For over 100 years, BorgWarner has exhibited their commitment to the automotive industry and motorsports through the momentum of their technological advances. In the late 1990’s, BorgWarner took the step of becoming a pacesetter in leading turbo technologies. In October of 1998, BorgWarner, Inc. purchased 100% of the net assets of German turbocharger and turbo machinery manufacturer, AG Kühnle, Kopp & Kausch renaming it 3K-Warner Turbosystems. In March of the following year BorgWarner acquired Kuhlman Corporation in order to gain access to Schwitzer, Inc., which was a leading manufacturer of turbochargers for commercial transportation and industrial equipment. Since the integration of 3K-Warner Turbosystems and Schwitzer, BorgWarner Turbo Systems continues to set new technological standards in the field of engine boosting.

BorgWarner Turbo Systems provides customers worldwide with a comprehensive range of 3K and Schwitzer replacement turbochargers and spare parts.

Fast forward to the new millennium and BorgWarner Turbo Systems has become a well positioned player in the engine boosting arena, with development centers, production sites and sales offices throughout the world. In keeping with our maxim “Local Power—Global Strengths” we use all of the resources and talents available within our worldwide organization to surpass the needs of our customers. To ensure that our sites work efficiently across the world, we have standardized vital processes and best practice methods, without compromising location-specific flexibility and autonomy. Our goal is to continually offer you solutions that are perfectly tailored to meet the specific requirements of you and your market.
# Table of Contents

- Technology & Innovation ........................................... 4
- Commitment to Performance ....................................... 5
- Motorsports .......................................................... 6-7
- BorgWarner Boosted ................................................... 8-9
- Match-Bot Instructional .............................................. 10
- About EFR .................................................................... 11
- EFR 6258 ..................................................................... 12-13
- EFR 6758 ..................................................................... 14-17
- EFR 7163 ..................................................................... 18-20
- EFR 7064 ..................................................................... 21-23
- EFR 7670 ..................................................................... 24-26
- EFR 8374 ..................................................................... 27-29
- EFR 9180 ..................................................................... 30-32
- EFR Supplemental Turbine Housings & Ancillary Parts ...... 33-35
- Intro to AirWerks ......................................................... 36
- S1BG ............................................................................ 37
- S200 ............................................................................ 38
- S200SX ....................................................................... 39
- S300SX3 ..................................................................... 40-41
- S300GX ....................................................................... 42
- S400SX3 ..................................................................... 43-49
- S400SX4 ..................................................................... 49-51
- S400SX Super Core ...................................................... 52
- S500SX ....................................................................... 53-54
- S500SX Super Core ...................................................... 55
- S510 ............................................................................ 56
- BV50 (997 Turbo Upgrade) ........................................... 57
- K03-2074 (Mini upgrade) .............................................. 58
- K03-2080 (Audi A4 upgrade) ......................................... 59
- K04-2075 (Audi upgrade) .............................................. 60-61
- K04-2283 (Audi upgrade) .............................................. 62
- K16-2480 (Volvo upgrade) ............................................ 63
- K27-3072 ..................................................................... 64
- K29-3775 ..................................................................... 65
- K44 ............................................................................. 66
- Warranty Statement ...................................................... 67

World Headquarters: Kirchheimbolanden, Germany
Innovation, speed, flexibility, quality and a customer focus are the yardsticks by which our customers measure us. We therefore not only explore new avenues in technological development – we also seek ways to further improve cooperation with our customers in product development, manufacturing and quality assurance. Yet the fast exchange of the latest product data with the customer is also becoming increasingly important in setting up optimum processes. From the very start of development, we involve people from design, production, purchasing and quality assurance to save time and money and ensure that the turbocharging systems we supply meet proven serial production quality in terms of reliability and performance right from start of production.

The latest generations of compressor and turbine stages assure optimum thermodynamic results. With the further development of materials and processing methods – such as forged milled compressor wheels – we not only optimize performance, but also enhance durability and reliability of our turbocharging systems.
Innovation, a fruit of competition

Racing has long been known as a fertile research and development arena and proving ground for new technology. BorgWarner takes full advantage of its rich racing heritage using some of the same materials and aerodynamic techniques that produced boost for winning cars, elevating and incorporating it into the hardware available through BorgWarner Turbo Systems. Partnerships fostered at the track can create alignment and uncommon results, in the marketplace.

Commitment to performance

AirWerks is an independent aftermarket program from BorgWarner Turbo Systems. This venture is focused on creating exceptionally high engine performance through forced induction technology. Why do the world’s most prominent auto manufacturers select products from BorgWarner Turbo Systems? Simply put, we are the world leader in turbos for high speed, high temperature gasoline engines. The BorgWarner Turbo Systems performance line features an assortment of carefully chosen K and S series turbochargers and the EFR series to meet a wide array of high-performance engine requirements. These turbos will be steadily improved based on the latest findings in aerodynamic and materials technology.

Audi 90 (quattro) GTO was one of the most technologically advanced four-door race cars to ever hit the tracks. The 1988 Trans Am Manufacturer’s champion was banned from the 1989 season due to its dominance. Boost was provided by a single BorgWarner K-series turbocharger.

Mercedes Silver Arrows C11, World Sportscar Champion. 5.0 liter V8 twin 3K turbo engine
Team: Papadakis Racing / Need for Speed, Scion tC
Driver: Fredric Aasbo
Vehicle: 2011 Scion tC RWD conversion
Racing Venue: Formula Drift
Current Turbo(s) of choice: EFR 7670

Team: Nemo Racing
Driver: Chris Eaton
Vehicle: Mitsubishi Evo 9
Racing Venue: World Time Attack Challenge
Current Turbo(s) of choice: EFR-8374D
From 1952, when the first forced induction motor vehicle graced the Indianapolis Motor Speedway, to the Mulsanne of Le Mans and the winding roads of Nürburgring. These are just a few settings where turbochargers from BorgWarner were pushed to their engineering limits, and thrived.

Precision engineering can be learned from decades of championship level motorsports participation and that legacy is embedded into every genuine BorgWarner turbocharger.

2012 marked the return of the turbocharged engine to the IZOD Indy Car Series with BorgWarner Turbo Systems providing its pace setting expertise in engine boosting technology.
BorgWarner Boosted!

Driver: Carey Bales
Vehicle: Honda S2000
Racing Venue: NHRA Super Stock
Current Turbo(s) of choice: S400SX3

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX

Driver: Chuck Johnson
Vehicle: Nissan S13 240SX
Racing Venue: World Land Speed Record Bonneville
Current Turbo(s) of choice: EFR 8374

Team: ADF Motorsport
Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Team: Stuckey Racing
Driver: Phillip Palmer
Vehicle: Dodge S 9
Racing Venue: NHRA
Current Turbo(s) of choice: Compound S400SX & S500SX

Team: Tilton Interiors Racing
Driver: Kastya Pohorukov & Garth Walden
Vehicle: Mitsubishi Evo 9
Racing Venue: Superlap, WTAC
Current Turbo(s) of choice: S300SX

Team: Stuckey Racing
Driver: Phillip Palmer
Vehicle: Dodge S 9
Racing Venue: NHRA
Current Turbo(s) of choice: Compound S400SX & S500SX

Driver: Eric Calabrese
Vehicle: Volkswagen Bug
Racing Venue: Pro Racing Association
Current Turbo(s) of choice: Single S400SX

Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Driver: Kostya Pohorukov & Garth Walden
Vehicle: Mitsubishi Evo 9
Racing Venue: Superlap, WTAC
Current Turbo(s) of choice: S300SX

Driver: Carey Bales
Vehicle: Honda S2000
Racing Venue: NHRA Super Stock
Current Turbo(s) of choice: S400SX3

Team: Tilton Interiors Racing
Driver: Kostya Pohorukov & Garth Walden
Vehicle: Mitsubishi Evo 9
Racing Venue: Superlap, WTAC
Current Turbo(s) of choice: S300SX

Driver: Eric Calabrese
Vehicle: Volkswagen Bug
Racing Venue: Pro Racing Association
Current Turbo(s) of choice: Single S400SX

Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Team: ADF Motorsport
Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX

Team: ADF Motorsport
Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Team: Stuckey Racing
Driver: Phillip Palmer
Vehicle: Dodge S 9
Racing Venue: NHRA
Current Turbo(s) of choice: Compound S400SX & S500SX

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX

Team: Tilton Interiors Racing
Driver: Kostya Pohorukov & Garth Walden
Vehicle: Mitsubishi Evo 9
Racing Venue: Superlap, WTAC
Current Turbo(s) of choice: S300SX

Driver: Eric Calabrese
Vehicle: Volkswagen Bug
Racing Venue: Pro Racing Association
Current Turbo(s) of choice: Single S400SX

Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Driver: Kostya Pohorukov & Garth Walden
Vehicle: Mitsubishi Evo 9
Racing Venue: Superlap, WTAC
Current Turbo(s) of choice: S300SX

Driver: Carey Bales
Vehicle: Honda S2000
Racing Venue: NHRA Super Stock
Current Turbo(s) of choice: S400SX3

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX

Team: Stuckey Racing
Driver: Phillip Palmer
Vehicle: Dodge S 9
Racing Venue: NHRA
Current Turbo(s) of choice: Compound S400SX & S500SX

Driver: Eric Calabrese
Vehicle: Volkswagen Bug
Racing Venue: Pro Racing Association
Current Turbo(s) of choice: Single S400SX

Driver: Tony & Bob Niemczyk
Vehicle: Dragster
Racing Venue: NHRA Comp Eliminator 1-Drag Class
Current Turbo(s) of choice: S400SX

Team: Team VCMC
Driver: Richard Basford & Sead Causevic
Vehicle: Scion FR-S
Racing Venue: Knox Mountain Hill Climb, Pikes Peak Hill Climb
Current Turbo(s) of choice: S200SX
Team: Green Brothers Racing  
Driver: Ben Belcher  
Vehicle: Mazda RX7  
Racing Venue: D1NZ  
Current Turbo(s) of choice: S300SX

Team: FMD  
Driver: Billy Johnson  
Vehicle: Acura NSX  
Racing Venue: Time Attack  
Current Turbo(s) of choice: EFR 9180

