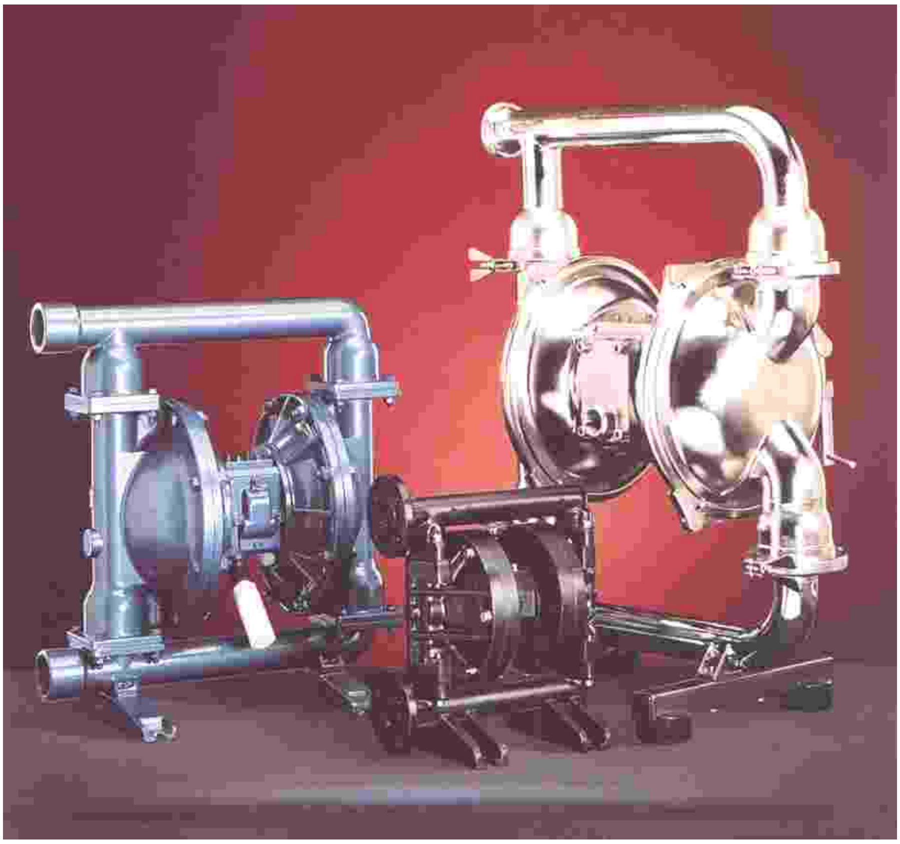
T SERIES
AIR-OPERATED
DOUBLE DIAPHRAGM PUMP



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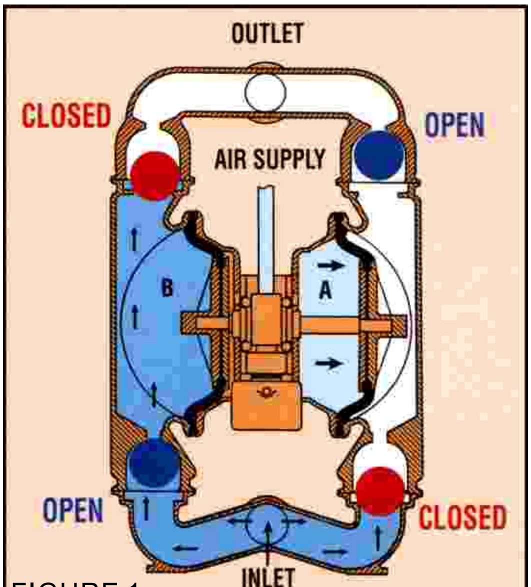


