NuWhirl®

THE BEAUTY OF WATER.
THE SCIENCE OF RENEWAL.

CYCLONE
AIR BLOWERS

Blower Sizing Guide

For use by Tub Manufacturers or Qualified Service Personnel ONLY.

NuWhirl Systems Corp | www.nuwhirl.com | 951-817-5600
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IMPORTANT SAFETY INSTRUCTIONS

PLEASE READ CAREFULLY PRIOR TO
Troubleshooting and Servicing Electrical Equipment

Definitions
WARNING May cause serious injuries or death
CAUTION May cause property damage

For information on NuWhirl Instructions, see:
www.nuwhirl.com/docs/product-instructions.html

When installing and using this electrical equipment, basic safety precautions should always be followed, including:

WARNING: Use and follow these instructions along with all instructions that have been provided with your whirlpool bathtub in order to fully enjoy the bathtub safely.

WARNING: Failure to install in strict accordance with each and every instruction above may compromise the system, which may cause injury to persons and/or property.

Use this unit only for its intended use as described in this manual. Do not use attachments not recommended by the manufacturer. Any improper installation or misuse of the equipment may result in injury to the user and will void the warranty.

Save these instructions.

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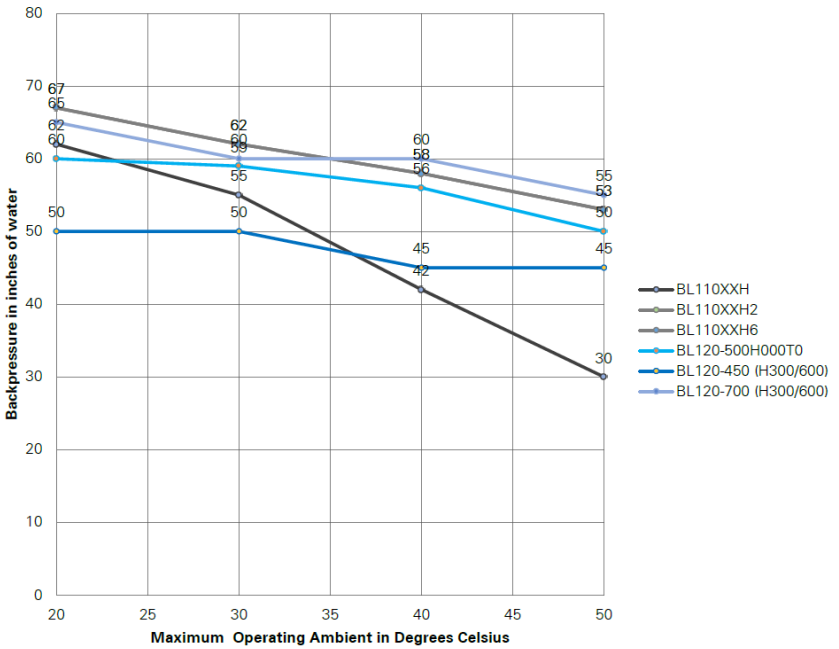
NOTE: See instruction manual MANBL120 for Blower installation and operations. Blower-equipped tub systems may be operated with TOUCHSTONE® Electronic Controls. For specific operations related to the tub, please refer to the Dual Load Controller Manual MANCIMC296, Master Bath Controller MANCMBC298 or the document supplied with the tub or from your Sales Representative.

Blower Capability Curve



Back Pressure/PSI Calculation

Use this worksheet to calculate the back pressure and system PSI of the tub.

Step	Example Tub	Your Data
Add 3" for every 10" total height of water to lowest injector	6" (water depth 20")	
Add 6" for the check valve and blower connection piping	6"	
Add 1 inch for every 10 feet of piping in air system	1.5" (15' Pipe)	
Add .5 inches for every 90 degree elbow	0" (No 90' Elbows)	
Add .25" for every 45 degree elbow	0" (No 45' Elbows)	
Add backpressure from injectors (Total opening area per injector * number of injectors / 0.035)	18"	
Add the total of the above. This is your system back pressure in Inches of Water.	31.5"	
Divide the above number by 27.684, and the result is your system PSI (1 PSI = 27.684" Water)	1.13 PSI	
Divide your system PSI by 1.7 to determine the **minimum area** opening for the injectors.	0.66"	
Divide your system PSI by 0.65 for **maximum area** opening.	1.74"	

Blower Back Pressure Specifications

NuWhirl Blower Model	Motor Watts	Heater Watts	Amps	Blower Outlet	Max Backpressure (40'C Ambient)	Minimum CFM (40'C, Max Back-pressure)
BL110XXH	700	180	7.4	1.5" (1.767 sq inches)	42" H2O (1.517 PSI)	63
BL120-500H000T0	500	0	4.5	1.5" (1.767 sq inches)	56" H2O (2.023 PSI)	50
BL120-700H300T0	700	300	9	1.5" (1.767 sq inches)	53" H2O (1.915 PSI)	41
BL120-700H600T0	700	600	12	1.5" (1.767 sq inches)	53" H2O (1.915 PSI)	41

Injector Sizing Chart / Required Injectors

Divide the total Min Area needed by the Total Area Opening of the injector to determine quantity needed.

Required Injectors for Blower Model Series:

BL110XXH **BL120-500** **BL120-700**

Part Number	Opening Dimensions	Area of Opening	Number of Holes	Total Area of Opening per Injector		Min	Max	Min	Max	Min	Max
AI1	.30 X .05	0.015	6	0.09000		7	20	5	20	4	20
AJI	0.1	0.0314	13	0.40820		1	5	1	5	1	5
AISG1	.125 x .06	0.0075	6	0.04500							
	0.125	0.012265625	1	0.01227							
Total AISG1				0.05727		11	31	7	31	6	31
AISP	.125 x .06	0.0075	6	0.04500							
	0.055	0.002374625	6	0.01425							
Total AISP				0.05925		11	30	7	30	6	30
AIMN1	0.1	0.00785	1	0.00785		78	225	51	225	43	225
AIISG1	0.14	0.015386	1	0.01539		40	114	26	114	22	114
AIISP1	0.0625	0.003066406	5	0.01533		40	115	26	115	22	115

Note This data assumes maximum backpressure at 40'C ambient and 14" water depth.

Retain this manual for future reference

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