Air Cooled VW 2.0L Boxster Engine

Bore		Stroke	Displacement		.040"	Head Vol.		Total
88mm	9mm Studs	82mm	2.0L	1995cc	121.7in³	6.18cc	49.50cc	9¾:1	57.00cc
86mm	■	86mm	2.0L	1998cc	121.9in³	5.90cc	52.80cc	9⅓:1	59.95cc
90mm	8mm Studs	86mm	2⅛L	2188cc	135.0in³	6.46cc	57.00cc	9.45:1	64.46cc
88mm	9mm Studs	90mm	2⅛L	2190cc	133.6in³	6.18cc	57.00cc	9½:1	64.43cc
92mm	8mm Studs	86mm	2.3L	2287cc	139.5in³	6.75cc	59.00cc	9.53:1	67.00cc
92mm	8mm Studs	90mm	2⅝L	2393cc	146.0in³	6.75cc	63.00cc	9.43:1	71.00cc
94mm	8mm Studs	90mm	2½L	2498cc	152.5in³	7.05cc	65.00cc	9½:1	73.30cc
Deck Height Vol.								22R+	↑ +1¼cc~

■ **Sq.Bore: 2JZ, 1RZ, 3S, 3Y, 1TR, K20, SR20, FE, FA20, 4B11**

88mm: HeadOD 98mm, CaseOD 94mm, 9mm 4340 CroMoly Case Studs

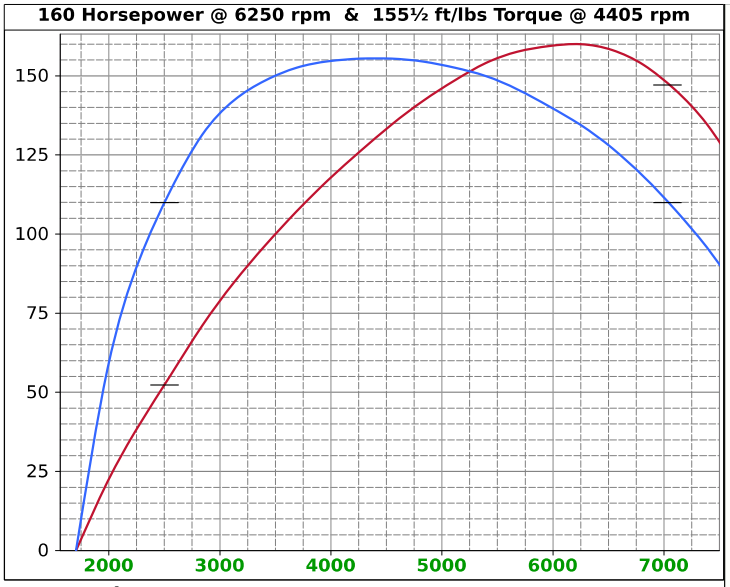
Target **Power**: 160hp @ 6250 **rpm**

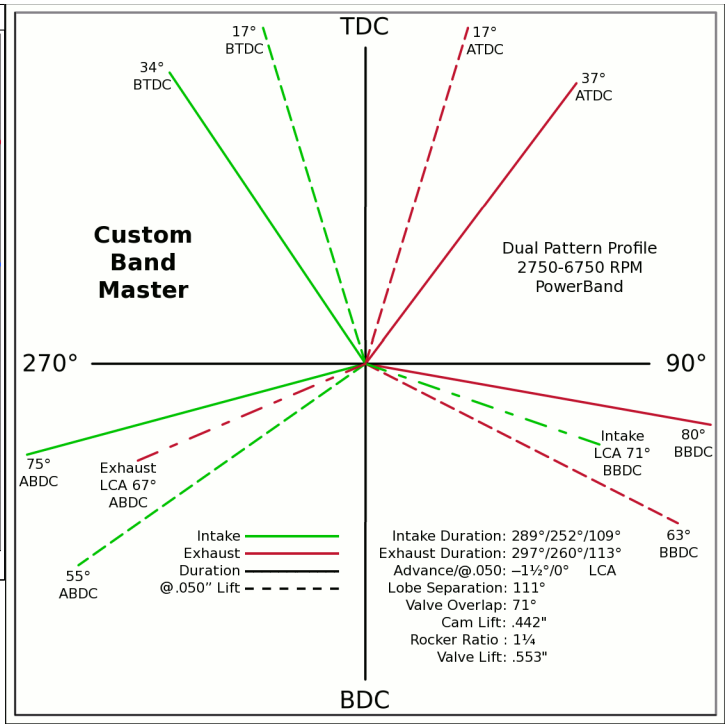
Target **Torque**: 150ft/lbs @ 4405 **rpm**