FIGURE 1

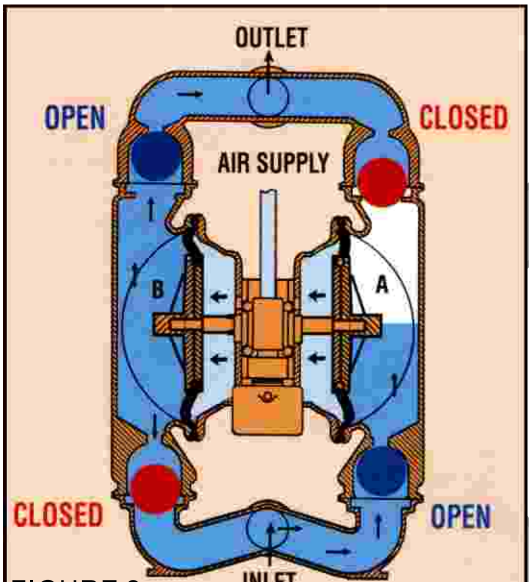


FIGURE 2

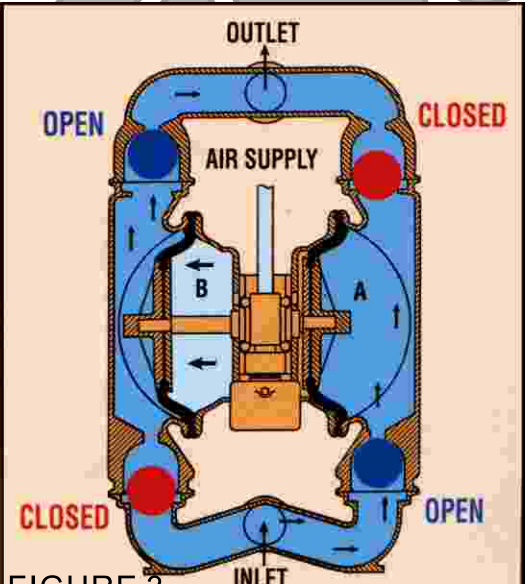


FIGURE 3

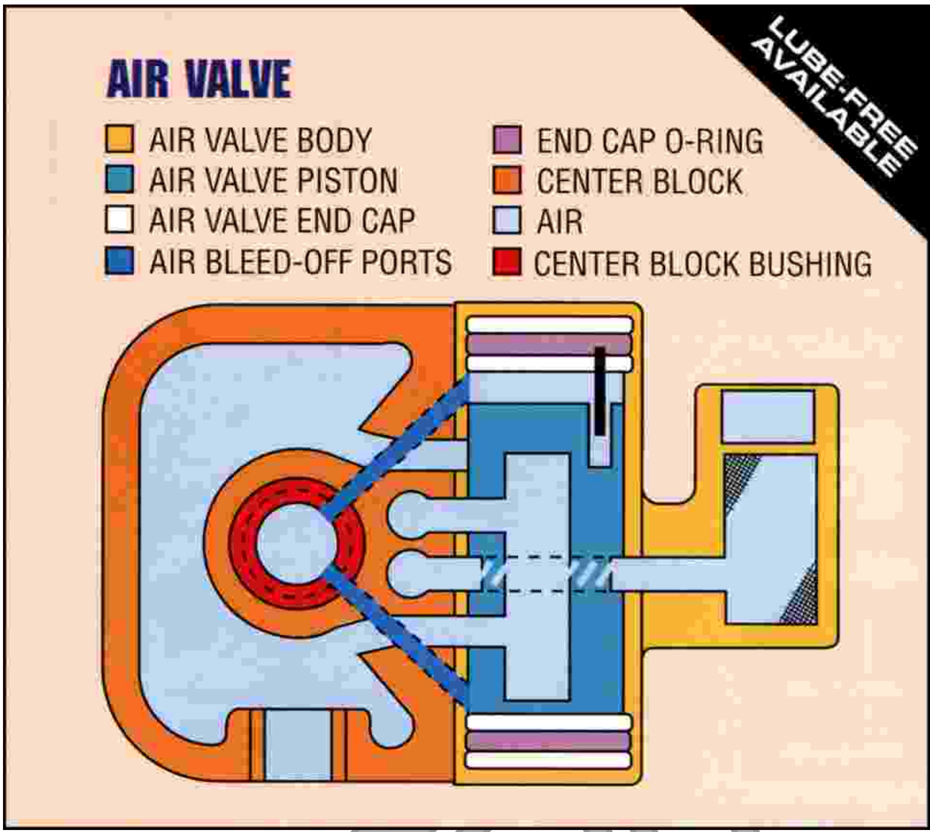
PUMP DYNAMICS

The STLONG® Diaphragm pump is an air-operated, positive displacement, self-priming pump. These drawings show the flow pattern through the pump upon its initial stroke. It is assumed the pump has not been primed prior to its initial stroke.

FIGURE 1
The air valve directs pressurized air to the back side of diaphragm A. The compressed air is applied directly to the liquid column separated by elastomeric diaphragms. The diaphragm acts as a separation membrane between the compressed air and the liquid. Driving the diaphragm with air instead of the shaft balances the load and removes mechanical stress from the diaphragm, dramatically extending diaphragm life. The compressed air moves the diaphragm away from the center block of the pump. The opposite diaphragm is pulled in by the shaft connected to the pressurized diaphragm. Diaphragm B is now on its air exhaust stroke; air behind the diaphragm has been forced out to atmosphere through the exhaust port of the pump. The movement of diaphragm B toward the center block of the pump creates a vacuum within chamber B. Atmospheric pressure forces fluid into the inlet manifold forcing the inlet valve ball off its seat. Liquid is free to move past the inlet valve ball and fill the liquid chamber.

FIGURE 2
When the pressurized diaphragm, diaphragm A, reaches the limit of its discharge stroke, the air valve redirects pressurized air to the back side of diaphragm B. The pressurized air forces diaphragm B away from the center block while pulling diaphragm A to the center block. Diaphragm B is now on its liquid discharge stroke. Diaphragm B forces the inlet valve ball onto its seat due to the hydraulic forces developed. These same hydraulic forces lift the discharge valve ball off its seat, while the opposite discharge valve ball is forced onto its seat, forcing fluid to flow through the pump discharges. The movement of diaphragm A to the center block of the pump creates a vacuum within liquid chamber A. Atmospheric pressure forces fluid into the inlet manifold of the pump. The inlet valve ball is forced off its seat allowing the fluid being transferred to fill the liquid chamber.

FIGURE 3
Upon completion of the stroke, the air valve again redirects air to the back side of diaphragm A, and starts diaphragm B on its air exhaust stroke. As the pump reaches its original starting point, each diaphragm has gone through one air exhaust or one fluid discharge stroke. This constitutes one complete pumping cycle. The pump may take several cycles to become completely primed depending on the conditions of the application.



AIR DISTRIBUTION SYSTEM

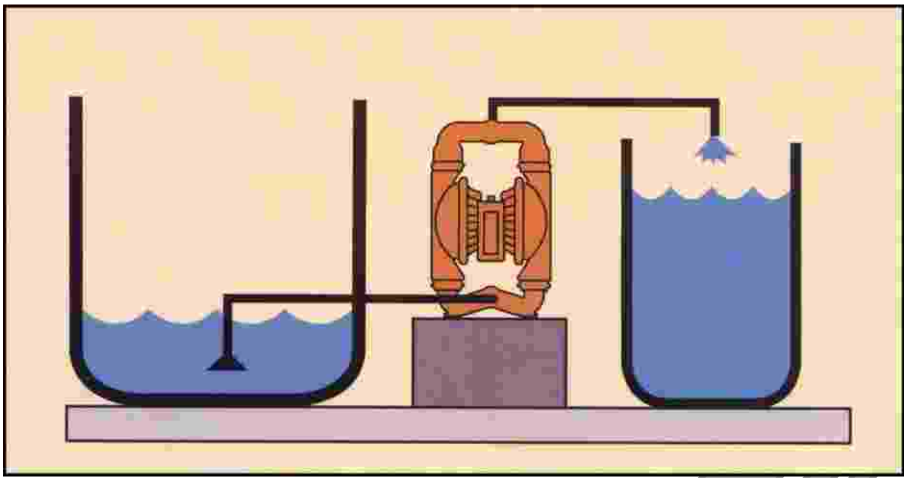
The STLONG® air distribution system consists of a ported air valve body which houses a piston. This piston is the only moving component of the air distribution system. The system operates off of differential pressure only, there are no mechanical trip rods, bearings or springs to wear or repair. The air valve attaches to a center block which has matching ports. As air is supplied to the air valve, differential pressure causes the piston to move up and down vertically. The vertical movement alternately supplies power ports with pressurized air. The ports then direct the air to the back side of the diaphragm. Air valve tolerances allow for the passage of some moisture and air line particulates allowing free movement of the piston. All air valve components can be inspected without disassembling the pump.

PUMP COMPARISON

The comparison chart to the right indicates many of the advantages of the STLONG Air-Operated Double Diaphragm Pump. STLONG's design has proven to be the cost effective choice for a wide range of difficult pumping applications.