Team: Level 5 Motorsports  
Driver: Scott Tucker  
Vehicle: Honda - HPD ARX03b  
Racing Venue: Superlap, VTAC  
Current Turbo(s) of choice: Twin EFR6758s

Team: FCS Racing  
Driver: Jason Park  
Vehicle: Acura  
Racing Venue: Sport Compact FWD  
Current Turbo(s) of choice: S400SX 72mm

Driver: Mike Reichen  
Vehicle: Mitsubishi EVO  
Racing Venue: Standing mile/Drift Racing/Dyno  
Current Turbo(s) of choice: Single S400SX

Team: Mike Ryan Motorsports  
Driver: Mike Ryan  
Vehicle: Freightliner  
Racing Venue: Pikes Peak International Hill Climb  
Current Turbo(s) of choice: S510SX

Team: EB3 Motorsports  
Driver: Ev Bernardo  
Vehicle: 1996 Ford Mustang  
Current Turbo(s) of choice: Twin S500SX

Driver: Wade Moody  
Vehicle: Chevy Duramax  
Racing Venue: NADW, NHRDA  
Current Turbo(s) of choice: Twin S200SX3
The team at BorgWarner has developed an interactive turbo matching program that is internet based. Called Match-Bot, the first step is to enter the engine input data. For each piece of input data, helpful pop-up’s are provided. These helpful tips guide the user through entering appropriate engine targets by means of giving example ranges of numbers. Parameters such as BSFC, VE, and exhaust gas temperature is often difficult for the user to estimate, but helpful suggestions are offered each step of the way.

### Calculated Outputs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
<th>Value 5</th>
<th>Value 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Compressor Pressure Ratio</td>
<td>1.36</td>
<td>1.71</td>
<td>2.07</td>
<td>2.22</td>
<td>2.23</td>
<td>2.23</td>
</tr>
<tr>
<td>Compressor Outlet Temp</td>
<td>149.05</td>
<td>200.46</td>
<td>240.46</td>
<td>252.92</td>
<td>263.94</td>
<td>282.25</td>
</tr>
<tr>
<td>Boosted Indicated Air Vel</td>
<td>79.74</td>
<td>61.79</td>
<td>58.92</td>
<td>58.73</td>
<td>58.29</td>
<td>57.70</td>
</tr>
<tr>
<td>Indicated Air Density</td>
<td>0.000057</td>
<td>0.000047</td>
<td>0.000085</td>
<td>0.000089</td>
<td>0.000089</td>
<td>0.000088</td>
</tr>
<tr>
<td>Density Flow Stoichiometry</td>
<td>1.34</td>
<td>1.97</td>
<td>2.01</td>
<td>2.12</td>
<td>2.1</td>
<td>2.07</td>
</tr>
<tr>
<td>Actual Flow Stoichiometry</td>
<td>7.84</td>
<td>14.2</td>
<td>19.96</td>
<td>24.14</td>
<td>34.15</td>
<td>28.04</td>
</tr>
<tr>
<td>Actual Flow Stoichiometry Pressure Correction</td>
<td>156.1</td>
<td>175.13</td>
<td>230.04</td>
<td>296.14</td>
<td>494.94</td>
<td>574.74</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>3.94</td>
<td>13.4</td>
<td>20.91</td>
<td>27.67</td>
<td>34.64</td>
<td>40.33</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>161.1</td>
<td>337.5</td>
<td>568.7</td>
<td>752.6</td>
<td>941.0</td>
<td>1098.1</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>12.1</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Corrected Flow Rate @ 59F lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Turbo Shaft Power %</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Engine Power HP</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>161.1</td>
<td>337.5</td>
<td>568.7</td>
<td>752.6</td>
<td>941.0</td>
<td>1098.1</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>12.1</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Corrected Flow Rate @ 59F lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Turbo Shaft Power %</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Engine Power HP</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>161.1</td>
<td>337.5</td>
<td>568.7</td>
<td>752.6</td>
<td>941.0</td>
<td>1098.1</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>12.1</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Corrected Flow Rate @ 59F lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Turbo Shaft Power %</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Engine Power HP</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>161.1</td>
<td>337.5</td>
<td>568.7</td>
<td>752.6</td>
<td>941.0</td>
<td>1098.1</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>12.1</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Corrected Flow Rate @ 59F lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Turbo Shaft Power %</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Engine Power HP</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>161.1</td>
<td>337.5</td>
<td>568.7</td>
<td>752.6</td>
<td>941.0</td>
<td>1098.1</td>
</tr>
<tr>
<td>Correct Air Flow Rate %</td>
<td>95.04%</td>
<td>49.99%</td>
<td>69.99%</td>
<td>79.99%</td>
<td>89.99%</td>
<td>99.99%</td>
</tr>
<tr>
<td>Correct Air Flow Rate</td>
<td>12.1</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
</tr>
<tr>
<td>Corrected Flow Rate @ 59F lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19.0</td>
<td>20.2</td>
<td>20.5</td>
</tr>
<tr>
<td>Turbo Shaft Power %</td>
<td>2.49</td>
<td>8.79</td>
<td>19.49</td>
<td>27.74</td>
<td>36.8</td>
<td>46.94</td>
</tr>
</tbody>
</table>

### Turbine Match Outputs

<table>
<thead>
<tr>
<th>Parameter</th>
<th>Value 1</th>
<th>Value 2</th>
<th>Value 3</th>
<th>Value 4</th>
<th>Value 5</th>
<th>Value 6</th>
</tr>
</thead>
<tbody>
<tr>
<td>Exhaust Mach #1 Pressure</td>
<td>3.2</td>
<td>6.8</td>
<td>10.9</td>
<td>14.4</td>
<td>17.7</td>
<td>21.4</td>
</tr>
<tr>
<td>Engine Shaft Power</td>
<td>2.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
<td>1.4</td>
</tr>
<tr>
<td>Turbine Efficiency Pressure</td>
<td>0.0017</td>
<td>0.0017</td>
<td>0.0018</td>
<td>0.0018</td>
<td>0.0018</td>
<td>0.0018</td>
</tr>
<tr>
<td>Flange Compressibility</td>
<td>19.9</td>
<td>19.9</td>
<td>19.9</td>
<td>19.9</td>
<td>19.9</td>
<td>19.9</td>
</tr>
<tr>
<td>Turbine Swallowing Parameter PHI</td>
<td>0.0219</td>
<td>0.0213</td>
<td>0.0214</td>
<td>0.0215</td>
<td>0.0216</td>
<td>0.0217</td>
</tr>
<tr>
<td>Turbine Corrected Flow @ 59F lb/min</td>
<td>147.5</td>
<td>289.35</td>
<td>299.11</td>
<td>299.11</td>
<td>299.11</td>
<td>299.11</td>
</tr>
<tr>
<td>Turbine Corrected Flow @ 59F lb/min</td>
<td>147.5</td>
<td>289.35</td>
<td>299.11</td>
<td>299.11</td>
<td>299.11</td>
<td>299.11</td>
</tr>
</tbody>
</table>

The Match-Bot interactive tool can be found at www.borgwarnerboosted.com
The EFR line of turbos was born out of an internal BorgWarner Turbo Systems program labeled Advanced Aftermarket Products or AAP. So, the first thing you might be wondering is what does a new product line of high-performance turbochargers have to do with commercial applications? Commercial/industrial turbo products have extreme requirements for durability, reliability, and aerodynamic performance. Since modern passenger car applications use turbos smaller than 55mm in turbine wheel diameter, it’s the aerodynamic development from the commercial side of the business (i.e. everything larger) that feeds into what the performance enthusiast wants and needs for big power production. Boost pressures of 45-50 psi (3 bar+) are the norm, not the exception. Also required is resistance to abusive thrust loads, high vibrations, and robustness for a wide range of lubrication conditions. Additionally, our commercial product validation standards are among the highest in the engine boosting industry – all good things that also benefit the performance enthusiast or racer.

Those are the commonalities, now here are the differences. Unlike commercial applications, high performance users want lightweight, compact, versatile designs. They also deliver the turbocharger very high exhaust gas temperatures and have high expectations for fast response. They also place value in cosmetic appearance and want integrated features that aid the installation process and remove the need for other turbo related accessories. Those performance and packaging requirements are quite common among the modern aftermarket passenger car turbo customer.

So, what happens when you tie together all those necessities and put them in front of passionate car people looking to advance the pace of aftermarket boosting solutions? There is a discovery that something new is needed in order to meet the needs of the next generation turbo consumer. There is the need for an “it” that really changes the game or raises the bar or whatever other metaphor you care to use.

---

An Equation for Engine Boosting Excellence

EFR Product Feature Set

Forced Milled Compressor Wheels (FMW)
Boost Control Solenoid Valve (BCSV)
Integrated Compressor Recirculation Valve (CRV)

Flexible Compressor Cover
Gamma-Ti Turbine Wheel & Shaft

Heat Resistant Turbine Housings
High Flow Wastegates

High Turbine Efficiency
Dual-Round Ball Bearing Cartridge with Ceramic Balls

About EFR Series

www.borgwarnerboosted.com

BorgWarner
EFR 6258

225 - 450 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T25 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179150</td>
<td>B1</td>
<td>179140</td>
<td>62</td>
<td>49</td>
<td>58</td>
<td>.64</td>
<td>T25</td>
</tr>
</tbody>
</table>
**EFR 6258**

**225 - 450 HP Turbo**

---

**Turbo Features**

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

**Not included with turbo assemblies:**

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

---

**Compressor Map**

---

**Super Core Configuration**

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

---

**Turbine Housing Options**

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581008000</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, WG</td>
</tr>
<tr>
<td>11581008001</td>
<td>0.85</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>11581008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll, WG</td>
</tr>
</tbody>
</table>

---

www.borgwarnerboosted.com

---
EFR 6758

275 - 500 HP Turbo

Turbo Frame Dimensions

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
-Forged milled extended tip compressor wheel
- Stainless steel turbine housing
-Water cooled bearing housing
-Large internal wastegate
-Compressor recirculation valve (a.k.a BOV)
-Boost control solenoid valve
-Standard T25 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
-Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbo Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179388</td>
<td>B1</td>
<td>179375</td>
<td>67</td>
<td>54</td>
<td>58</td>
<td>.64</td>
<td>T25</td>
</tr>
</tbody>
</table>
EFR 6758