Compression Ratio: 9:1 to 10:1

Cylinders: 4

Power Band: 2750-6750 rpm, Redline: 7250 (7500 Rev Limited)





Intake Dur./@.050": 289°/252° 109°

Exhaust Dur./@.050": 297°/260° 113°

Advance: –1½°/0° LCA

Lobe Sep. ∠: 111°

Valve Overlap: 71°

Cam Lift: .442" (11.23mm)

Rocker Ratio: 1¼

Valve Lift: .553" (14.03mm)

Valve Lift/Dia: 35%, (For 35⅜mm Throat)

Ex/In Area Ratio: 59%, ([27⅞/35⅜]² Adjusted Throat Areas for Ex:35 & In:43 respectively)

Intake Port: 36mm dia. 38

Exhaust Port: 35mm dia. 37

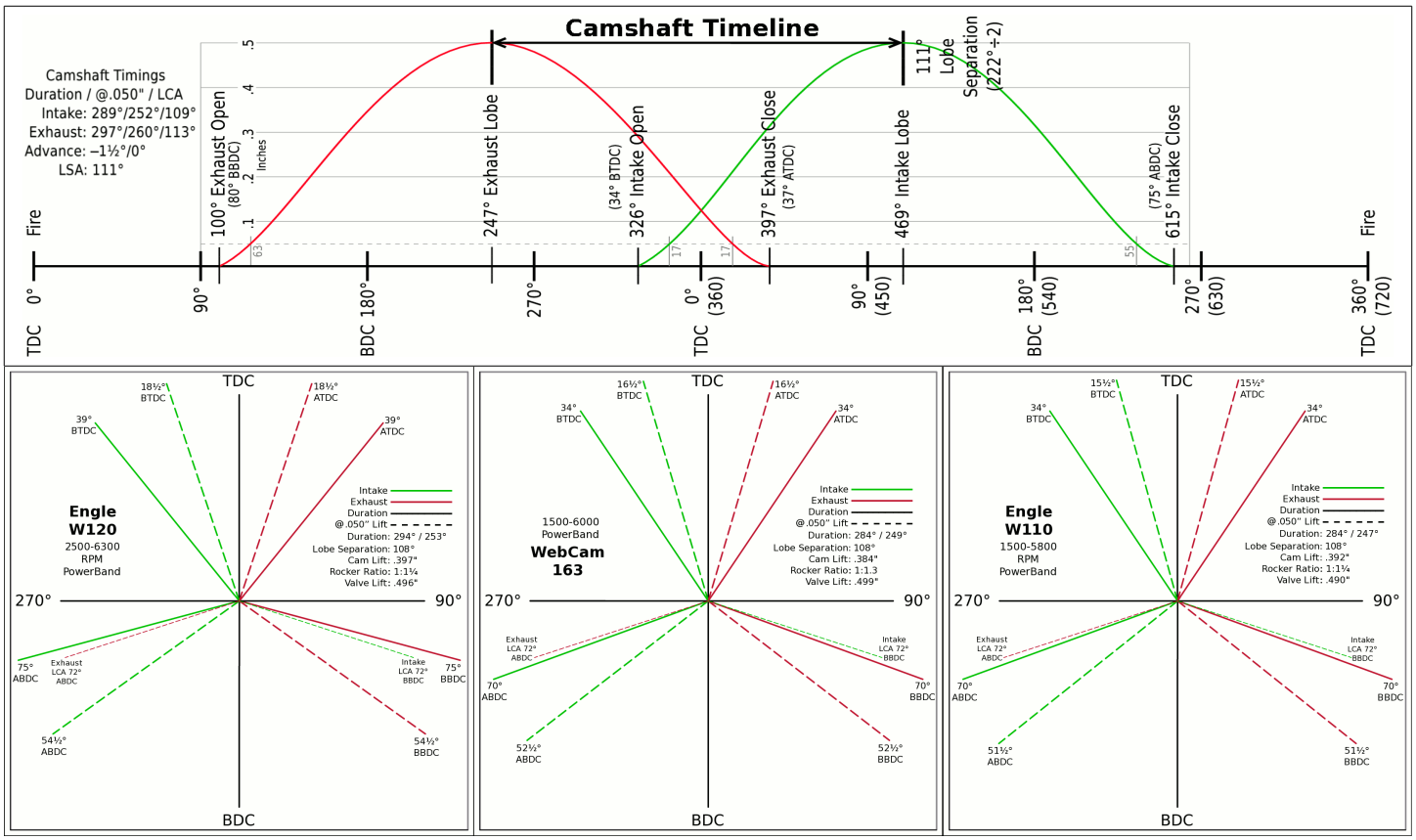
Intake Valve: 43mm dia. 45

Exhaust Valve: 35mm dia. 37

Intake Open:	34° BTDC
Exhaust Close:	37° ATDC
Intake Close:	75° ABDC
Exhaust Open:	80° BBDC

@ .050" Lift

Intake Open:	17° BTDC
Exhaust Close:	17° ATDC
Intake Close:	55° ABDC
Exhaust Open:	63° BBDC