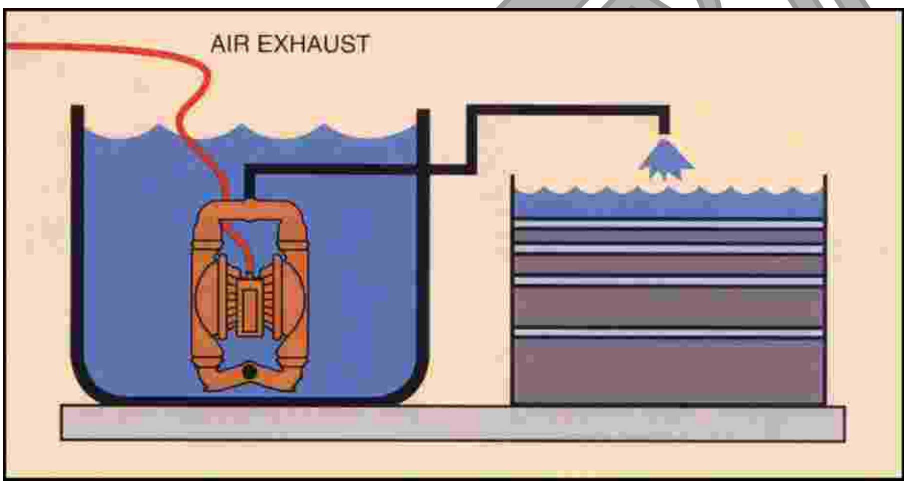
APPLICATIONS

* Chemical, Petrochemical & Hydrocarbon Processing
* Paints, Inks & Resins
* Solvent Recovery
* Slurry Transfer
* Waste Water / Pollution Control
* Mining / Construction
* Food, Beverage & Pharmaceutical
* Dry Powder Transfer



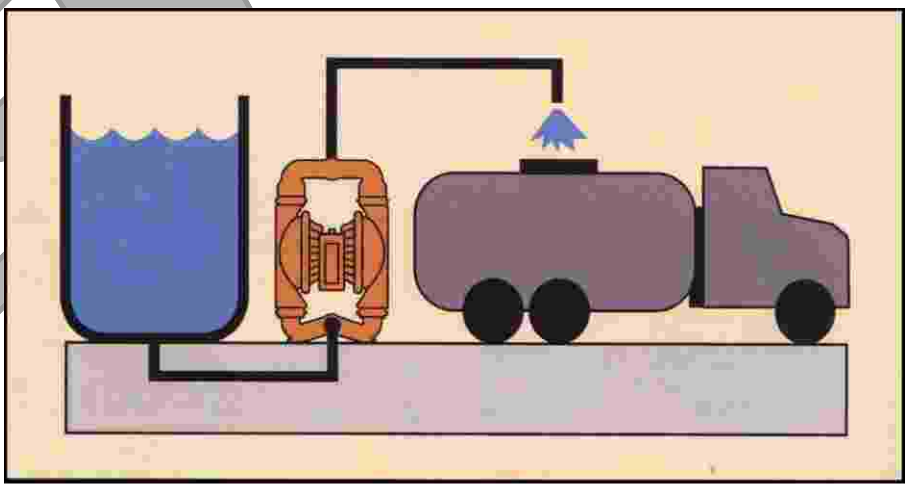
SELF-PRIMING APPLICATION

Pumps range in suction lift capability from 4.5ft~21ft (1.37m~6.4m) dry. 25ft (7.62m) can be reached in a primed condition. Suction lift will vary according to materials of construction and application parameters. All data is based on pumping water at 20°C.



SUBMERGED APPLICATION

All pumps are completely submersible. Air exhaust must be plumbed above liquid level and materials of construction must be compatible with surrounding liquid.



POSITIVE SUCTION HEAD APPLICATION

Used extensively for drawing off the bottom of holding tanks, clarifiers, etc. Pumps operate most efficiently when inlet pressure is limited to 7~10psi (0.48~0.68bar).

SPECIFICATIONS DATA

Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-10	0~0.8	0~50	6	5	10	10	10	1
T-15	0~1	0~50	6	5	15	15	10	1
T-25	0~2.4	0~50	6	7	25	25	10	2.5
T-40	0~8	0~50	6	7	40	40	12	4.5
T-50	0~12	0~50	6	7	50	50	14	8
T-65	0~16	0~50	6	7	65	65	14	8
T-80	0~24	0~50	6	7	80	80	16	10
T-100	0~30	0~50	6	7	100	100	16	10

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-10	105.26	7	0.3	☑	☑	☑	☑
T-15	105.26	7	0.3	☑	☑	☑	☑
T-25	257.95	7	0.6	☑	☑	☑	☑
T-40	257.95	7	0.6	☑	☑	☑	☑
T-50	1064.32	7	0.9	☑	☑	☑	☑
T-65	1064.32	7	0.9	☑	☑	☑	-----
T-80	2229.53	7	1.5	☑	☑	☑	-----
T-100	2229.53	7	1.5	☑	☑	☑	-----