225 - 500 HP Turbo

Turbo Frame Dimensions

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- T25 Inlet Connection

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581008001</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, WG</td>
</tr>
<tr>
<td>11581008002</td>
<td>0.80</td>
<td>T4</td>
<td>Twin Scroll, WG</td>
</tr>
<tr>
<td>11581008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll, WG</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
EFR 6758

225 - 500 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- V-Band Inlet Connection

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Turbo Frame Dimensions

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>115810080000</td>
<td>0.85</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>115810080002</td>
<td>0.80</td>
<td>T4</td>
<td>Twin Scroll, WG</td>
</tr>
<tr>
<td>115810080003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll, WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11589880035</td>
<td>B1</td>
<td>11587105001</td>
<td>67</td>
<td>54</td>
<td>58</td>
<td>0.85</td>
<td>V-Band</td>
</tr>
</tbody>
</table>
EFR 6758

225 - 500 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration
The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581008000</td>
<td>0.85</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>11581008001</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, WG</td>
</tr>
<tr>
<td>11581008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
<tr>
<td>11581009006</td>
<td>0.64</td>
<td>T25</td>
<td>Single Scroll, WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11589880037</td>
<td>B1</td>
<td>11587105001</td>
<td>67</td>
<td>54</td>
<td>58</td>
<td>0.80</td>
<td>T4</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
EFR 7163

225 - 550 HP Turbo

Turbo Features

- Mixed Flow Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- T25 Inlet Connection

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11631008001</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, WG</td>
</tr>
<tr>
<td>11631008002</td>
<td>0.80</td>
<td>T4</td>
<td>Twin Scroll, WG</td>
</tr>
<tr>
<td>11631008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
</tbody>
</table>

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11639880005</td>
<td>B1</td>
<td>11637105000</td>
<td>71</td>
<td>57</td>
<td>63</td>
<td>0.85</td>
<td>T25</td>
</tr>
</tbody>
</table>
Turbo Features

- Mixed Flow Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- V-Band Inlet Connection

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration
The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11631008000</td>
<td>0.85</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>11631008002</td>
<td>0.80</td>
<td>T4</td>
<td>Twin Scroll, WG</td>
</tr>
<tr>
<td>11631008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11639880006</td>
<td>B1</td>
<td>11637105000</td>
<td>71</td>
<td>57</td>
<td>63</td>
<td>0.80</td>
<td>V-Band</td>
</tr>
</tbody>
</table>
Turbo Features

- Mixed Flow Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled Aluminum bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>11631008000</td>
<td>0.85</td>
<td>T25</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>11631008002</td>
<td>0.80</td>
<td>V-Band</td>
<td>V-Band, WG</td>
</tr>
<tr>
<td>11631008003</td>
<td>0.85</td>
<td>V-Band</td>
<td>V-Band, Non WG</td>
</tr>
</tbody>
</table>

Turbo Part Number | Turbo Frame Size | Super Core Part Number | Comp. Wheel Outer Dia. (mm) | Comp. Wheel Inducer Dia. | Turbo Wheel Outer Dia. | Turbo A/R | Inlet Flange Config. |
<table>
<thead>
<tr>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
<th></th>
</tr>
</thead>
<tbody>
<tr>
<td>11639880002</td>
<td>B1</td>
<td>11637105000</td>
<td>71</td>
<td>57</td>
<td>63</td>
<td>0.80</td>
<td>T4</td>
</tr>
</tbody>
</table>
EFR 7064

300 - 550 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a. BOV)
- Boost control solenoid valve
- Standard T3 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>12641008006</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12641008007</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12641019016</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179355</td>
<td>B2</td>
<td>179354</td>
<td>70</td>
<td>52</td>
<td>64</td>
<td>.83</td>
<td>T3</td>
</tr>
</tbody>
</table>

Corrected Mass Flow (lbs/min)

Pressure Ratio

Turbo Frame Dimensions

Turbo Frame Dimensions

- Oil inlet fitting
- 4AN Male
- 88.9mm (3.50)
- 92mm (3.62)
- 117.8mm (4.63)
- 168.2mm (6.62)
- Oil Drain capscrew holes
- 44.5mm (1.75)
- Oil Drain NPT
- 3/8 NPT
- M8X1.25 (38mm bolt spacing)
Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration
The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>12641008006</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12641008007</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12641019016</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>
EFR 7064

300 - 550 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12641008006</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12641008007</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12641019016</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
EFR 7670
375 - 650 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T3 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration
The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12701008014</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12701008016</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12701019047</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179351</td>
<td>B2</td>
<td>179350</td>
<td>76</td>
<td>57</td>
<td>70</td>
<td>.83</td>
<td>T3</td>
</tr>
</tbody>
</table>
EFR 7670

375 - 650 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled turbine housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12701008014</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12701008016</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12701019047</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179390</td>
<td>B2</td>
<td>179350</td>
<td>76</td>
<td>57</td>
<td>70</td>
<td>.92</td>
<td>T4</td>
</tr>
</tbody>
</table>
**Turbo Features**

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

**Not included with turbo assemblies:**

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

---

**Compressor Map**

---

**Super Core Configuration**

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

**Turbine Housing Options**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>12701008014</td>
<td>0.83</td>
<td>T3 Single Scroll WG</td>
<td></td>
</tr>
<tr>
<td>12701008016</td>
<td>0.92</td>
<td>T4 Twin Scroll WG</td>
<td></td>
</tr>
<tr>
<td>12701019047</td>
<td>1.05</td>
<td>T4 Twin Scroll Non-WG</td>
<td></td>
</tr>
</tbody>
</table>

---

**Turbo Frame Dimensions**

- **Oil inlet fitting**: 50.8mm (2.00)
- **88.9mm (3.50)**
- **142mm (5.60)**
- **98.6mm (3.88)**
- **69.9mm (2.75)**
- **82.6mm (3.25)**
- **92mm (3.62)**
- **50.8mm (2.00)**

---

**EFR 7670**

375 - 650 HP Turbo

---

**Corrected Mass Flow (lbs/min)**

| Corrected Mass Flow (lbs/min) | 0 | 5 | 10 | 15 | 20 | 25 | 30 | 35 | 40 | 45 | 50 | 55 | 60 | 65 | 70 | 75 | 80 | 85 | 90 | 95 | 100 |
|-------------------------------|---|---|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|----|
| Pressure Ratio                | 0.6| 1.0| 1.6| 2.2| 2.8| 3.4| 4.0| 4.6| 5.2| 5.8| 6.4| 7.0| 7.6| 8.2| 8.8| 9.4| 10.0| 10.6| 11.2| 11.8| 12.4|

---

**EFR 7670 Super Core Configuration**

- **Part Number**: 179392
- **B2**: Frame Size
- **Outer Dia.**: 82
- **Inducer Dia.**: 76
- **Comp. Wheel Dia.**: 57
- **Turbo Wheel Dia.**: 70
- **Turbo A/R**: 1.05
- **Inlet Flange**: T4

---

**EFR 7670 Turbo Features**

- **Gamma-Ti turbine wheel**
- **Dual ceramic ball bearing assembly with metal cage**
- **Forged milled extended tip compressor wheel**
- **Stainless steel turbine housing**
- **Water cooled bearing housing**
- **Compressor recirculation valve (a.k.a BOV)**
- **Boost control solenoid valve**
- **Standard T4 mounting flange**

---

**EFR 7670 Turbo Frame Dimensions**

- **Oil inlet fitting**: 50.8mm (2.00)
- **88.9mm (3.50)**
- **142mm (5.60)**
- **98.6mm (3.88)**
- **69.9mm (2.75)**
- **82.6mm (3.25)**
- **92mm (3.62)**
- **50.8mm (2.00)**

---

**EFR 7670 Turbo Super Core Comp. Wheel Comp. Wheel Turbine Wheel Turbo Inlet Flange**

- **Part Number**: 179392
- **B2**: Frame Size
- **Outer Dia.**: 82
- **Inducer Dia.**: 76
- **Comp. Wheel Dia.**: 57
- **Turbo Wheel Dia.**: 70
- **Turbo A/R**: 1.05
- **Inlet Flange**: T4
**EFR 8374**

**475 - 750 HP Turbo**

**Turbo Features**
- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve [a.k.a BOV]
- Boost control solenoid valve
- Standard T3 mounting flange

**Not included with turbo assemblies:**
- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

**Compressor Map**

**Super Core Configuration**
The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

**Turbine Housing Options**

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12741008000</td>
<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12741008001</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12741019002</td>
<td>10.5</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

### Turbo Frame Dimensions

- **63.5mm (2.50)**
- **92mm (3.62)**
- **101.6mm (4.00)**
- **174.4mm (6.86)**
- **117.8mm (4.63)**

### Turbo Frame Dimensions (continued)

- **3/8 NPT Oil Drain**
- **44.5mm (1.75)**
- **86mm (3.38)**

---

**www.borgwarnerboosted.com**
**Turbo Features**

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

**Not included with turbo assemblies:**

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

---

**Compressor Map**

---

**Super Core Configuration**

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

**Turbine Housing Options**

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12741008000</td>
<td>.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12741008001</td>
<td>.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12741019002</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

---

**Turbo Frame Dimensions**

---

**EFR 8374**

**475 - 750 HP Turbo**
EFR 8374

475 - 750 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12741008000</td>
<td>.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12741008001</td>
<td>.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12741019002</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179393</td>
<td>B2</td>
<td>179257</td>
<td>83</td>
<td>62</td>
<td>74</td>
<td>1.05</td>
<td>T4</td>
</tr>
</tbody>
</table>

Turbo Frame Dimensions

www.borgwarnerboosted.com
EFR 9180

600 - 1000 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T3 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12801008002</td>
<td>.83</td>
<td>T3 Single Scroll WG</td>
</tr>
<tr>
<td>12801019009</td>
<td>0.92</td>
<td>T4 Twin Scroll WG</td>
</tr>
<tr>
<td>12801019001</td>
<td>1.05</td>
<td>T4 Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>179358</td>
<td>B2</td>
<td>179356</td>
<td>91</td>
<td>68</td>
<td>80</td>
<td>.83</td>
<td>T3</td>
</tr>
</tbody>
</table>
## Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Large internal wastegate
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T3 mounting flange

### Not included with turbo assemblies:
- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

## Compressor Map

## Turbo Frame Dimensions

### Turbo Frame Dimensions

<table>
<thead>
<tr>
<th>Turbo</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Turbo Inlet Flange Config</th>
</tr>
</thead>
<tbody>
<tr>
<td>12809880000</td>
<td>B2</td>
<td>179356</td>
<td>91</td>
<td>68</td>
<td>80</td>
<td>.92</td>
<td>T4</td>
</tr>
<tr>
<td>12801008002</td>
<td>.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12801019009</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>12801019001</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

## EFR 9180

600 - 1000 HP Turbo

## Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

## Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12801008002</td>
<td>.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12801019009</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12801019001</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>
EFR 9180

600 - 1000 HP Turbo

Turbo Features

- Gamma-Ti turbine wheel
- Dual ceramic ball bearing assembly with metal cage
- Forged milled extended tip compressor wheel
- Stainless steel turbine housing
- Water cooled bearing housing
- Compressor recirculation valve (a.k.a BOV)
- Boost control solenoid valve
- Standard T4 mounting flange

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting

Compressor Map

Super Core Configuration

The following parts are not included as part of the super-core assembly: turbine housing, assembly clamp plate hardware, wastegate parts.