Case: Mag, Alum

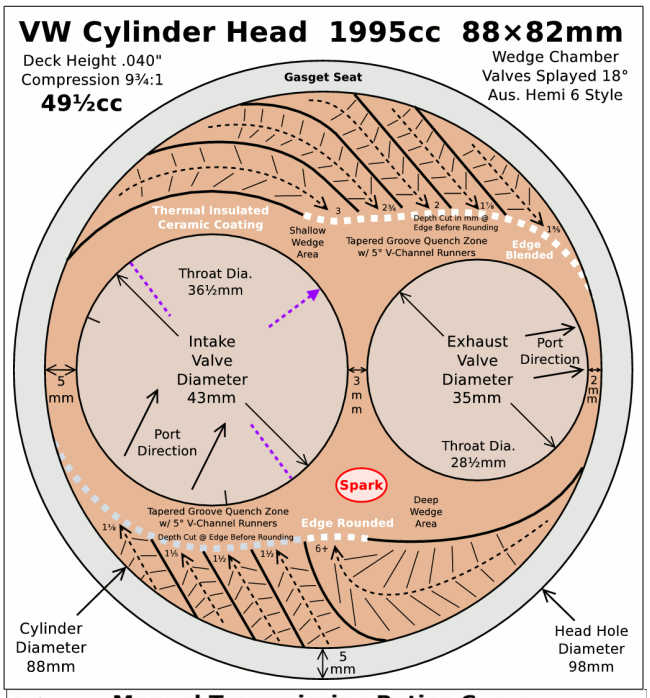
Bore & Stroker Table

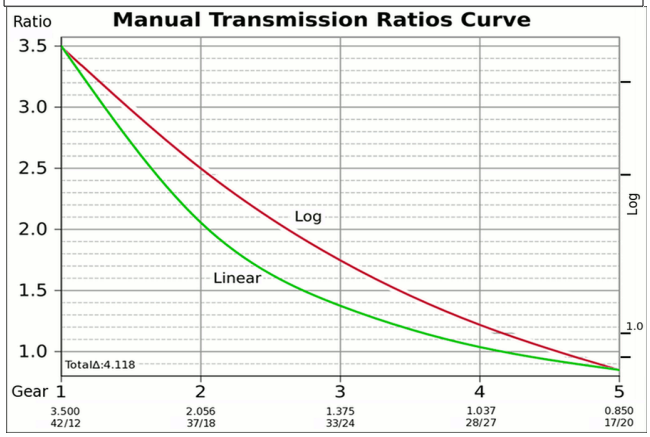
S↓ x B→	77	83	85	85.5	86	87	88	90	90.5	92	94	96.5	101.6
64	1192	1385	1453	1470	1487	1522	1557	1629	1647	1702	1777	1782	2075
69	1285	1493	1566	1585	1603	1641	1679	1756	1775	1835	1915	2019	2237
74	1378	1602	1680	1699	1719	1760	**1800**	1883	1904	1968	2054	2165	2399
76	1416	1645	1725	1745	1766	1807	1849	1934	1956	2021	2110	2223	2465
78	1453	1688	1770	1791	1812	1855	1898	1989	2007	2074	2165	2282	2529
80	1490	1731	1816	1837	1859	1902	1946	2036	2058	2127	2221	2340	2594
82	1527	1775	1861	1883	1905	1950	**1995**	2087	2110	**2180**	2276	2399	2659
84	1565	1818	1907	1929	1952	1997	2044	2138	2161	2234	2332	2457	2724
86	1602	1861	1952	1975	**1998**	2045	2092	2188	**2213**	2287	2387	2516	2789
88	1639	1905	1997	2021	2045	2093	2141	2239	2264	2340	2443	2574	2854
90	1676	1948	2043	2067	2091	2140	**2190**	2290	2316	**2393**	**2498**	2633	2919
Studs	**10mm**	**10mm**	**10mm**	**10mm**	**10mm**	**10mm**	**9mm**	**8mm**	**8mm**	**8mm**	**8mm**	**8mm**	**8mm**

DkHtVol.cc = π[Bore.cm/2]² x [.040x2.54] (Deck Height Volume @ .040")
CylinderVol.cc = π[Bore.cm/2]² x Stroke.cm (Displacement) **Crown2Cyl**
Compression = CylinderVol.cc ÷ [HeadVol.cc + DkHtVol.cc + 1¼cc] + 1

Bore & Stroke	Head Vol.	Compression
88mm x 82mm	50cc	9.68:1
6.18 DkHtVol.cc	55cc	8.99:1
(1995cc) 2.0L	60cc	8.40:1

86mm x 86mm	50cc	9.74:1
5.90 DkHtVol.cc	55cc	9.04:1
(1998cc) 2.0L	60cc	8.44:1
90mm x 86mm	55cc	9.72:1
6.46 DkHtVol.cc	60cc	9.08:1
(2188cc) 2.2L	65cc	8.52:1
92mm x 86mm	55cc	10.07:1
6.75 DkHtVol.cc	60cc	9.41:1
(2287cc) 2.3L	65cc	8.83:1
88mm x 90mm	55cc	9.77:1
6.18 DkHtVol.cc	60cc	9.12:1
(2190cc) 2.2L	65cc	8.56:1
90mm x 90mm	55cc	10.13:1
6.46 DkHtVol.cc	60cc	9.46:1
(2290cc) 2.3L	65cc	8.87:1
92mm x 90mm	60cc	9.80:1
6.75 DkHtVol.cc	65cc	9.20:1
(2393cc) 2.4L	70cc	8.67:1
94mm x 90mm	60cc	10.14:1
7.05 DkHtVol.cc	65cc	9.52:1
(2498cc) 2.5L	70cc	8.98:1