STLONG® Air-Operated Double Diaphragm Pump		T-10
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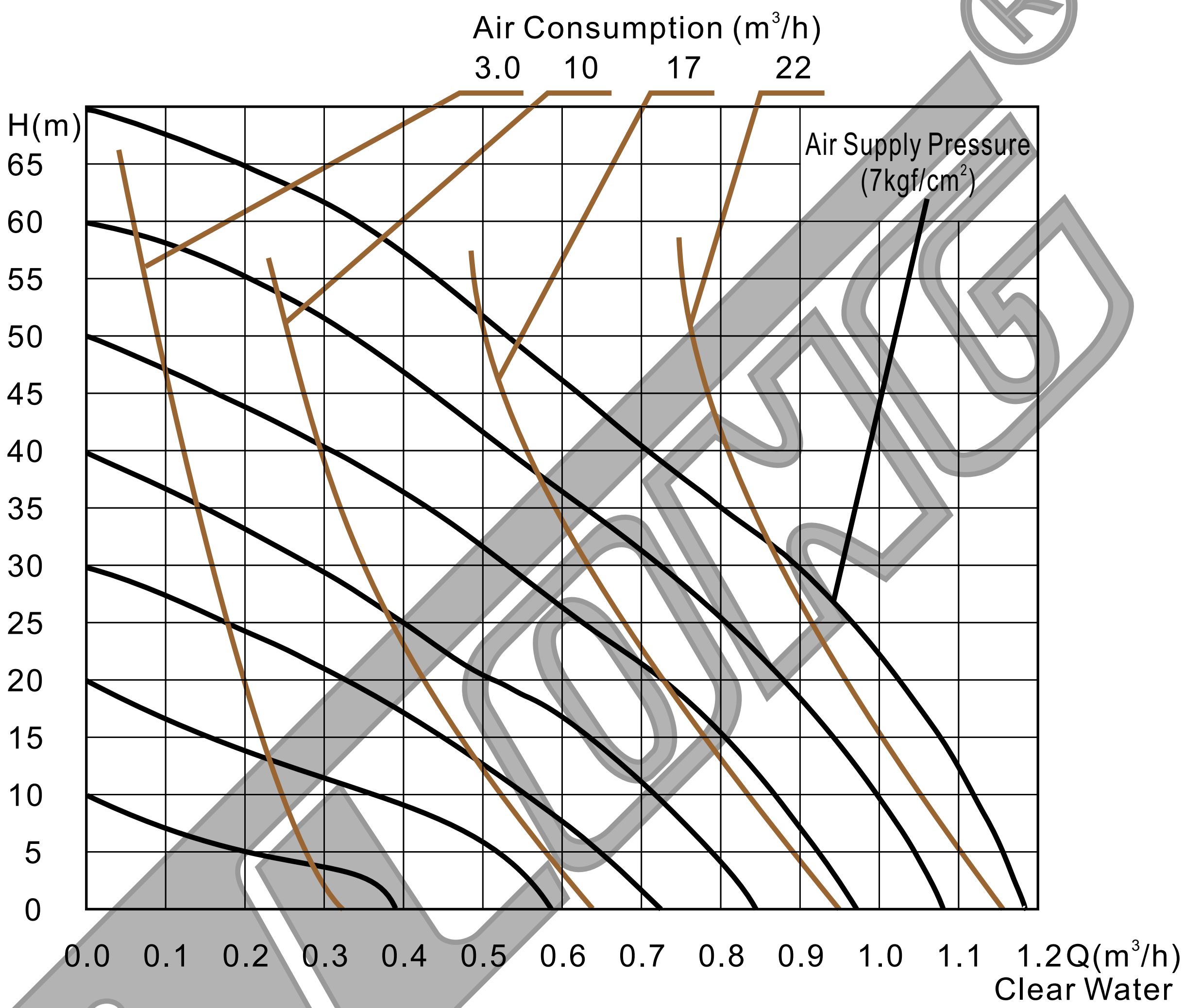
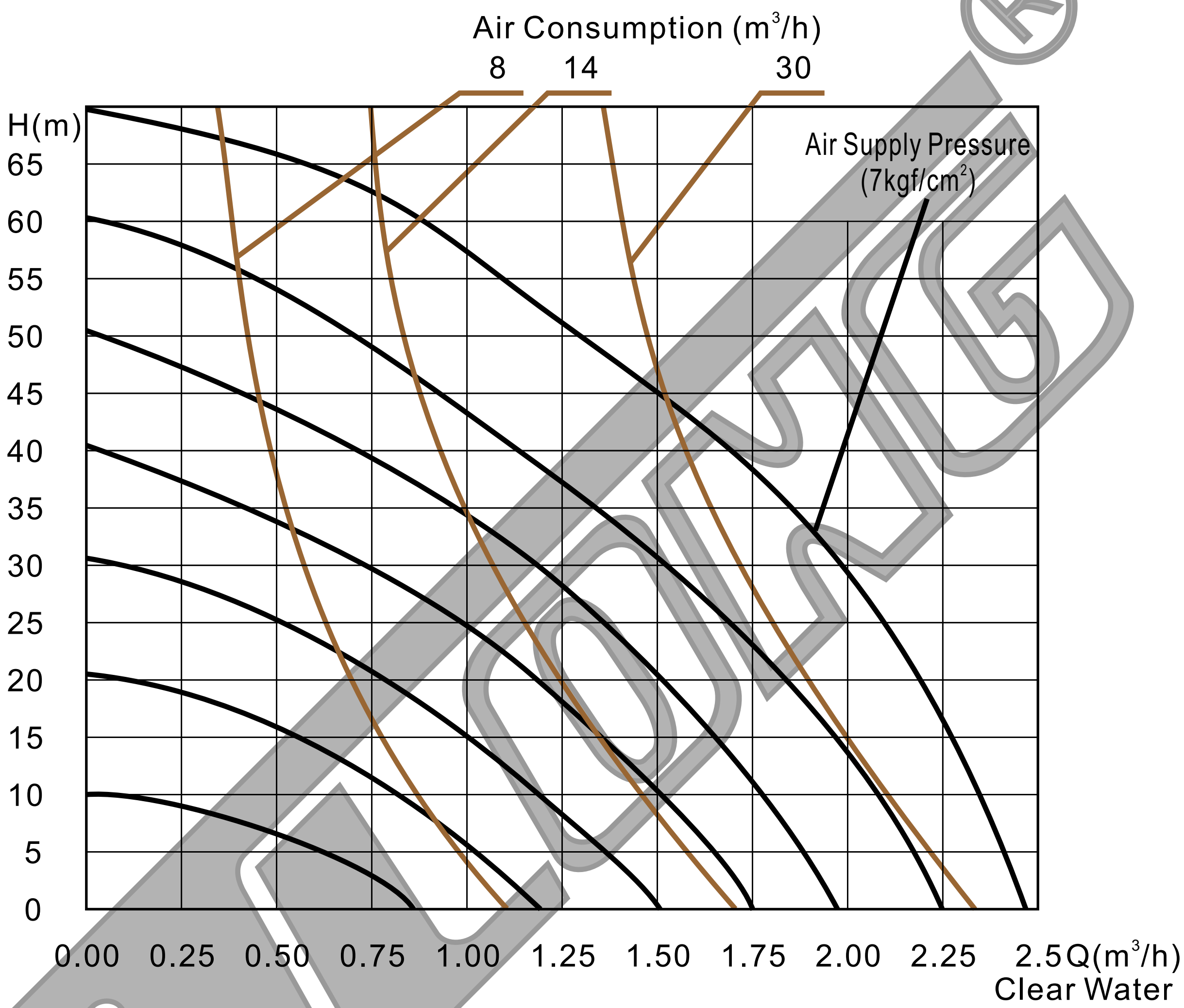