Turbine Housing Options

<table>
<thead>
<tr>
<th>Turbo Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12801008002</td>
<td>.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
</tr>
<tr>
<td>12801019009</td>
<td>0.92</td>
<td>T4</td>
<td>Twin Scroll WG</td>
</tr>
<tr>
<td>12801019001</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Frame Size</th>
<th>Super Core Part Number</th>
<th>Comp. Wheel Outer Dia. (mm)</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Turbo Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>179394</td>
<td>82</td>
<td>179356</td>
<td>91</td>
<td>68</td>
<td>80</td>
<td>1.05</td>
<td>T4</td>
</tr>
</tbody>
</table>

Turbo Frame Dimensions

63.5mm (2.50)

92mm (3.62)

148mm (5.82)

98.6mm (3.88)

82.6mm (3.25)

69.9mm (2.75)

85.6

101.6mm (4.00)

4.00

65.3

85.6

116.0

0.77

0.76

0.75

0.74

0.73

0.72

0.70

0.68

0.65

0.60

5 10 16 21 26 31 37 42 48 53 58 64 68 74 79 84 89 95

1.0

1.6

2.2

2.8

3.4

4.0

4.6

5.2

Corrected Mass Flow (lbs/min)

Pressure Ratio

Turbo Super Core Comp. Wheel Comp. Wheel Turbine Wheel Turbo Inlet Flange

Part Number

Frame Size

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting
EFR Supplemental Turbine Housing Options

B1 Turbine Housing, “I” Type

- 58 and 63 mm trims, 085 A/R non-wastegated*
- Part Number 179430

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>11581008003</td>
<td>0.85</td>
<td>V-Band Inlet</td>
<td>Single Scroll, Non-WG</td>
</tr>
<tr>
<td>11631008003</td>
<td>0.85</td>
<td>V-Band Inlet</td>
<td>Single Scroll, Non-WG</td>
</tr>
</tbody>
</table>

**Note:** Sold as loose turbine housing only

B2 Turbine Housing, “H” Type

- 74 and 80mm trims, 1.45 A/R non-wastegated*
- Part Number 179426

<table>
<thead>
<tr>
<th>Turbine Housing Part Number</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>12741008003</td>
<td>1.45</td>
<td>T4</td>
<td>Twin Scroll, Non-WG</td>
</tr>
<tr>
<td>12801008006</td>
<td>1.45</td>
<td>T4</td>
<td>Twin Scroll, Non-WG</td>
</tr>
</tbody>
</table>

**Note:** Sold as loose turbine housing only

Ancillary Parts EFR Series

- Part Number 179430

- Part Number 179423

- Part Number 179424

- Part Number 179425

- Part Number 179426

Speed Sensor Kit

- (1) Speed sensor, frequency output
- (1) Speed sensor hold-down bolt

**Note:** Speed Sensor signal conversion and display accessories can be purchased at: www.roadragegages.com

Hardware/Installation Kit

- (1) Turbine housing outlet V-band clamp
- (2) V-band clamp nuts
- (2) Water port plugs
- (6) Water port plug sealing washers
- (2) Oil drain flange gaskets
- (1) Oil inlet fitting [-4an] w/seal and washer
- (1) Compressor cover outlet V-band clamp for 83 & 91mm
- (5) Clamp plate bolts
- (5) Clamp plates
- (1) Turbine inlet gasket for T25 flange
- (1) Turbine inlet gasket for T3 flange
- (1) Turbine inlet gasket for T4 divided flange

Compressor Recirculation Valve Kit

- (1) CRV plastic cover w/hose nipple
- (1) CRV disabling block-off plate
- (1) CRV diaphragm/piston assembly
- (1) CRV spring
- (3) Cover plate bolts w/locking compound

Boost Control Solenoid Valve (BCSV) Kit

- (1) Boost control solenoid valve
- (2) BCSV screws
- (4) Hose clamps
- (1) Compressor cover boost port fitting
- (1) Comp cover boost port washer
- (1) Wastegate signal hose, 110mm
- (1) Wastegate signal hose, 410mm

Wastegate Hose Kit

- (1) Wastegate signal hose, 410mm
- (2) Hose clamps

www.borgwarnerboosted.com
## EFR Wastegate Canister Selection Guide

<table>
<thead>
<tr>
<th>Core Assy</th>
<th>0.64a/r TH</th>
<th>0.80a/r TH</th>
<th>0.83a/r TH</th>
<th>0.85a/r TH</th>
<th>0.92a/r TH</th>
</tr>
</thead>
<tbody>
<tr>
<td>6258</td>
<td>179282, 179283, or 179284</td>
<td>179420, 179421, or 179422</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
</tr>
<tr>
<td>6258*</td>
<td>179282, 179283, or 179284</td>
<td>179420, 179421, or 179422</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
</tr>
<tr>
<td>6758</td>
<td>179282, 179283, or 179284</td>
<td>179420, 179421, or 179422</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
</tr>
<tr>
<td>6758*</td>
<td>179282, 179283, or 179284</td>
<td>179420, 179421, or 179422</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
</tr>
<tr>
<td>7163*</td>
<td>179420, 179421, or 179422</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
<td>179282, 179283, or 179284</td>
</tr>
</tbody>
</table>

## EFR Wastegate Canister Bracket Kit Selection Guide

Each Wastegate Bracket Kit Includes:
- (1) Stainless steel bracket
- (3) Bracket to bearing housing screws
- (2) Canister to bracket lock nuts
- (1) Actuator rod nut (outboard side)
- (1) Long 410mm wastegate signal hose
- (2) Hose clamps

*Core assembly includes aluminum bearing housing

## EFR Turbine Housing Product Selection Guide

<table>
<thead>
<tr>
<th>Turbine Housing Configuration</th>
<th>TH Letter Designation</th>
<th>6258</th>
<th>6758</th>
<th>7163</th>
<th>7064</th>
<th>7670</th>
<th>8374</th>
<th>9180</th>
</tr>
</thead>
<tbody>
<tr>
<td>.64 A/R, T25 flange</td>
<td>A-Type</td>
<td>179150</td>
<td>179388</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.83 A/R, T3 flange</td>
<td>B-Type</td>
<td>179428</td>
<td>179428</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.92 A/R, T4 flange</td>
<td>C-Type</td>
<td>179428</td>
<td>179428</td>
<td>179427</td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin Scroll, WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>1.05 A/R, T4 flange</td>
<td>D-Type</td>
<td>179428</td>
<td>179428</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin Scroll, Non-WG</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.85 A/R, T25 flange</td>
<td>F-Type</td>
<td>1158980034</td>
<td>1158980006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, WG</td>
<td></td>
<td>11581009006</td>
<td>11581009006</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.85 A/R, V-Band Inlet</td>
<td>F-Type</td>
<td>1158980035</td>
<td>1158980005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, WG</td>
<td></td>
<td>11581009001</td>
<td>11581009001</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.80 A/R, T4 flange</td>
<td>G-Type</td>
<td>1158980036</td>
<td>1158980005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Twin Scroll, WG</td>
<td></td>
<td>11581009002</td>
<td>11581009002</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.85 A/R, V-Band Inlet</td>
<td>H-Type</td>
<td>Sold as loose housing only</td>
<td>Sold as loose housing only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, Non-WG</td>
<td></td>
<td>11581009005</td>
<td>11631009005</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>.85 A/R, V-Band Inlet</td>
<td>I-Type</td>
<td>Sold as loose housing only</td>
<td>Sold as loose housing only</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Single Scroll, Non-WG</td>
<td></td>
<td>11581009003</td>
<td>11631009003</td>
<td></td>
<td></td>
<td></td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Legend:
- Turbo Assembly
- TH Assembly

