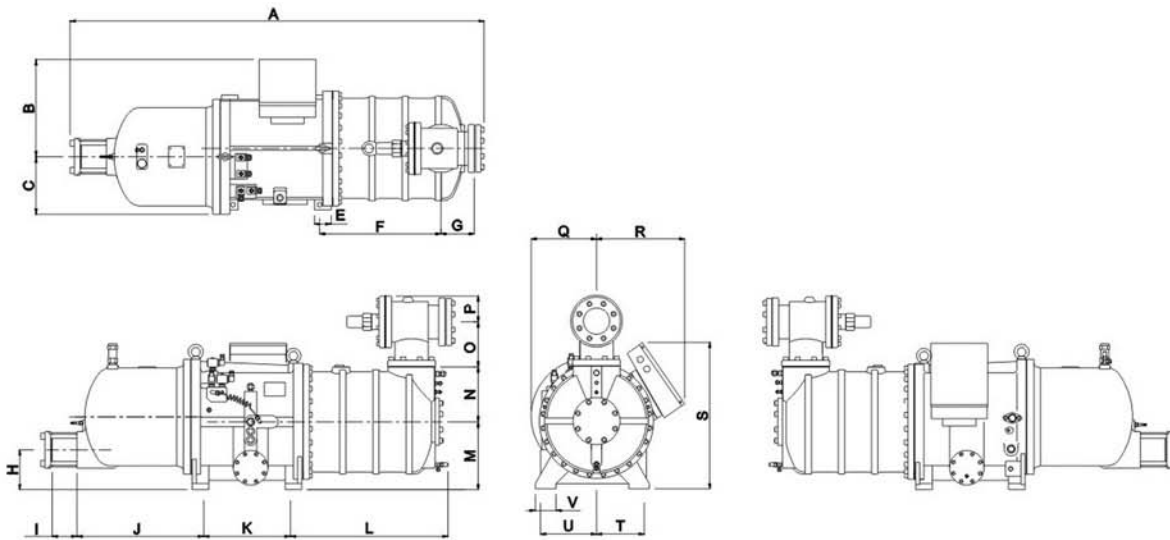
Model	Dimensions																		Unit: inch	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R		
LA-90	7.36	7.36	2.76	2.40	6.38	4.45	15.75	11.61	7.09	4.78	7.09	20.65	7.99	7.76	4.53	4.53	1.89	2.56		
LA-110	7.36	7.36	2.76	2.40	6.38	4.45	15.75	11.61	7.09	4.78	7.09	20.65	7.99	7.76	4.53	4.53	1.89	2.56		
LA-120	7.56	7.56	3.19	2.64	6.99	4.88	17.24	12.99	7.85	5.24	7.68	21.24	8.19	8.62	5.31	5.31	1.89	2.56		
LA-140	7.56	7.56	3.19	2.64	6.99	4.88	18.98	15.35	7.85	5.24	7.68	21.24	8.19	8.62	5.31	5.31	1.89	2.56		
LA-170	7.56	7.56	3.19	2.64	6.99	4.88	20.83	15.35	8.60	5.24	7.68	21.24	8.19	8.62	7.09	5.31	1.89	3.27		
LA-200	7.97	7.97	3.80	3.15	7.19	5.83	19.67	14.72	9.27	6.71	10.04	23.60	7.19	11.38	7.09	7.09	1.97	2.28		
LA-230	8.05	8.05	3.80	3.15	7.19	5.83	20.18	17.13	9.27	6.71	10.04	23.60	7.19	11.38	7.09	7.09	1.97	2.28		
LA-250	9.35	9.35	3.80	3.15	8.43	5.83	21.69	18.25	9.32	7.15	10.24	24.78	8.43	10.98	7.09	7.09	1.97	2.28		
LA-280	9.35	9.35	3.80	3.15	8.43	5.83	23.50	19.69	9.23	7.15	10.24	24.78	8.43	10.98	7.09	7.09	1.97	2.28		

