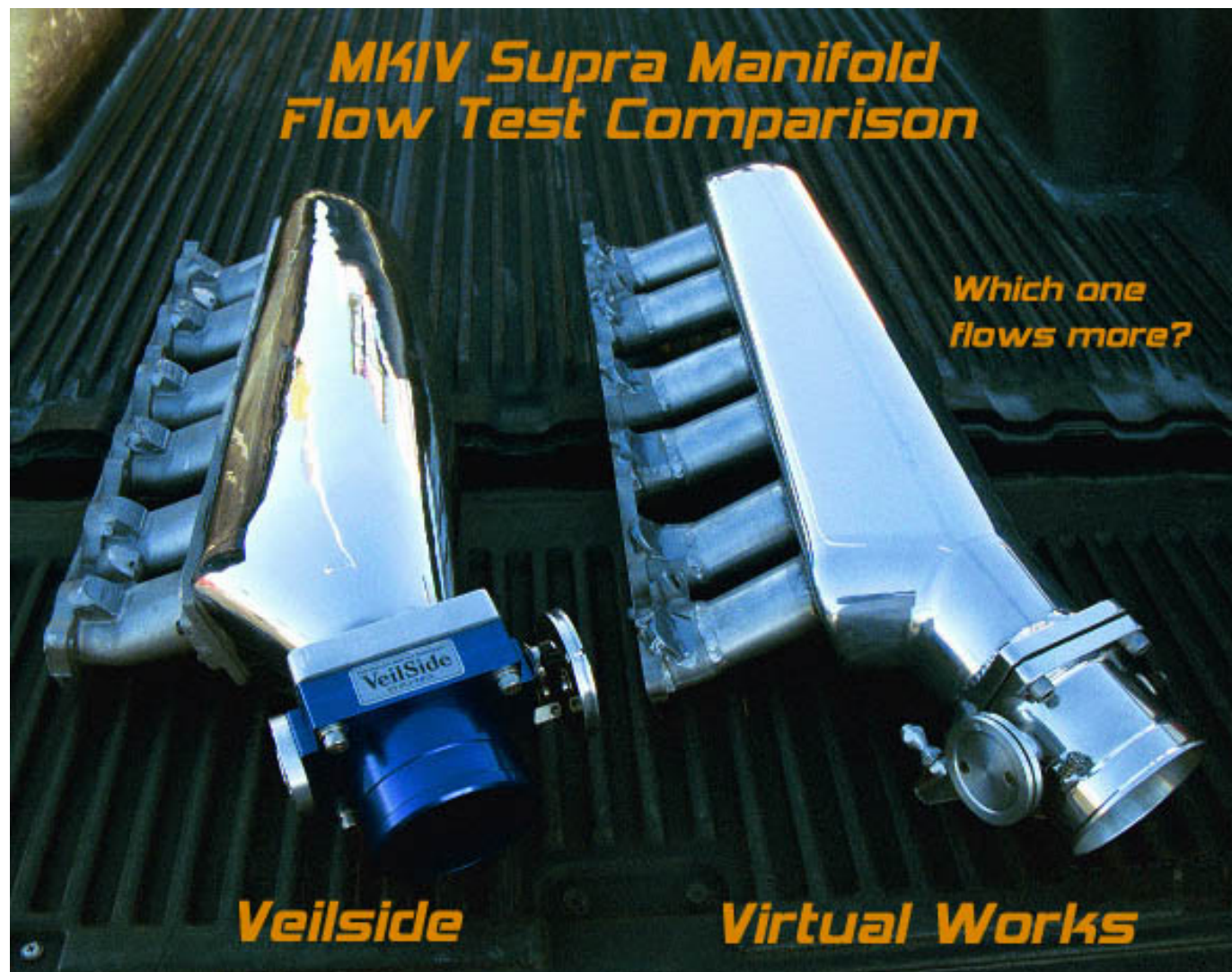


\*\*\*\*Disclaimer

This document is a conversion from a post on [www.supraforums.com](http://www.supraforums.com). The original link for this review is located at :

<http://www.supraforums.com/forum/showthread.php?s=&threadid=166026&highlight=virtual+veilside>

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Virtual Works manifold vs. Veilside. We've heard this debate over and over again. After all the debates, nobody "really" knew which one was superior. The information I previously received about these manifolds was from reputable sources that have tuned Supras with both intakes. I based my original assumptions on these statements.