www.borgwarnerboosted.com
### Ancillary Parts EFR Series

<table>
<thead>
<tr>
<th>ROD &amp; SPRING FULL STROKE PRELOAD</th>
<th>179282, 179420, or 179285</th>
<th>179283, 179421, or 179286</th>
<th>179284, 179422, or 179287</th>
</tr>
</thead>
<tbody>
<tr>
<td>LOW BOOST WG CANISTER</td>
<td>Pressure (psi)</td>
<td>Pressure (psi)</td>
<td>Pressure (psi)</td>
</tr>
<tr>
<td>WG Crack-Open</td>
<td>Full Stroke</td>
<td>Full Stroke</td>
<td>Full Stroke</td>
</tr>
<tr>
<td>Pressure (psi)</td>
<td>Pressure (psi)</td>
<td>Pressure (psi)</td>
<td>Pressure (psi)</td>
</tr>
<tr>
<td>0</td>
<td>4.0 psi</td>
<td>8.8 psi</td>
<td>16.8 psi</td>
</tr>
<tr>
<td>0.67&quot; (17mm)</td>
<td>13.7 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>1</td>
<td>4.9 psi</td>
<td>9.6 psi</td>
<td>17.3 psi</td>
</tr>
<tr>
<td>0.63&quot; (16mm)</td>
<td>13.8 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>2</td>
<td>5.7 psi</td>
<td>10.8 psi</td>
<td>17.6 psi</td>
</tr>
<tr>
<td>0.59&quot; (15mm)</td>
<td>14.0 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>3</td>
<td>6.1 psi</td>
<td>11.2 psi</td>
<td>17.8 psi</td>
</tr>
<tr>
<td>0.55&quot; (14mm)</td>
<td>14.1 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>4</td>
<td>6.8 psi</td>
<td>11.9 psi</td>
<td>17.9 psi</td>
</tr>
<tr>
<td>0.51&quot; (13mm)</td>
<td>14.3 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>5</td>
<td>7.3 psi</td>
<td>12.3 psi</td>
<td>18.1 psi</td>
</tr>
<tr>
<td>0.47&quot; (12mm)</td>
<td>14.4 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>6</td>
<td>8.0 psi</td>
<td>13.2 psi</td>
<td>18.6 psi</td>
</tr>
<tr>
<td>0.43&quot; (11mm)</td>
<td>14.4 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>7</td>
<td>8.5 psi</td>
<td>14.0 psi</td>
<td>19.0 psi</td>
</tr>
<tr>
<td>0.39&quot; (10mm)</td>
<td>14.6 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>8</td>
<td>9.1 psi</td>
<td>14.5 psi</td>
<td>19.3 psi</td>
</tr>
<tr>
<td>0.35&quot; (9mm)</td>
<td>14.6 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>9</td>
<td>9.6 psi</td>
<td>14.8 psi</td>
<td>19.4 psi</td>
</tr>
<tr>
<td>0.31&quot; (8mm)</td>
<td>14.7 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>10</td>
<td>9.9 psi</td>
<td>14.7 psi</td>
<td>19.6 psi</td>
</tr>
<tr>
<td>0.28&quot; (7mm)</td>
<td>14.7 psi</td>
<td>20.6 psi</td>
<td>32.3 psi</td>
</tr>
<tr>
<td>Use with up to 13 psi applied pressure</td>
<td>Use with up to 19 psi applied pressure</td>
<td>Use with up to 31 psi applied pressure</td>
<td></td>
</tr>
</tbody>
</table>

**Note 1:** Avoid too little preload. The diaphragm can rub (and wear) against the top of the can. We recommend 3mm of preload as a starting point.

**Note 2:** Avoid too much preload. Too much preload can cause premature diaphragm wear, but can be used functionally to limit travel and avoid boost droop at high RPM.

**Note 3:** When using solenoid valve boost control, the signal pressure that the WG canister sees can be bled off. Select a canister that will allow nearly full stroke.

**Note 4:** The "use with up to" pressures avoid long-term wear. By bottoming out the stroke, the diaphragm can be distressed over the course of time.

**Note 5:** EFR turbo assemblies come standard with the "Medium Boost" WG canisters. "Low" or "High" boost actuator canisters can be purchased from and EFR dealer.

---

2012 LMP2 Class Winner of 24 hours of Le Mans, 12 hours of Sebring

**Team:** Starworks Motorsport  
**Vehicle:** Honda - HPD ARX03b  
**Racing Venue:** American Le Mans Series, World Endurance Championship  
**Turbo of choice:** Twin EFR6758s

www.borgwarnerboosted.com
AirWerks Series

In 2002, the aftermarket group of BorgWarner Turbo Systems started a program named AirWerks. This independent aftermarket program was created to assist the needs of BorgWarner distributors who currently sell into the market of competitive motorsports or are assisting those customers who are looking for a little more performance to a factory turbocharged car or to retrofit a naturally aspirated engine.

When D Sport magazine started building a Honda engine for the 72MM class limit turbo, they reached for the S400SX3 from BorgWarner’s Airwerks division. This turbo is capable of supporting over 1000 horsepower, offers superquick response and the durability associated with the BorgWarner name.

Team: Speedfactory
Driver: Cole Marmon
Vehicle: Civic
Racing Venue: Sport Compact FWD
Turbo of choice: S400SX 72mm
S1BG

120 - 320 HP Turbo

**Turbo Features**

- Twin hydrodynamic journal bearings
- Integrated wastegate assembly
- Adjustable compressor and turbine housing orientation

**Compressor Map**

(Applicable to part number 313296)

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Exducer</th>
<th>Turbine Exducer (mm)</th>
<th>A/R Assembly Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>313295</td>
<td>1.90</td>
<td>1.35</td>
<td>34</td>
<td>1.85</td>
<td>47</td>
<td>1.57</td>
<td>40</td>
<td>.35</td>
</tr>
<tr>
<td>313296</td>
<td>2.08</td>
<td>1.55</td>
<td>39</td>
<td>2.08</td>
<td>53</td>
<td>1.80</td>
<td>46</td>
<td>.46</td>
</tr>
<tr>
<td>313683</td>
<td>2.08</td>
<td>1.55</td>
<td>39</td>
<td>2.08</td>
<td>53</td>
<td>1.80</td>
<td>46</td>
<td>.61</td>
</tr>
<tr>
<td>313798</td>
<td>2.28</td>
<td>1.70</td>
<td>43</td>
<td>2.08</td>
<td>53</td>
<td>1.80</td>
<td>46</td>
<td>.81</td>
</tr>
</tbody>
</table>

**Turbo Frame Dimensions**

- Twin hydrodynamic journal bearings
- Integrated wastegate assembly
- Adjustable compressor and turbine housing orientation

---

**Compressor Map**

(Applicable to part number 313296)
S200

320 - 580 HP Turbo

Turbo Frame Dimensions

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

Compressor Map

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>317222</td>
<td>3.14</td>
<td>2.20</td>
<td>56</td>
<td>2.92</td>
<td>74</td>
<td>2.54</td>
<td>65</td>
<td>.85</td>
<td>316999</td>
<td>318382</td>
</tr>
<tr>
<td>317246</td>
<td>3.14</td>
<td>2.20</td>
<td>56</td>
<td>2.92</td>
<td>74</td>
<td>2.54</td>
<td>65</td>
<td>.76</td>
<td>316999</td>
<td>318382</td>
</tr>
</tbody>
</table>
Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation

Compressor Map

(Applicable to part number 177268)

Turbo Frame Dimensions

<table>
<thead>
<tr>
<th>Turbo Features</th>
<th>Compressor Map</th>
<th>Turbine Housing</th>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td></td>
<td></td>
<td></td>
<td>177193</td>
<td>1.00</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>177192</td>
<td>1.15</td>
</tr>
<tr>
<td></td>
<td></td>
<td></td>
<td>177194</td>
<td>1.22</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>177258</td>
<td>2.74</td>
<td>1.81</td>
<td>46</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>.83</td>
<td>176639</td>
<td>318383</td>
</tr>
<tr>
<td>177267</td>
<td>2.74</td>
<td>1.95</td>
<td>50</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>1.09</td>
<td>176642</td>
<td>318383</td>
</tr>
<tr>
<td>177257</td>
<td>2.74</td>
<td>2.00</td>
<td>51</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>.83</td>
<td>176638</td>
<td>318383</td>
</tr>
<tr>
<td>177268</td>
<td>3.00</td>
<td>2.19</td>
<td>56</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>1.22</td>
<td>176637</td>
<td>318383</td>
</tr>
<tr>
<td>178034*</td>
<td>3.00</td>
<td>2.20</td>
<td>56</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>1.22</td>
<td>N/A</td>
<td>318383</td>
</tr>
<tr>
<td>178042*</td>
<td>3.00</td>
<td>2.20</td>
<td>56</td>
<td>2.74</td>
<td>70</td>
<td>2.42</td>
<td>61</td>
<td>1.27</td>
<td>N/A</td>
<td>318383</td>
</tr>
</tbody>
</table>

* Compressor inlet diameter 4.00"
Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing options available
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

Compressor Map
(Applicable to part number 177281 & 177275)

Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>177211</td>
<td>0.88</td>
<td></td>
</tr>
<tr>
<td>177208</td>
<td>0.91</td>
<td></td>
</tr>
<tr>
<td>177209</td>
<td>1.00</td>
<td>(177272 Only)</td>
</tr>
<tr>
<td>177210</td>
<td>0.88</td>
<td>(177272 Only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbo Wheel O.D.</th>
<th>Turbo Wheel O.D. (mm)</th>
<th>Turbo Wheel Exducer</th>
<th>Turbo Wheel Exducer (mm)</th>
<th>Turbo A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>177281</td>
<td>3.60</td>
<td>2.60</td>
<td>66</td>
<td>3.14</td>
<td>80</td>
<td>2.89</td>
<td>73</td>
<td>.88</td>
<td>176634</td>
<td>318393</td>
</tr>
<tr>
<td>177275</td>
<td>3.60</td>
<td>2.60</td>
<td>66</td>
<td>3.14</td>
<td>80</td>
<td>2.89</td>
<td>73</td>
<td>.91</td>
<td>176646</td>
<td>318393</td>
</tr>
<tr>
<td>177272</td>
<td>3.29</td>
<td>2.36</td>
<td>60</td>
<td>3.00</td>
<td>76</td>
<td>2.66</td>
<td>68</td>
<td>.91</td>
<td>176635</td>
<td>318393</td>
</tr>
</tbody>
</table>
S300SX3

320 - 800 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing options available
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

Compressor Map

(Applicable to part number 177283)

Turbo Frame Dimensions

90 degree outlet angle

Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>177207</td>
<td>0.91</td>
<td>(177280 &amp; 283 Only)</td>
</tr>
<tr>
<td>177209</td>
<td>1.00</td>
<td>(177280 &amp; 283 Only)</td>
</tr>
<tr>
<td>177211</td>
<td>0.88</td>
<td>(177284 Only)</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbo Wheel Exducer</th>
<th>Turbo Wheel Exducer (mm)</th>
<th>Turbo A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>177280</td>
<td>3.29</td>
<td>2.36</td>
<td>60</td>
<td>3.00</td>
<td>76</td>
<td>2.66</td>
<td>68</td>
<td>.88</td>
<td>171901</td>
<td>318393</td>
</tr>
<tr>
<td>177283</td>
<td>3.44</td>
<td>2.48</td>
<td>63</td>
<td>3.00</td>
<td>76</td>
<td>2.66</td>
<td>68</td>
<td>.88</td>
<td>176648</td>
<td>318393</td>
</tr>
<tr>
<td>177284</td>
<td>3.60</td>
<td>2.60</td>
<td>66</td>
<td>3.14</td>
<td>80</td>
<td>2.89</td>
<td>73</td>
<td>.91</td>
<td>176650</td>
<td>318393</td>
</tr>
</tbody>
</table>
**Cummins 5.9 Upgrade**

BorgWarner S300G Upgrade Turbo for Cummins 5.9 Engines

**Turbo Features**

The BorgWarner S300GX replacement turbo is more than a great match for your Cummins 5.9 engine. The S300G is aerodynamically designed to provide boost that can propel your Cummins 5.9 engine to 400 wheel horsepower. A rugged thrust bearing system helps insure the durability of your S300G, even under these extreme load conditions.