**LA-310~LA-620 Outline**



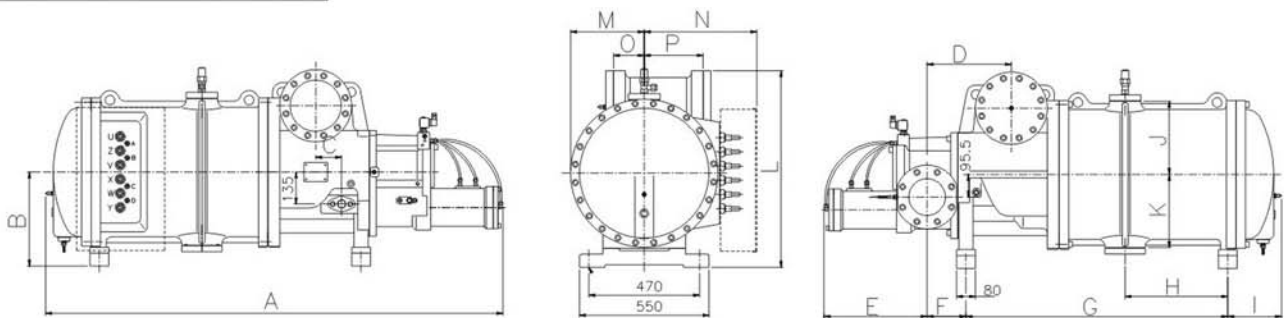
Model	Dimensions																				Unit: inch	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T		
LA-310	50.00	0.55	9.84	15.94	2.17	3.82	3.35	4.76	3.64	17.20	9.88	17.48	10.12	11.38	15.39	24.57	9.45	9.45	1.89	4.21		
LA-340	53.23	0.55	9.84	15.94	2.17	4.06	4.13	4.76	3.64	17.20	11.22	19.37	10.12	12.20	15.39	24.57	9.45	9.45	1.89	5.12		
LA-370	53.23	0.55	9.84	15.94	2.17	4.06	4.13	4.76	3.64	17.20	11.22	19.37	10.12	12.20	15.39	24.57	9.45	9.45	1.89	5.12		
LA-410	54.65	1.57	10.83	17.83	2.76	4.06	4.13	5.08	4.11	20.12	11.34	17.05	10.83	12.40	16.26	25.79	10.63	9.06	3.94	5.12		
LA-470	57.68	1.57	10.83	17.83	2.76	4.06	4.13	5.08	4.11	20.12	12.60	18.82	10.83	12.40	16.26	25.79	10.63	9.06	3.94	5.12		
LA-510	56.65	1.57	10.83	17.83	2.76	4.06	4.13	5.08	4.11	20.12	11.34	19.06	10.83	13.03	16.26	25.79	10.63	9.06	3.94	5.12		
LA-550	59.76	1.57	10.83	17.76	2.76	4.06	4.13	5.28	4.11	19.92	12.60	21.10	11.02	12.40	16.20	25.94	10.63	9.06	3.94	5.12		
LA-580	57.91	1.57	10.83	17.83	2.76	4.06	4.13	5.08	4.11	20.12	12.60	19.06	10.83	13.03	16.26	25.79	10.63	9.06	3.94	5.12		
LA-620	63.54	1.57	10.83	18.33	2.76	8.66	4.88	6.22	4.61	23.39	12.60	20.67	11.02	13.03	16.20	25.94	10.63	9.06	3.94	6.34		