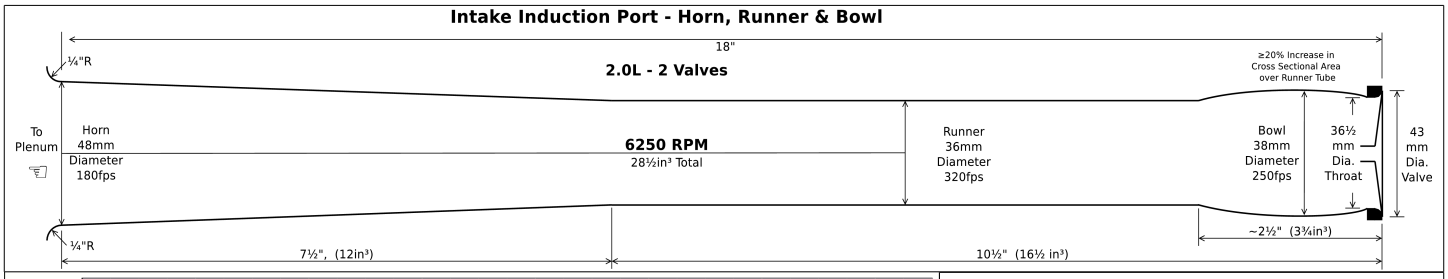
Manual Transmission Ratios:

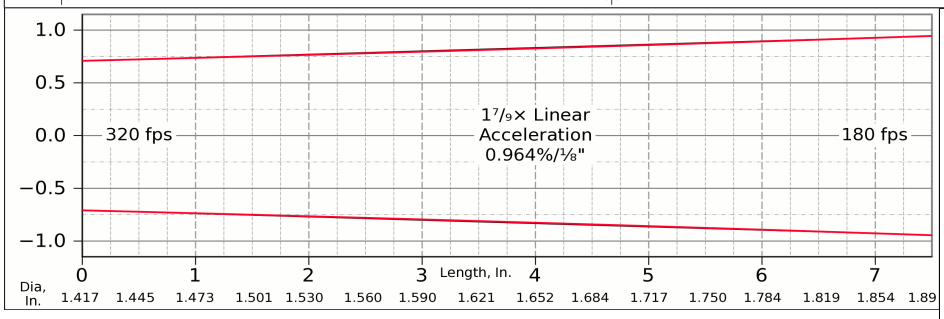
1:3.500	**2:**2.056	**3:**1.375	**4:**1.037	**5:**0.850
42/12	37/18	33/24	28/27	17/20
Rev:–3.818	**TtlΔ:**4.118	**Diff:**3.750	**Final:**3.188	
42/11		45/12	**Overdrive**	

SuperTech Valves; Intake: Stainless Black Nitrited, Anti-Reversion Groove, 37½° Cut, Newen 38° Continuous Radius Valve Seat, Exhaust: Sodium Filled Inconel, 44½° Cut, Seat 30°, 45°, 60° Angles, Port Air Suction. Keystone™ (Conical Taper) Valve Springs, Titanium Retainers, Silicon Bronze Guides. Camshafts: Engle W120 @.496”, WebCam 163 @.500” || 86A @.502”, Engle W110 @.490”, Scat C35 @.495”, CB Perf. 2240 @.473”. JE Aluminum Hypereutectic Pistons with Abradable Molybdenum or Graphite Skirt Coating, Low Tension Rings and Piston Oil Squirters. Thermally Insulated Ceramic Coated Combustion Chamber & Exhaust Port. Scandium Aluminum (Al6Mg½Sc) Case with 4340 ChroMoly Studs and Offset Thick Walled Plateau Honed Cylinder Jugs. Forged & Nitrited 4340 ChroMoly: Scat Crank & 5⅜” (√3), 5⅜” (1.651), 5⅔” (1⅔), Scat H-Beam Rods. Kings Bearings, Crankshaft & Cam WPC Micro Shot Peening & CTP Cryogenic, ESP Armor. Fully Balanced, Fluid Damped Harmonic Balancer, Dog House or Porsche Shroud. Dual Plane Intake Manifold w/ Crossover, Carburation: Aisin 21100-35463 (1985+ Toyota 22R) [26/40] (150), Rochester VaraJet 2SE (175), Rochester 2GC [2×35] (185), Weber: 32/36 [26/27] (115); 40 IDF [2×32] (175); 48 IDA [2×37] (200), 28mm & 2×40mm Triple Venturies w/ Annular Boosters (225), or Bosch Sequential LH-Jetronic EFI w/O_2 Sensor, MSD Elect. Ignition, EGR for Cylinder Head Temperature Control, Ceramic Coated Tri-Y Exhaust Header: 1½”o.d, 18 gauge pipe, 18” sections w/ PulseAir connections. High Output Oil Pump, Over Sized Oil Cooler, External Oil Filter. Oil: High Zinc SAE 30 for 3K mi. break in, Chevron DELO XLE Synthetic Blend: 5W-30:Cold, 10W-30:Moderate or 15W-40:Hot Climates.