To realize the full horsepower potential of your S300G, we highly recommend the use of the following upgrade components:

- 4” Exhaust System
- Performance Chip
- High Flow Fuel Injectors
- High Flow Air Filter
- Ram Air Intake Tube
- Boost Control Fitting

**Compressor Map**

![Compressor Map](image)

<table>
<thead>
<tr>
<th>Model Year</th>
<th>Transmission Type</th>
<th>Stock Horsepower</th>
<th>BWTS Turbo Part Number</th>
<th>Turbo Mfr. Model Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>1994</td>
<td>Auto</td>
<td>160</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1994</td>
<td>Manual</td>
<td>175</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1994</td>
<td>One Ton Truck</td>
<td>240</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1995</td>
<td>Auto</td>
<td>160</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1995</td>
<td>Manual</td>
<td>175</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1996</td>
<td>Auto</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1996</td>
<td>Manual</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1997</td>
<td>California Emission</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1997</td>
<td>Auto</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1997</td>
<td>Manual</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1997</td>
<td>California Emission</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1998</td>
<td>12 Valve Auto</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1998</td>
<td>12 Valve Manual</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1998</td>
<td>12 Calif Emission</td>
<td>180</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1998.5</td>
<td>12 Valve Auto &amp; Manual</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1999</td>
<td>Auto</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>1999</td>
<td>Manual</td>
<td>230</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2000</td>
<td>Auto</td>
<td>215</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2000</td>
<td>Manual</td>
<td>230</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2001</td>
<td>Auto</td>
<td>235</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2001</td>
<td>Manual</td>
<td>245</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2002</td>
<td>Auto</td>
<td>235</td>
<td>174430</td>
<td>S300G</td>
</tr>
<tr>
<td>2002</td>
<td>Manual</td>
<td>245</td>
<td>174430</td>
<td>S300G</td>
</tr>
</tbody>
</table>
Turbo Features

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Forged Milled Wheel Technology

Compressor Map

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>177102</td>
<td>0.90</td>
</tr>
<tr>
<td>177103</td>
<td>1.00</td>
</tr>
<tr>
<td>177104</td>
<td>1.10</td>
</tr>
<tr>
<td>177105</td>
<td>1.25</td>
</tr>
</tbody>
</table>

* Super core options found on page 52
### Turbo Frame Dimensions

![Turbo Dimensions Diagram]

### Turbo Features
- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Standard turbine inlet and outlet allows for drop-in to existing turbo'd applications
- Compressor cover recirculation grooves

### Compressor Map

![Compressor Map Diagram]

### Turbo Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
<td>0.90</td>
</tr>
<tr>
<td>178788</td>
<td>1.00</td>
</tr>
<tr>
<td>178789</td>
<td>1.10</td>
</tr>
<tr>
<td>178790</td>
<td>1.25</td>
</tr>
</tbody>
</table>

### Compressor Flow (lbs/m)

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia</th>
<th>Comp. Wheel Inducer Dia (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer Dia (mm)</th>
<th>Turbine A/R</th>
<th>Super Core</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>179172</td>
<td>3.78</td>
<td>2.83</td>
<td>72</td>
<td>87.37</td>
<td>3.22</td>
<td>81.74</td>
<td>1.10</td>
<td>179171</td>
<td>14009097000</td>
<td>318396</td>
</tr>
</tbody>
</table>

* Super core options found on page 52
S400SX3

500 - 1050 HP Turbo

Turbo Features

• Twin hydrodynamic journal bearings.
• Extended Tip Technology Compressor Wheel
• Twin Scroll Turbine Housing
• Adjustable compressor and turbine housing orientation
• Standard turbine inlet and outlet allows for drop-in to existing turbo’d applications
• Compressor cover recirculation grooves

Compressor Map

Turbo Frame Dimensions

<table>
<thead>
<tr>
<th>Part Number</th>
<th>O.D.</th>
<th>Inducer Dia. (mm)</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>179174</td>
<td>3.94</td>
<td>2.94</td>
<td>74.56</td>
</tr>
<tr>
<td>179175</td>
<td>3.44</td>
<td>3.22</td>
<td>87.37</td>
</tr>
</tbody>
</table>

* Super core options found on page 52
S400SX3

550 - 1100 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry

Compressor Map

Turbo Frame Dimensions

Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
<td>0.90</td>
</tr>
<tr>
<td>178788</td>
<td>1.00</td>
</tr>
<tr>
<td>178789</td>
<td>1.10</td>
</tr>
<tr>
<td>178790</td>
<td>1.25</td>
</tr>
</tbody>
</table>

* Super core options found on page 52
S400SX3

750 - 1250 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Forged Milled Wheel Technology

Compressor Map

Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
<td>0.90</td>
</tr>
<tr>
<td>178788</td>
<td>1.00</td>
</tr>
<tr>
<td>178789</td>
<td>1.10</td>
</tr>
<tr>
<td>178790</td>
<td>1.25</td>
</tr>
</tbody>
</table>

* Super core options found on page 52

www.borgwarnerboosted.com
**Turbo Features**

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Forged Milled Wheel Technology

**Compressor Map**

**Turbine Housing**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
<td>0.90</td>
</tr>
<tr>
<td>178788</td>
<td>1.00</td>
</tr>
<tr>
<td>178789</td>
<td>1.10</td>
</tr>
<tr>
<td>178790</td>
<td>1.25</td>
</tr>
</tbody>
</table>

* Super core options found on page 52
Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation
- Standard turbine inlet and outlet allows for drop-in to existing turbocharged applications
- Compressor cover recirculation grooves

Compressor Map

(Applicable to part number 177101)

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>177248</td>
<td>0.90</td>
</tr>
<tr>
<td>177103</td>
<td>1.00</td>
</tr>
<tr>
<td>177104</td>
<td>1.10</td>
</tr>
<tr>
<td>177105</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Turbo Frame Dimensions

Flat “V” Clamp Outlet

Compressor Map

(Applicable to part number 177101)

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>177248</td>
<td>0.90</td>
</tr>
<tr>
<td>177103</td>
<td>1.00</td>
</tr>
<tr>
<td>177104</td>
<td>1.10</td>
</tr>
<tr>
<td>177105</td>
<td>1.25</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
**Turbo Features**

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

**Compressor Map**

(Applicable to part numbers 177101)

<table>
<thead>
<tr>
<th>Pressure Ratio</th>
<th>Compressor Flow (lbs/m)</th>
</tr>
</thead>
<tbody>
<tr>
<td>1.5</td>
<td></td>
</tr>
<tr>
<td>1.6</td>
<td></td>
</tr>
<tr>
<td>1.7</td>
<td></td>
</tr>
<tr>
<td>1.8</td>
<td></td>
</tr>
<tr>
<td>1.9</td>
<td></td>
</tr>
<tr>
<td>2.0</td>
<td></td>
</tr>
<tr>
<td>2.1</td>
<td></td>
</tr>
<tr>
<td>2.2</td>
<td></td>
</tr>
<tr>
<td>2.3</td>
<td></td>
</tr>
<tr>
<td>2.4</td>
<td></td>
</tr>
<tr>
<td>2.5</td>
<td></td>
</tr>
<tr>
<td>2.6</td>
<td></td>
</tr>
<tr>
<td>2.7</td>
<td></td>
</tr>
<tr>
<td>2.8</td>
<td></td>
</tr>
<tr>
<td>2.9</td>
<td></td>
</tr>
<tr>
<td>3.0</td>
<td></td>
</tr>
<tr>
<td>3.1</td>
<td></td>
</tr>
<tr>
<td>3.2</td>
<td></td>
</tr>
<tr>
<td>3.3</td>
<td></td>
</tr>
<tr>
<td>3.4</td>
<td></td>
</tr>
<tr>
<td>3.5</td>
<td></td>
</tr>
<tr>
<td>3.6</td>
<td></td>
</tr>
<tr>
<td>3.7</td>
<td></td>
</tr>
<tr>
<td>3.8</td>
<td></td>
</tr>
<tr>
<td>3.9</td>
<td></td>
</tr>
<tr>
<td>4.0</td>
<td></td>
</tr>
<tr>
<td>4.1</td>
<td></td>
</tr>
<tr>
<td>4.2</td>
<td></td>
</tr>
<tr>
<td>4.3</td>
<td></td>
</tr>
<tr>
<td>4.4</td>
<td></td>
</tr>
<tr>
<td>4.5</td>
<td></td>
</tr>
<tr>
<td>4.6</td>
<td></td>
</tr>
<tr>
<td>4.7</td>
<td></td>
</tr>
<tr>
<td>4.8</td>
<td></td>
</tr>
</tbody>
</table>

**Turbine Housing, 176806 Only**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>176809</td>
<td>0.90</td>
</tr>
<tr>
<td>176810</td>
<td>1.00</td>
</tr>
<tr>
<td>176811</td>
<td>1.10</td>
</tr>
<tr>
<td>176812</td>
<td>1.25</td>
</tr>
</tbody>
</table>
S400SX4