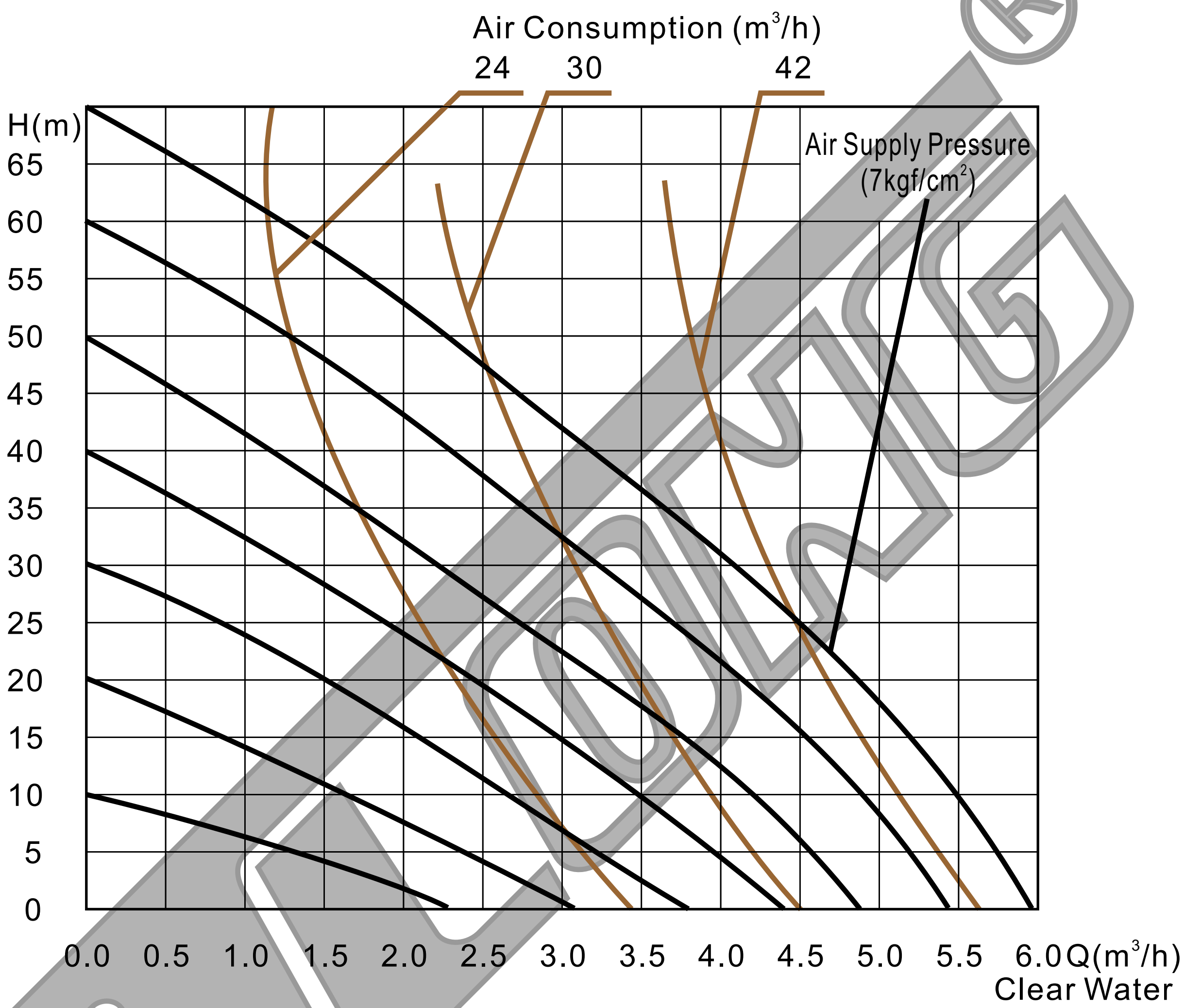
Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-10	0~0.8	0~50	6	5	10	10	10	1

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-10	105.26	7	0.3	☑	☑	☑	☑



Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-15	0~1	0~50	6	5	15	15	10	1

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-15	105.26	7	0.3	☑	☑	☑	☑



Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-25	0~2.4	0~50	6	7	25	25	10	2.5