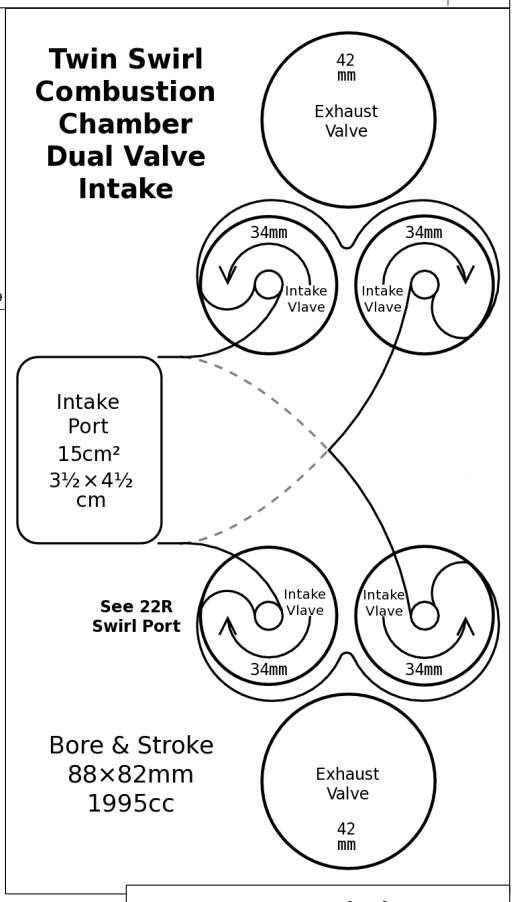
MotoMan's Engine **Break In Secrets** for proper ring seating.

18” Port Induction





7½” Horn – 1⁷/₉× Linear Acceleration



David Vizard ☎ ✉

How to Port & Flow Test Cylinder Heads
Induction Optimization Flow Program
Carb Beats EFI, But Why?
Induction Fueling Strategy Tested & Found To Be...
5 Golden #1 Porting Rules - Part 1
5 Golden #1 Porting Rules - Part 2
5 Golden #1 Porting Rules - Part 3
5 Golden #1 Porting Rules - Part 4
5 Golden Rules for Pro Grade Porting
Which to Prioritize – Port Flow or Port Velocity
Quench Action - Money Saving Power Adder
Big Return Hi-Tech Quench That
Pro-Stockers Don't Want You Know About
Easy, Simple, Near Secret Chamber Mods
Are Collector Anti Reversion Devices A Waste of Time
Big Hidden HP from Anti Reversion Mods
Hyper Advanced Pro Stock Plus Camshaft Tech