Statements from Tuners

The Veilside Intake posed tuning challenges that required them to make strange drops in the fuel curve that they could not account for in order to keep the A:F consistent (we found out why this may occur later in our testing). The Virtual Works manifold was very easy to tune as they simply had to add 13% more fuel to keep the same A:F ratio as before. This meant that the simple addition of a new manifold created roughly 13% more power and air-flow was consistent at varying rpms.

My original goal was to determine which intake is better so that the HorsepowerFreaks Supra would benefit from the best manifold. The information I previously heard from others gave me enough confidence to try it but I wasn't entirely sure.

To be entirely sure, I decided to send both manifolds out for flow-testing and also decided to publish the results for everyone to read regardless of the outcome. The results were quite dramatic and somewhat unexpected. I thought they would be fairly close together but they weren't. The flow bench operator also made some interesting observations about how the Veilside behaved on the flow bench that seemed to validate some of the quirky tuning required to keep a consistent A:F with that manifold.

To put things into perspective... a stock intake manifold flows 240cfm through each runner. You can compare this number to the numbers below to see the improvement each manifold gives over the stock manifold.

I had them test every single runner on both the Veilside Intake Manifold and the Virtual Works Intake Manifold. The results were quite amazing to say the least.

#### Veilside

-----  
Cylinder 1 - 281.5  
Cylinder 2 - 279.8  
Cylinder 3 - 283.3  
Cylinder 4 - 283.2  
Cylinder 5 - 281.3  
Cylinder 6 - 279.9

Average - 281.5  
Variance cylinder to cylinder - 1.25%  
Efficiency - 78%

#### Virtual Works

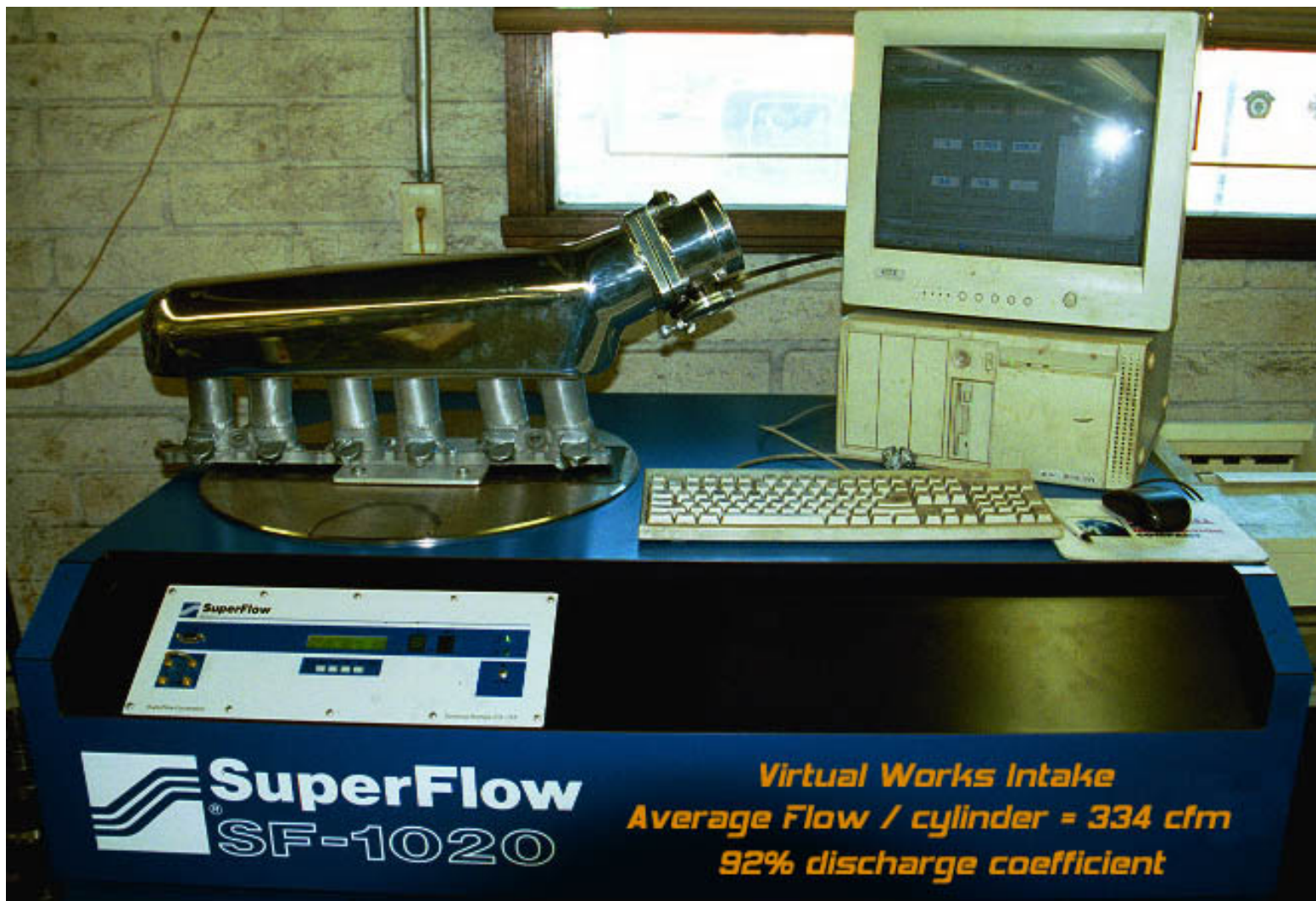
-----  
Cylinder 1 - 334.2  
Cylinder 2 - 333.9  
Cylinder 3 - 334.7  
Cylinder 4 - 334.1  
Cylinder 5 - 334.6  
Cylinder 6 - 334.5