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-25	257.95	7	0.6	☑	☑	☑	☑

STLONG®

Air-Operated Double Diaphragm Pump

T-40

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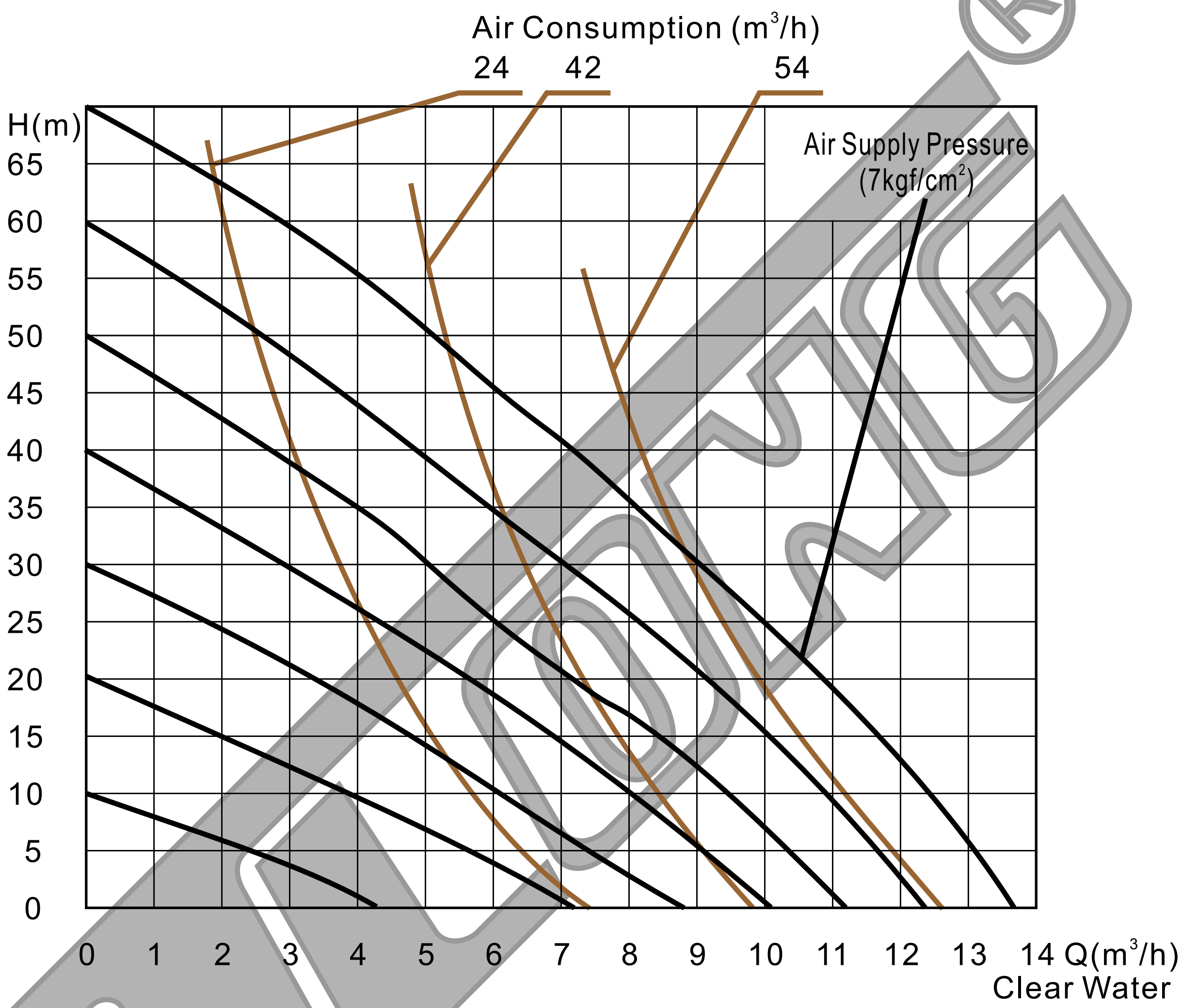
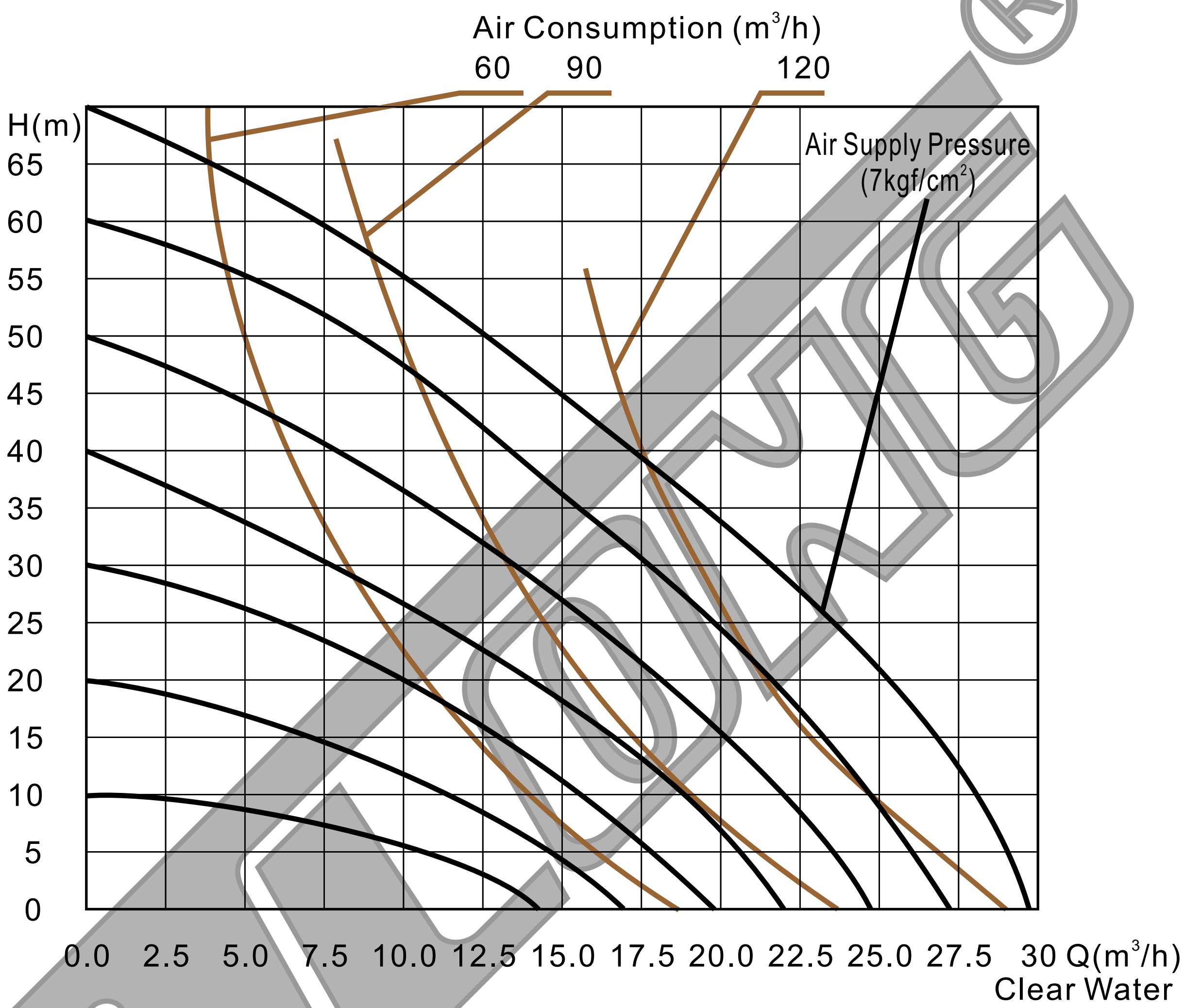


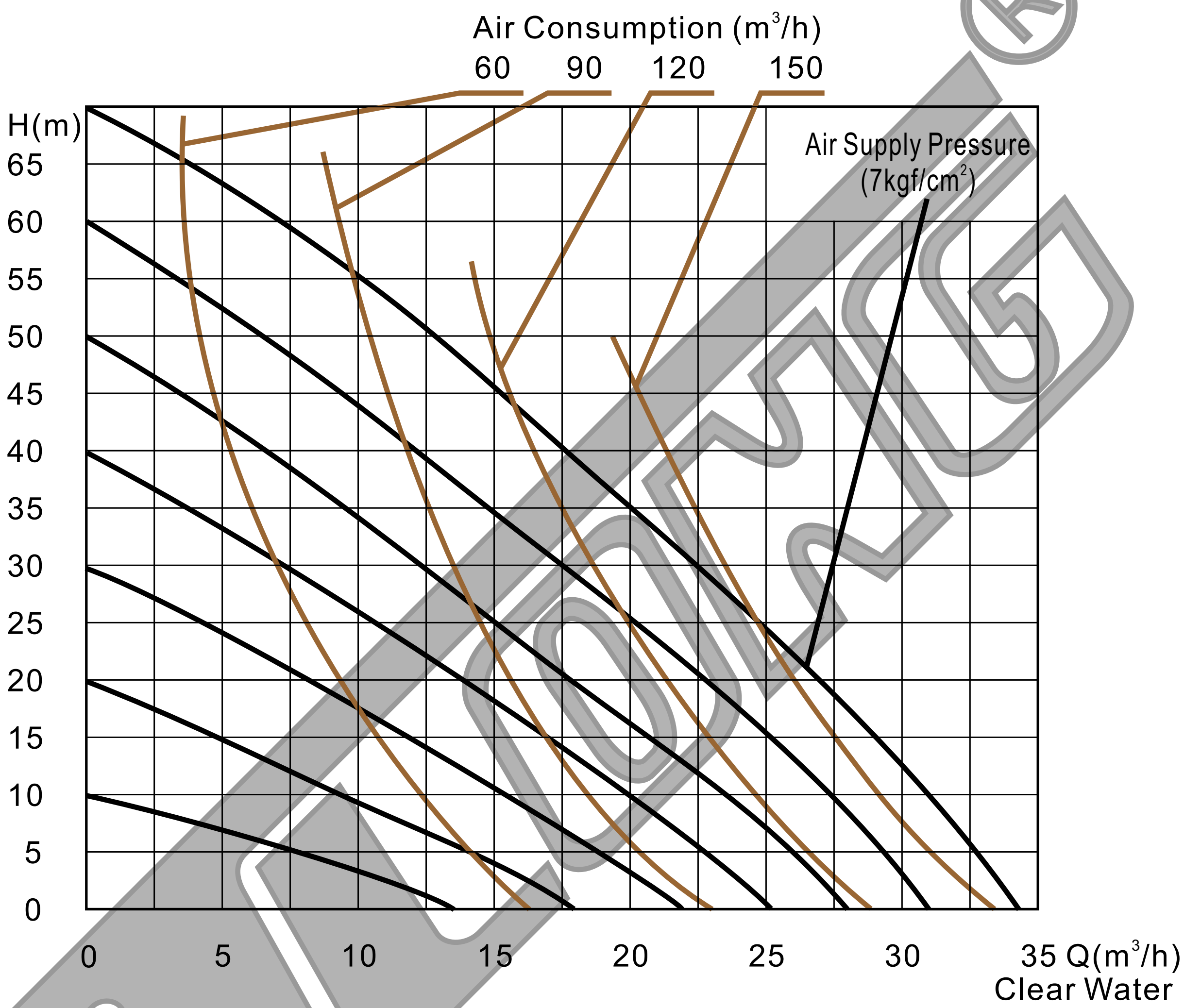
Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-40	0~8	0~50	6	7	40	40	12	4.5