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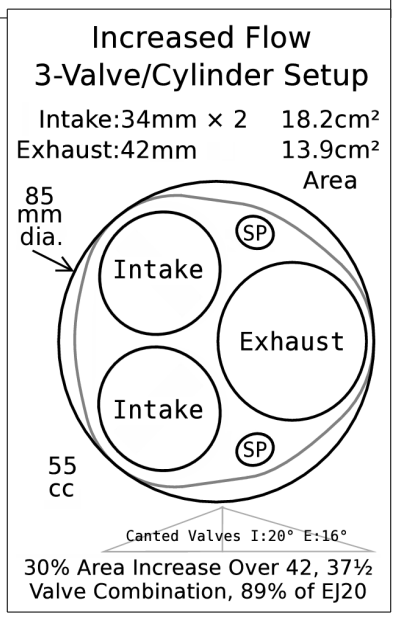
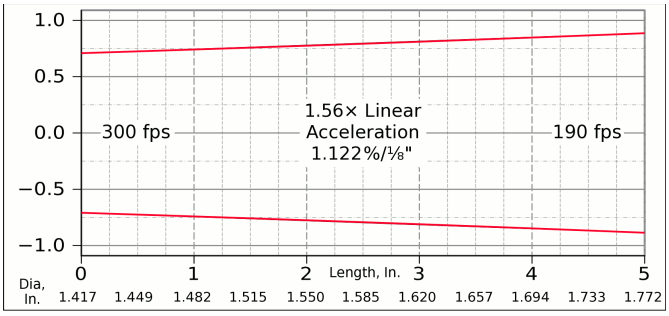
Design Your Engines with Personality
LSA An Inside View of Designing Race Winning Camshafts
My Racing Success with Camshaft LSA & Intake Centerline
Is It an Input? What About Factory VVT