750 - 1250 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

Compressor Map

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>O.D. (mm)</th>
<th>Inducer Dia. (mm)</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>177287</td>
<td>4.32</td>
<td>3.16</td>
<td>1.32</td>
</tr>
<tr>
<td>14961016100</td>
<td>4.32</td>
<td>3.16</td>
<td>1.58</td>
</tr>
</tbody>
</table>

Turbo Frame Dimensions

- *1/2 Marmon Clamp Outlet

Turbo Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
<th>Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>171698</td>
<td>1.32</td>
<td>Divided flow</td>
</tr>
<tr>
<td>14961016100</td>
<td>1.58</td>
<td>Divided flow</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
88mm (O.D.) Turbine Wheel

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo</td>
<td>178855</td>
</tr>
<tr>
<td>Super Core</td>
<td>179352</td>
</tr>
</tbody>
</table>

87mm (O.D.) Turbine Wheel

<table>
<thead>
<tr>
<th>Component</th>
<th>Part No.</th>
<th>Part No.</th>
<th>Part No.</th>
<th>Part No.</th>
<th>Part No.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo</td>
<td>179172</td>
<td>179174</td>
<td>179176</td>
<td>179180</td>
<td>179182</td>
</tr>
<tr>
<td>Super Core</td>
<td>179171</td>
<td>179175</td>
<td>178781</td>
<td>179179</td>
<td>179184</td>
</tr>
</tbody>
</table>

Turbine Housing Options

<table>
<thead>
<tr>
<th>Part No.</th>
<th>A/R</th>
<th>Outlet Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>177102</td>
<td>0.90</td>
<td>Flat V</td>
</tr>
<tr>
<td>177103</td>
<td>1.00</td>
<td>Flat V</td>
</tr>
<tr>
<td>177104</td>
<td>1.10</td>
<td>Flat V</td>
</tr>
<tr>
<td>177105</td>
<td>1.25</td>
<td>Flat V</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Part No.</th>
<th>A/R</th>
<th>Outlet Configuration</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
<td>0.90</td>
<td>Flat V</td>
</tr>
<tr>
<td>178788</td>
<td>1.00</td>
<td>Flat V</td>
</tr>
<tr>
<td>178789</td>
<td>1.10</td>
<td>Flat V</td>
</tr>
<tr>
<td>178790</td>
<td>1.25</td>
<td>Flat V</td>
</tr>
</tbody>
</table>
S500SX

900 - 1475 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Available in twin scroll and open flow turbine volute options
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Dual machined compressor cover discharge connection (v-band or hose bead)
- Premachined speed sensor mounting boss

Compressor Map

<table>
<thead>
<tr>
<th>A/R</th>
<th>Part Number</th>
<th>Turbine Inlet Centerline (A)</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.85</td>
<td>179159</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.00</td>
<td>179160</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179161</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.30</td>
<td>178498</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow; .50&quot; longer turbine discharge</td>
</tr>
<tr>
<td>1.45</td>
<td>179162</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179478</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.45</td>
<td>179192</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.60</td>
<td>179193</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
</tbody>
</table>

* Super core options found on page 55
Turbo Features

- Twin hydrodynamic journal bearings.
- Extended Tip Technology Compressor Wheel
- Available in twin scroll and open flow turbine volute options
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Dual machined compressor cover discharge connection (v-band or hose bead)
- Premachined speed sensor mounting boss

Compressor Map

Turbine Housing

<table>
<thead>
<tr>
<th>A/R</th>
<th>Part Number</th>
<th>Turbine Inlet Centerline (A)</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.85</td>
<td>179159</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.00</td>
<td>179160</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179161</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.30</td>
<td>178498</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow; .50&quot; longer turbine discharge</td>
</tr>
<tr>
<td>1.45</td>
<td>179162</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179478</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.45</td>
<td>179192</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.60</td>
<td>179193</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
</tbody>
</table>

* Super core options found on page 55

* * *
**S500SX Super Core**

**110mm (O.D.) Turbine Wheel**

<table>
<thead>
<tr>
<th>Component</th>
<th>Part Number</th>
<th>Part Number</th>
</tr>
</thead>
<tbody>
<tr>
<td>Turbo</td>
<td>179188</td>
<td>179191</td>
</tr>
<tr>
<td>Super Core</td>
<td>179186</td>
<td>179190</td>
</tr>
</tbody>
</table>

**Turbine Housing Configurations**

<table>
<thead>
<tr>
<th>A/R</th>
<th>Part Number</th>
<th>Turbine Inlet Centerline (A)</th>
<th>Other Notes</th>
</tr>
</thead>
<tbody>
<tr>
<td>0.85</td>
<td>179159</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.00</td>
<td>179160</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179161</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.30</td>
<td>178498</td>
<td>3.62&quot;</td>
<td>Volute, Open Flow; .50&quot; longer turbine discharge</td>
</tr>
<tr>
<td>1.45</td>
<td>179162</td>
<td>4.25&quot;</td>
<td>Volute, Open Flow</td>
</tr>
<tr>
<td>1.15</td>
<td>179478</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.45</td>
<td>179192</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
<tr>
<td>1.60</td>
<td>179193</td>
<td>3.62&quot;</td>
<td>Volute, Twin Flow (Divided)</td>
</tr>
</tbody>
</table>

Luis Corujo, Paradise Racing
Turbo Features

- Twin hydrodynamic journal bearings
- Extended tip technology compressor wheel
- Open flow turbine housing
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves

Compressor Map

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbo A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>174289</td>
<td>5.18</td>
<td>3.75</td>
<td>95</td>
<td>4.32</td>
<td>110</td>
<td>3.90</td>
<td>99</td>
<td>1.15</td>
<td>174291</td>
<td>173611</td>
</tr>
<tr>
<td>174290</td>
<td>5.18</td>
<td>3.75</td>
<td>95</td>
<td>4.32</td>
<td>110</td>
<td>3.90</td>
<td>99</td>
<td>1.45</td>
<td>174291</td>
<td>173611</td>
</tr>
</tbody>
</table>
BorgWarner was the first manufacturer in the world to offer VTG turbochargers for gasoline engines in mass production. BV turbos employ materials and designs that are optimally tuned to the high thermal loads in gasoline engines. BorgWarner has developed a robust VTG mechanism that works reliably even in the toughest of conditions and also employ a CFD-Optimized vane design that provides excellent efficiency.

### Turbo Frame Dimensions

### Turbo Comparison

#### BV50

BorgWarner was the first manufacturer in the world to offer VTG turbochargers for gasoline engines in mass production. BV turbos employ materials and designs that are optimally tuned to the high thermal loads in gasoline engines. BorgWarner has developed a robust VTG mechanism that works reliably even in the toughest of conditions and also employ a CFD-Optimized vane design that provides excellent efficiency.
Turbo Features

- High temperature alloy turbine housing
- Extended tip compressor wheel
- Twin scroll turbine housing
- Water cooled bearing housing

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Whl Inducer Dia. (mm)</th>
<th>Turbo Wheel O.D.</th>
<th>Turbo Whl Exducer Dia. (mm)</th>
<th>Turbo A/R</th>
<th>Turbo</th>
<th>HP Limit</th>
<th>Part Number</th>
<th>Turbo Model</th>
<th>Spec</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>5303 988 0146</td>
<td>51.00</td>
<td>1.61</td>
<td>41</td>
<td>45</td>
<td>1.58</td>
<td>40.3</td>
<td>4cm²</td>
<td></td>
<td>K03-2074</td>
<td>Mini Upgrade</td>
<td></td>
<td></td>
</tr>
</tbody>
</table>

Manufacturer | Year | Engine | Stock Turbo | Stock Turbo | Upgrade HP HP Limit | Upgrade Turbo | Model Spec | Part Number | Remarks |
---           |------|--------|-------------|-------------|---------------------|---------------|------------|-------------|---------|
Mini         | From 2006 | EP6 DTS | 5303 988 0163 | 215 | 255 | 5303 988 0146 | K03-2074D | Twin Scroll Turbine Housing |
Audi A4 Upgrade

Turbo Features

- High temperature alloy turbine housing
- Extended tip compressor wheel
- Water cooled bearing housing

The 1.8 TFSI also uses a compact integrated turbocharger module. Since the manifold and turbine housing are combined to form a single component made of a highly heat-resistance material, this system not only saves space, it also offers thermodynamic advantages.

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle</th>
<th>Year</th>
<th>Engine</th>
<th>Stock Turbo</th>
<th>Stock Turbo HP Limit</th>
<th>Upgrade HP</th>
<th>Upgrade Turbo Part Number</th>
<th>Model Spec</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audi</td>
<td>A4</td>
<td>From 2007</td>
<td>1.8 TFSI</td>
<td>5303 988 0141</td>
<td>215</td>
<td>255</td>
<td>5303 988 0106</td>
<td>K03-2080D</td>
<td>Integrated Manifold</td>
</tr>
<tr>
<td>Audi</td>
<td>A4</td>
<td>From 2007</td>
<td>1.8 TFSI</td>
<td>5303 988 0119</td>
<td>160</td>
<td>255</td>
<td>5303 988 0106</td>
<td>K03-2080D</td>
<td>Integrated Manifold</td>
</tr>
</tbody>
</table>
How about a BorgWarner AirWerks K04 series performance upgrade turbo, developed specifically for Audi and VW 1.8 liter engines? This upgrade option can enhance engine performance as much as 15%. Ultimate output may vary depending on prior engine condition, fuel settings and other supporting performance components. Only qualified companies and tuner shops should attempt to make performance modifications to the engine and the vehicle.

**Compressor Map**

Application | Model Year | Engine Spec | Rated HP
---|---|---|---
Audi A4 | 95-99 | 1.8 liter 5-Valve, Inline | 220
A6 / 1.8T | | | 
Passat | 96-99 | 1.8 liter 5-Valve, Inline | 220

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. [mm]</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. [mm]</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5304 988 0015</td>
<td>1.97</td>
<td>1.48</td>
<td>37.6</td>
<td>1.81</td>
<td>46</td>
<td>1.65</td>
<td>42</td>
<td>4 cm²</td>
<td>5304 710 0503</td>
<td>5303 711 0000</td>
</tr>
</tbody>
</table>
How about a BorgWarner AirWerks K04 series performance upgrade turbo, developed specifically for Audi and VW 1.8 liter engines? This upgrade option can enhance engine performance as much as 15%. Ultimate output may vary depending on prior engine condition, fuel settings and other supporting performance components. Only qualified companies and tuner shops should attempt to make performance modifications to the engine and the vehicle.