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-40	257.95	7	0.6	☑	☑	☑	☑



Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-50	0~12	0~50	6	7	50	50	14	8

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-50	1064.32	7	0.9	☑	☑	☑	☑



Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-65	0~16	0~50	6	7	65	65	14	8

Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-65	1064.32	7	0.9	☑	☑	☑	-----

Air-Operated Double Diaphragm Pump

T-80

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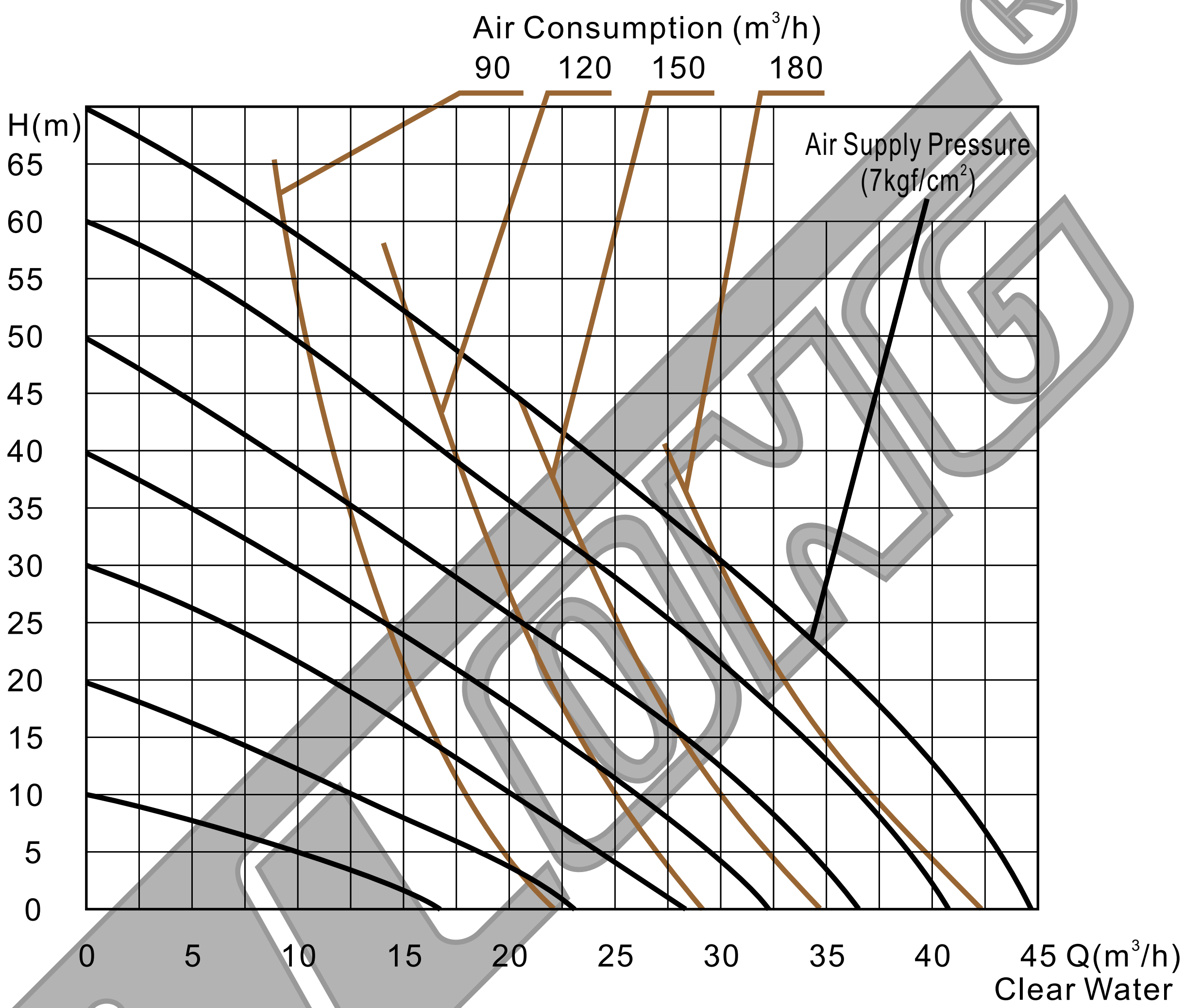