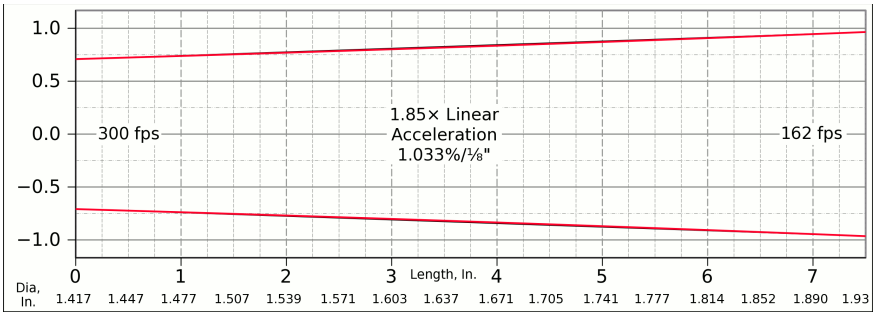
VW Boxer Spreadsheet

PipeMax Intake & Exhaust Header Design Software

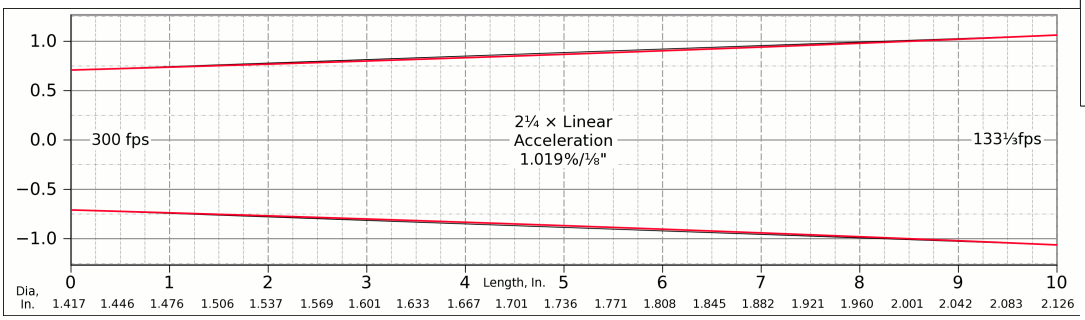




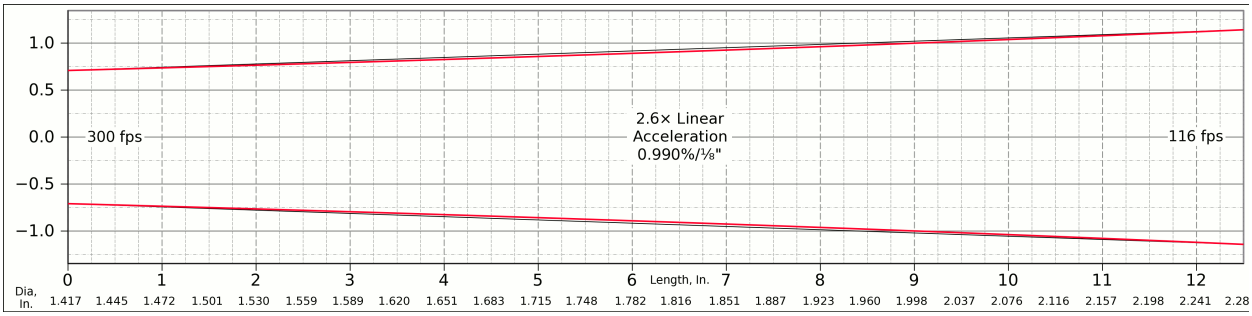
5” Horn – 1.56× Linear Acceleration



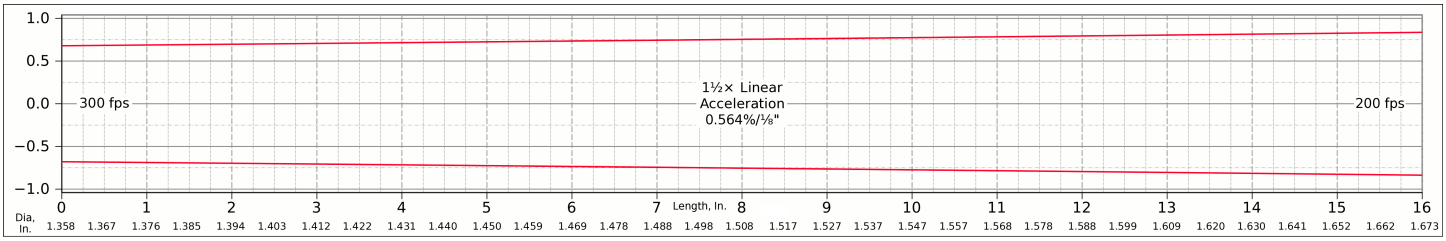