Average - 334.33  
Variance cylinder to cylinder - 0.2%  
Efficiency - 92%

Here's a picture of the Veilside manifold on the flow bench...



Here's a picture of the Virtual Works manifold on the flow bench....



Here's a printout of one of the runners results for the Veilside manifold.....

<b>Competition Engine Development</b>	<b>Cylinder Test Report</b>
Cylinder: 1 Session: 1	

General Test Data	SuperFlow SF-1020			Test operator: Test operator		
	Intake	Exhaust	Estimated Power per Cylinder (HP)			71.9
Valve Head Diameter (in.)	1.800	1.400	Intake valve dia. to bore ratio			N/A
Valve Stem Diameter (in.)	0.300	0.300	Exhaust valve dia. to bore ratio			N/A
Effective Valve Area (sq. in.)	2.474	1.469	Exhaust to intake ratio			N/A
Leakage (cfm)	0.00	0.00	Speed for peak power (RPM)			N/A
Valve Seat Angle (degrees)	0.0°	0.0°	Optimum intake runner lengths (in.)			
Port Length (in.)	0.0	0.0				
Port Volume (cc)	0.0	0.0				
Average Flow (cfm)	283.30	0.00	Units	English	Chamber	Wedge
Maximum Flow (cfm)	283.30	0.00	Bore dia. (in.)	0.000	Stroke (in.)	0.000

Flow Range Number	1	2	3	4	5	6	7	8	9	10	Test
Flow Range, nominal	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	
Corrected range (int.)	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	0.0
Corrected range (exh.)	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	0.0

Corrected range (exh.)	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	0.0
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Intake Valve Test Data @ 28.0 inches of water											1 valve(s) / cylinder	
Valve Lift	0.090	0.180	0.270	0.360	0.450	0.540						
Flow Range, (nom.)	400.0											
Flow Scale Reading	0.898											
Test Temperature	0											
Test Flow	---											
Corrected Flow	283.30											
Corr. Flow/sq. area	114.51											
Potential Flow	67.83											
% Potential Flow	417.7%											
Discharge Coeff.	0.786											
Lift/Dia. Ratio	0.050	0.100	0.150	0.200	0.250	0.300						

Exhaust Valve Test Data @ 28.0 inches of water											1 valve(s) / cylinder	
Valve Lift	0.070	0.140	0.210	0.280	0.350	0.420						
Flow Range, (nom.)												
Flow Scale Reading												
Test Temperature												
Test Flow												
Corrected Flow												
Corr. Flow/sq. area												
Potential Flow												
% Potential Flow												
Discharge Coeff.												