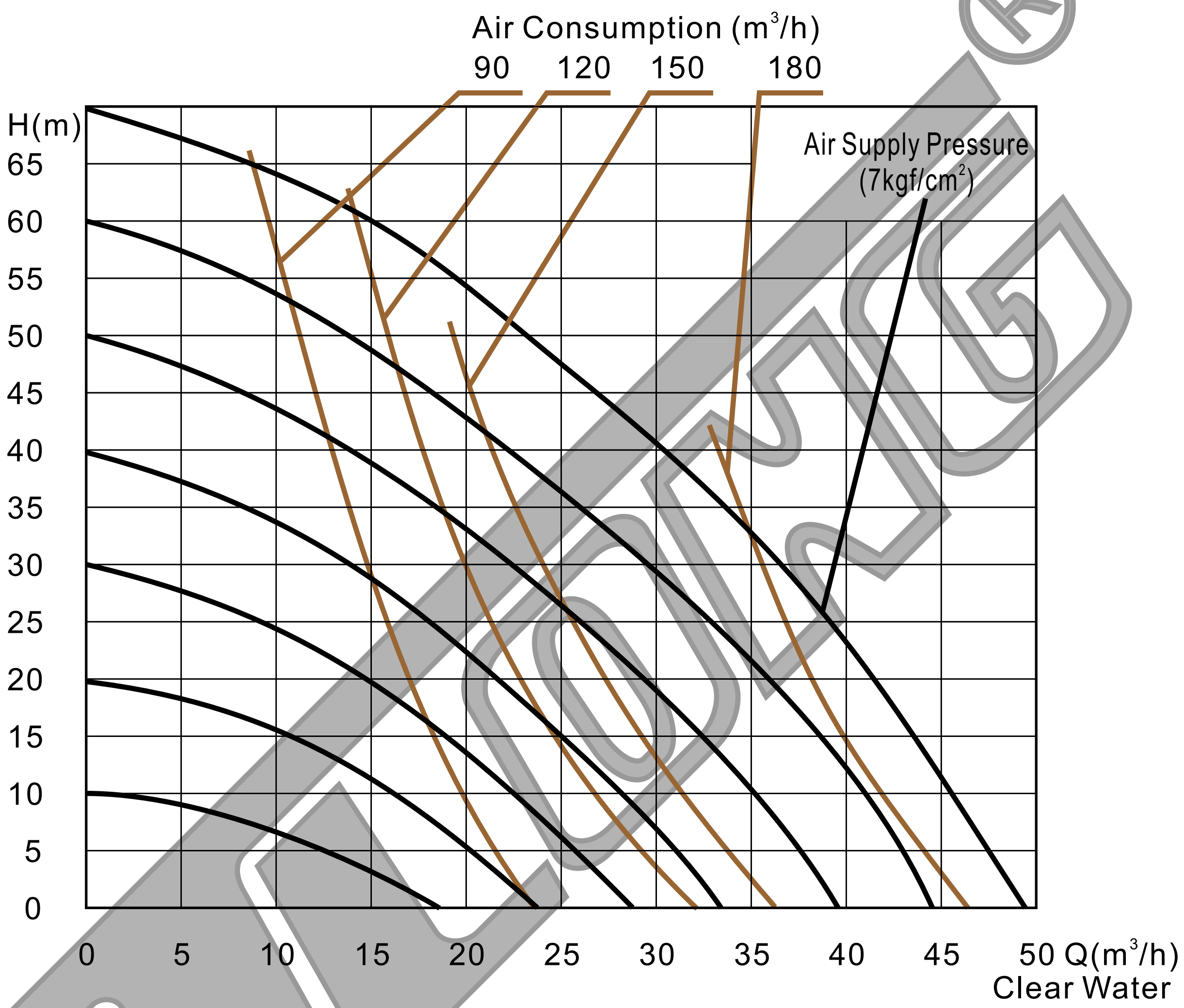
Model	Capacity (m³/h)	Head (m)	Exit Pressure (kgf/cm²)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-80	0~24	0~50	6	7	80	80	16	10

Model	Displacement Per Stroke (m³)	Max. Pressure (kgf/cm²)	Max. Air Consumption (m³/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-80	2229.53	7	1.5	☑	☑	☑	-----

STLONG® Air-Operated Double Diaphragm Pump

T-100

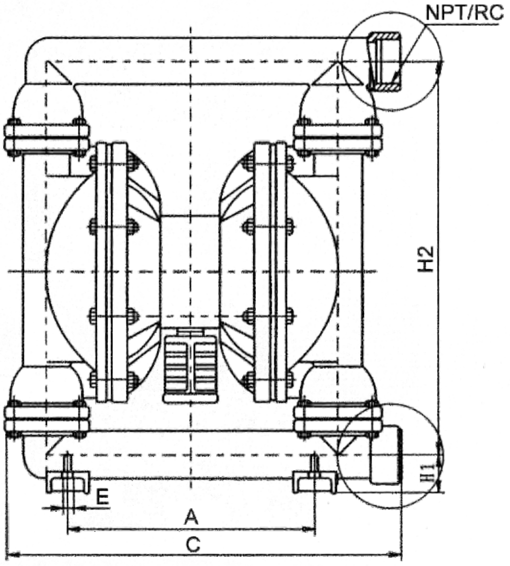
PERFORMANCE CURVE | **SECTION AD01-02** | **PAGE 4120**

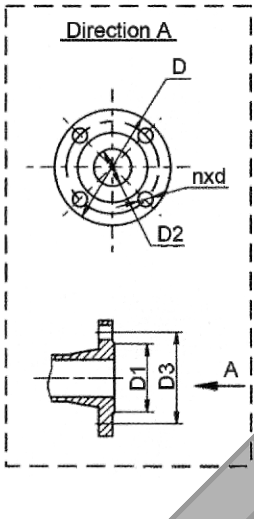


Model	Capacity (m^3/h)	Head (m)	Exit Pressure (kgf/cm^2)	Suction Lift (m)	Inlet (mm)	Outlet (mm)	Air Valve Inlet (mm)	Max. Solid Dia. (mm)
T-100	0~30	0~50	6	7	100	100	16	10

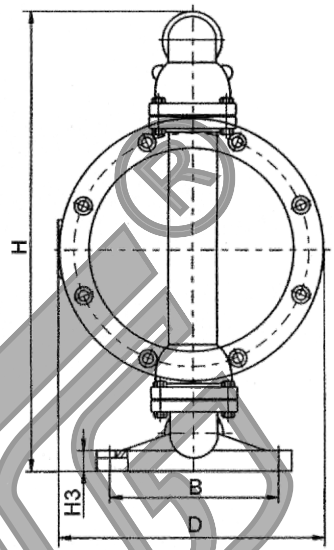
Model	Displacement Per Stroke (m^3)	Max. Pressure (kgf/cm^2)	Max. Air Consumption (m^3/min)	Materials			
				Aluminum ZL104	S. Steel SS304	C. Iron HT200	Enchanced Polypropylene
T-100	2229.53	7	1.5	☑	☑	☑	-----

INSTALLATION DIMENSION





Flange Connection Type



Model	Overall Dimensions (mm)									Thread	Flange (mm)					
	A	B	C	D	E	H1	H2	H3	H	NPT/RC	D1	D2	D3	D	n	d
T-10	135	48	218	144	12	34	176	10	226	1/2"	----	----	----	----	----	----
T-15	135	48	218	144	12	34	176	10	226	1/2"	----	----	----	----	----	----
T-25	236	145	381	248	12	46	344	18	412	1"	----	----	----	----	----	----
T-40	236	145	381	248	12	50	348	18	428	1-1/2"	----	----	----	----	----	----
T-50	320	220	518	347	14	50	521	27	609	2"	84	50	125	165	4	18
T-65	320	220	518	347	14	50	521	27	609	2-1/2"	104	655	145	185	4	18
T-80	360	240	634	455	18	96	696	50	842	3"	118	80	160	200	8	18
T-100	360	240	634	455	18	130	721	60	960	---	140	100	180	200	8	18

INSTALLATION METHOD