7½” Horn – 1.85× Linear Acceleration



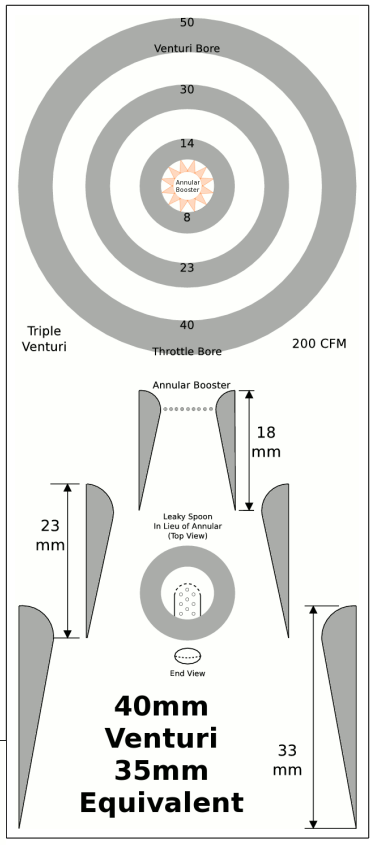
10” Horn – 2¼× Linear Acceleration



12½” Horn – 2.6× Linear Acceleration



16” Long × 34½×42½mm Dia. Horn – Vol. 28¾in³ – 1½× Linear Acceleration



~~Sem~~ Mais Alta Potência