**THIS AGREEMENT CONSTITUTES A REPAIR ORDER**

I hereby authorize the repair work to be done along with the necessary materials. You and your employees may operate my vehicle for the purpose of testing, inspection, or delivery at my risk. An express mechanics lien is acknowledged on vehicle to secure the amount of the repairs thereto. You will not be held responsible for loss or damage to the vehicle or articles left in the vehicle in case of fire, theft, accident, or any other cause beyond your control. I hereby represent and warranty to A-Allied that the herein described vehicle carries liability insurance which will cover A-Allied as a permissive user while it is in A-Allied's care and custody. I also authorize an additional 3% of the parts total to cover shop materials. This amount shall be in addition to any estimate provided by A-Allied. I also agree that if a credit card is used for payment that no credit card chargeback will be made against payment for services rendered. I understand that a \$15.00 per day storage fee will be charged 24 hours after completion of work.

Founding Member

Signature: \_\_\_\_\_ Date \_\_\_\_\_

Terms cash: unless arrangements have been made prior to authorization.

**"Committed To Quality"**



Here's a printout of one of the runners results for the Virtual Works manifold.....

Competition Engine Development			Cylinder Test Report		
			Cylinder: 2 Session: 1		

General Test Data		SuperFlow SF-1020		Test operator: Test operator	
	Intake	Exhaust	Estimated Power per Cylinder (HP)		85.0
Valve Head Diameter (in.)	1.800	1.400	Intake valve dia. to bore ratio		N/A
Valve Stem Diameter (in.)	0.300	0.300	Exhaust valve dia. to bore ratio		N/A
Effective Valve Area (sq. in.)	2.474	1.469	Exhaust to intake ratio		N/A
Leakage (cfm)	0.00	0.00	Speed for peak power (RPM)		N/A
Valve Seat Angle (degrees)	0.0°	0.0°	Optimum intake runner lengths (in.)		
Port Length (in.)	0.0	0.0			
Port Volume (cc)	0.0	0.0			
Average Flow (cfm)	334.70	0.00	Units	English	Chamber
					Wedge

Port Volume (cc)	0.0	0.0				
Average Flow (cfm)	334.70	0.00	Units	English	Chamber	Wedge
Maximum Flow (cfm)	334.70	0.00	Bore dia. (in.)	0.000	Stroke (in.)	0.000

Flow Range Number	1	2	3	4	5	6	7	8	9	10	Test
Flow Range, nominal	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	
Corrected range (int.)	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	0.0
Corrected range (exh.)	25.0	50.0	100.0	150.0	200.0	300.0	400.0	500.0	700.0	1000.0	0.0

Intake Valve Test Data @ 28.0 inches of water							1 valve(s) / cylinder				
Valve Lift	0.090	0.180	0.270	0.360	0.450	0.540					
Flow Range, (nom.)	400.0										
Flow Scale Reading	0.775										
Test Temperature	0										
Test Flow	---										
Corrected Flow	334.70										
Corr. Flow/sq. area	135.29										
Potential Flow	67.83										
% Potential Flow	493.4%										
Discharge Coeff.	0.928										
Lift/Dia. Ratio	0.050	0.100	0.150	0.200	0.250	0.300					

Exhaust Valve Test Data @ 28.0 inches of water							1 valve(s) / cylinder				
Valve Lift	0.070	0.140	0.210	0.280	0.350	0.420					
Flow Range, (nom.)											
Flow Scale Reading											
Test Temperature											
Test Flow											
Corrected Flow											
Corr. Flow/sq. area											
Potential Flow											
% Potential Flow											
Discharge Coeff.											

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The last thing I want to mention is that the flow bench operator advised me that the air-flow through the Veilside manifold made a very rough sound (sometimes crackling) as opposed to a very smooth sound through the Virtual Works manifold. This sound may be due to the velocity stacks which are built inside the plenum and could explain why tuning is more difficult.

I would have published the results no matter which manifold came out on top. We sell both manifolds so it doesn't help me any to persuade one manifold over the other. This type of Information can greatly benefit users of all types of products and can help us all make better informed decisions. We will continue

to test various products that we sell and publish the results.

Take care,  
Chris.