### Turbo Features

Compressor Flow (lbs/m)

<table>
<thead>
<tr>
<th>Application Model</th>
<th>Model Year</th>
<th>Engine Spec</th>
<th>Rated HP</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audi A3 1.8T, VW Beetle</td>
<td>96-01</td>
<td>1.8 liter 5-Valve, Transverse</td>
<td>220</td>
</tr>
<tr>
<td>Golf</td>
<td>1996</td>
<td>1.8 liter 5-Valve, Transverse</td>
<td>220</td>
</tr>
</tbody>
</table>

**Compressor Map**

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5304 950 0001</td>
<td>1.97</td>
<td>1.70</td>
<td>37.6</td>
<td>1.81</td>
<td>46</td>
<td>1.65</td>
<td>42</td>
<td>5 cm²</td>
<td>5303 711 0000</td>
<td></td>
</tr>
</tbody>
</table>
Turbo Features

- High-temperature alloy turbine housing
- Extended tip compressor wheel
- Water cooled bearing housing

The electrical recirculation valve, which is also integrated into the compressor casing, guarantees fast response times when closing the throttle valve. The use of a “latest generation” turbine wheel helps increase the efficiency of the turbocharger significantly, while optimized thermodynamics have led to further improvements in fuel consumption and transient behavior, i.e. the acceleration of the engine at full throttle. Original turbo has electronic pop-off valve integrated into comp/hsq, upgrade turbo has not. External pop-off valve has to be fitted. Moreover, K04-064 has a larger compressor housing discharge.

Manufacturer  Vehicle  Year  Engine  Stock Turbo  Stock Turbo HP Limit  Upgrade HP  Upgrade Turbo Part Number  Model Spec  Remarks

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle</th>
<th>Year</th>
<th>Engine</th>
<th>Stock Turbo</th>
<th>Stock Turbo HP Limit</th>
<th>Upgrade HP</th>
<th>Upgrade Turbo Part Number</th>
<th>Model Spec</th>
<th>Remarks</th>
</tr>
</thead>
<tbody>
<tr>
<td>Audi</td>
<td>A4</td>
<td>From 2004 2.0 TFSI</td>
<td>5303 988 0105</td>
<td>255</td>
<td>325</td>
<td>5304 988 0064*</td>
<td>K04-2283D</td>
<td>Integrated Manifold</td>
<td></td>
</tr>
<tr>
<td>Audi</td>
<td>A4</td>
<td>From 2003 2.0 TFSI</td>
<td>5303 988 0086</td>
<td>255</td>
<td>325</td>
<td>5304 988 0064*</td>
<td>K04-2283D</td>
<td>Integrated Manifold</td>
<td></td>
</tr>
</tbody>
</table>
Volvo’s requirement for the developers at BorgWarner was to replace the bi-turbo boosting of the previous engine with a new unit with single-turbo boosting. The new 6-cylinder engine also had to possess at least the same transient response as its predecessor, and of course fuel consumption and emissions needed to be brought up to date. With the K16 used in the Volvo 6-cylinder engine, BorgWarner unveils the first in a wide range of turbos for gasoline engines displacing from 1.6 to 3.0 liters or between 150 and 285 bhp.
250 - 550 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings
- Open volute design
- Adjustable compressor and turbine housing orientation
- Compact design
- High temperature alloy turbine housing

turbo Frame Dimensions

- Bolt circle diameter: 3.81
- 2.00
- 1.80
- 3.37
- 7.34
- 2.75

Compressor Map

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>K27-3072</td>
<td>5327 988 7200</td>
<td>3.00</td>
<td>2.16</td>
<td>55</td>
<td>2.75</td>
<td>70</td>
<td>2.31</td>
<td>59</td>
<td>11²cm</td>
<td>5327 710 0518 5326 711 0040</td>
</tr>
</tbody>
</table>
K29-3775

500 - 875 HP Turbo

Turbo Features

- Twin hydrodynamic journal bearings
- Forged milled compressor wheel
- Twin scroll turbine housing
- Adjustable compressor and turbine housing orientation
- Compact design

Compressor Map

Turbo Frame Dimensions

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbo Wheel O.D.</th>
<th>Turbo Wheel O.D. (mm)</th>
<th>Turbo Wheel Exducer</th>
<th>Turbo Wheel Exducer (mm)</th>
<th>Turbo A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>53299887129</td>
<td>3.70</td>
<td>2.79</td>
<td>70.93</td>
<td>3.23</td>
<td>82</td>
<td>2.80</td>
<td>71.00</td>
<td>17²cm</td>
<td>N/A</td>
<td>5331 711 0005</td>
</tr>
</tbody>
</table>
Turbo Features

- 360 degree thrust bearing
- Twin hydrodynamic journal bearings.
- Adjustable compressor and turbine housing orientation
- Compressor cover recirculation grooves
- Frequency optimized compressor wheel

Compressor Map

Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>5344 101 6300</td>
<td>40(^\text{cm})</td>
</tr>
<tr>
<td>5345 101 6301</td>
<td>36(^\text{cm})</td>
</tr>
</tbody>
</table>

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Turbo Wheel Inducer Dia. (mm)</th>
<th>Turbo Wheel Exducer Dia. (mm)</th>
<th>Turbo Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer Dia. (mm)</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>5344 988 6900</td>
<td>107.7</td>
<td>4.92</td>
<td>6.14</td>
<td>125</td>
<td>32(^\text{cm})</td>
<td>5344 710 0018, 5344 711 0501</td>
</tr>
</tbody>
</table>
Limited Warranty: BorgWarner Turbo Systems, Inc. ("BWTS") warrants that its goods or merchandise will be free from defects in material and workmanship for its intended use and service. This warranty shall extend for a period of twelve (12) months from the date of purchase by end user. BWTS will repair or provide a replacement product, at BWTS's sole option, for any defective part. Replaced parts will be warranted in time only through the remaining period of this warranty. BWTS shall not be obligated to repair or replace any defective part unless it receives notice, in writing, within 14 days of discovery of a defect. Any action for breach of warranty, contract or otherwise, shall be barred unless BWTS is provided with notice as provided herein. Specifically excluded from this warranty are design defects or damage caused by improper installation, misuse, neglect, improper maintenance, handling or operation of the product or unauthorized repair or alterations or externally induced physical damage.

Further, this warranty shall not apply if any person attempts to repair or replace the defective part without BWTS written authorization. Any auxiliary equipment sold hereunder and not manufactured by BWTS carries only such warranty as given by the manufacturer thereof and which is hereby assigned without recourse to BWTS. No warranty is made for any other claims or special, indirect or consequential damages (including but not limited to component removal or installation, equipment down time, prospective profits or other economic losses) because of any defect deemed warrantable by BWTS.

This is BWTS's sole warranty and is in lieu of all other warranties, express or implied, including, without limitation, implied warranty of merchantability, or fitness for a particular purpose.

No representative or distributor of BWTS has the authority to change or alter this warranty. This warranty may only be modified by an agreement signed by an authorized officer of BWTS.

Any claim made under this limited warranty must be presented to BWTS, with valid proof of date of purchase by end-user. All merchandise or goods shipped to BWTS, for warranty consideration, must be shipped prepaid - freight. Collect shipments will be refused.

No warranty on competition applications or applications not approved in writing by BorgWarner Turbo Systems.
Americas

BorgWarner Turbo Systems
3800 Automation Avenue
Auburn Hills, MI 48326/USA
Phone: ++1248 754 9600
Fax: ++1248 754 9397

BorgWarner Turbo Systems
P.O. Box 15075
Asheville, NC 28813/USA
Phone: ++1 828 684 40 00
Fax: ++1 828 684 41 14

BorgWarner Brasil Ltda.
Estrada da Rhodia Km 15
P.O. Box 6540
13084-970 Campinas-SP/Brasil
Phone: ++5519 37 87 57 00
Fax: ++5519 37 87 57 01

Europe

BorgWarner Turbo Systems
Worldwide Headquarters GmbH
Marnheimer Straße 88
67292 Kirchheimbolanden/Germany
Phone: ++49(0)63 52 75 33-0
Fax: ++49(0)63 52 75 33-99

BorgWarner Turbo Systems GmbH
Marnheimer Straße 85/87
67292 Kirchheimbolanden/Germany
Phone: ++49(0)63 52 4 03-0
Fax: ++49(0)63 52 4 03-18 66

BorgWarner Ltd.
Turbo Systems Division
Euroway Industrial Estate
Roydsdale Way
Bradford BD4 6SE
West Yorkshire/UK
Phone: ++44 12 74 68 4915
Fax: ++44 12 74 68 96 71

Asia

BorgWarner Turbo Systems
Shin-Yokohama Turbo Branch
Sumitomo Fudosan
Shin-Yokohama Bldg.10F
2-5-5, Shin-Yokoyama, Kouhoku-ku
Yokohama-shi, Kanagawa
222-0033 Japan
Phone: ++8145 470 6850
Fax: ++8145 470 6811

BorgWarner Automotive Components (Ningbo) Co., Ltd.
Turbo Systems
No.188, Jingu Zhong Rd. (West)
Yinzhou District
Ningbo P.R. China 315104
Phone: ++86 (0) 574-8819-0988
Fax: ++86 (0) 574-8302-5880

Seohan Warner Turbo Systems, Ltd.
Eoyeon-Hansan Industrial Park
833, Hansan-ri, Cheongbuk-myeon
Pongtaek-shi, Kyonggi-do
451-833 Korea
Phone: ++82 31 680 3000
Fax: ++82 31 684 3553

Turbo Energy Limited (JV)
67, Chamiers Road
Chennai 600 028
Tamilnadu State
India
Phone: ++9144 2742 57 06
Fax: ++9144 2742 57 10

www.borgwarnerboosted.com