### LA-710~LA-930 Outline



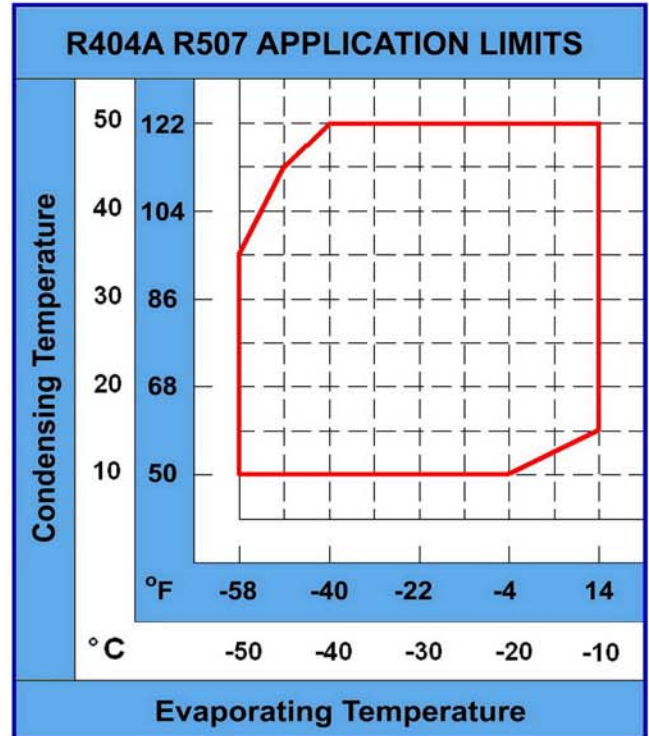
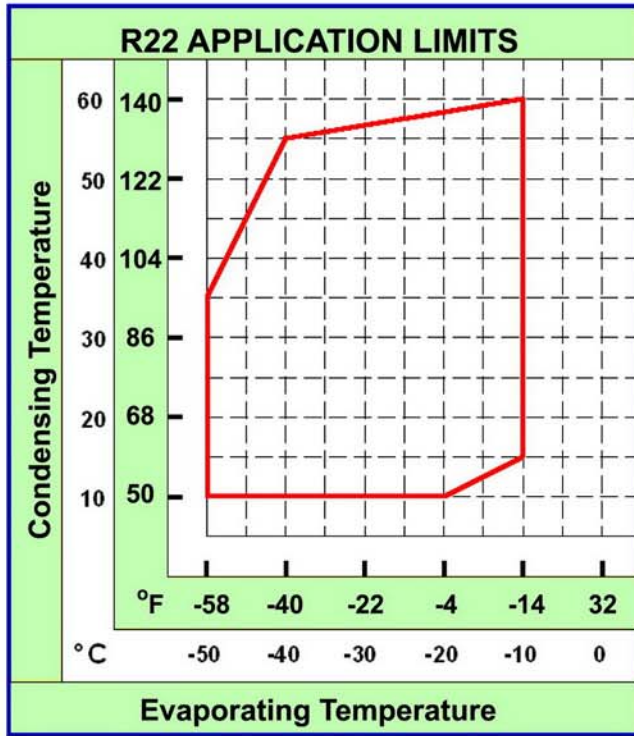
Model	Dimensions																				Unit: inch	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P	Q	R	S	T	U	V
LA-710	76.02	18.33	10.83	1.57	3.15	23.01	6.34	6.57	4.70	24.04	13.90	29.92	12.80	10.35	8.48	4.88	12.40	12.83	27.60	9.06	10.63	3.94
LA-790	78.58	18.35	10.83	1.57	3.15	23.01	6.34	6.57	4.70	24.04	16.46	29.92	12.80	10.35	8.48	4.88	12.40	16.77	27.60	9.06	10.63	3.94
LA-830	78.58	18.35	10.83	1.57	3.15	23.01	6.34	6.57	4.70	24.04	16.46	29.92	12.80	10.35	8.48	4.88	12.40	16.77	27.60	9.06	10.63	3.94
LA-930	80.71	18.35	10.83	1.57	3.15	25.14	6.34	7.52	4.70	24.04	16.46	32.05	12.80	10.35	8.48	4.88	12.40	16.77	27.60	9.06	10.63	3.94

### LA-1090~LA-1520 Outline



Model	Dimensions																Unit: inch	
	A	B	C	D	E	F	G	H	I	J	K	L	M	N	O	P		
LA-1090	76.38	15.65	4.33	14.07	17.20	6.50	43.70	17.13	8.98	12.17	12.17	32.68	12.30	18.82	5.12	9.84		
LA-1280	82.09	15.65	5.24	15.08	20.55	6.50	43.50	14.57	11.54	12.17	12.17	34.35	13.27	19.78	5.20	10.43		
LA-1520	82.09	15.65	5.24	15.08	20.55	6.50	43.50	14.57	11.54	12.17	12.17	34.35	13.27	19.78	5.20	10.43		

# Application Limits



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