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.

LOUIS SCHWITZER
-Automotive Hall of Fame
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World Headquarters: Kircheimbolanden, Germany

www.borgwarnerboosted.com
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.
Extended Tip Technology
Select BorgWarner turbochargers employ BorgWarner “S” generation compressor wheels that incorporate extended tip technology. This compressor wheel design feature promotes greater airflow using a low inertia wheel that performs like a wheel of greater size and mass. Extended tip technology enables the user to have faster spool-up at lower engine speeds while providing the boost for the powerful top-end performance that most turbocharger enthusiasts have come to desire. Turbochargers have to meet different requirements with regard to map height, map width, efficiency characteristics, moment of inertia of the rotor and conditions of use. New compressor and turbine types are continually being developed for various engine applications with compressor wheels having an increased influence on the engine’s operational characteristics. These wheels are designed using computer programs that develop a three-dimensional calculation of the air flow and pressure.

The twin scroll turbocharger generates higher boost pressure at low revs
Twin scroll technology produces results similar to twin-turbo applications but in a smaller package with lower weight and cost. In turbochargers of this type, the channels between the exhaust manifold and turbocharger of the first and fourth as well as the second and third cylinders are separated from each other. The exhaust gas streams are directed into so-called scrolls (spirals) and then reunited again directly at the turbine wheel. Separating the streams in this way offers improved performance.

With this type of charging, spontaneous boost pressure can be built up 1000 RPMs earlier, which significantly improves response in the low rev band. The engineers at BorgWarner have also mastered the problem of high exhaust gas temperature in gasoline engine turbocharging – despite the genuine challenge presented by such a compact turbine casing with two scrolls. One approach employed by the engineers here was to develop a new downsizing method of casting turbine housings to improve their temperature resistance and guarantee the quality needed. The benefits of the twin scroll turbocharging technology and other market-leading technologies by BorgWarner Turbo Systems offer passenger vehicles, dynamic performance, low fuel consumption and lower CO2 emissions.
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.

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.

Mercedes Silver Arrows C11, World Sportscar Champion. 5.0 liter V8 twin 3K turbo engine
BorgWarner Indianapolis 500 Trophy, synonymous with top performance, speed and leading-edge automotive technology

In 1936, Eddie Rickenbacker of the Indianapolis Speedway unveiled the BorgWarner Trophy and officially announced it as the prize for the champions of the Indy 500.

Commissioned by The BorgWarner Automotive Company in 1935, the trophy is made of sterling silver standing over 5 feet and weighing nearly 155 pounds. The Trophy bears the likeness of every driver that has won the Indy 500 since 1911 along with their victory date, and average speed in a checkerboard pattern.

Today the trophy is housed in the Hall of Fame Museum at the Indianapolis Motor Speedway. Each May, the BorgWarner Trophy is featured at a number of Indianapolis 500 events, including the drivers’ meeting at the track and the 500 Festival Parade in downtown Indianapolis, both on the day before the race. Immediately after each race, the trophy is hoisted into Victory Circle with the winning car and driver for photographs. The first Indy 500 champion that accepted the trophy, Louis Meyer shortly after receiving it said, “Winning the BorgWarner Trophy is like winning an Olympic medal.”

By the time he took the checkered flag at the 1969 Indy 500 race it was evident that the modern turbo car as driven by Mario Andretti would become the standard for years to come.
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.
Team: Stuckey Racing
Driver: Phillip Palmer
Vehicle: Dodge S 9
Racing Venue: NHRA
Current Turbo(s) of choice: Compound S400SX & S500SX

Team: ADF Motorsport
Vehicle: BMW 335i
Racing Venue: Bridgestone Production Car Championship
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

Driver: Jeremy McElrath/Greg Worley
Vehicle: 1998 Ford Mustang
Racing Venue: ORSCA & PTRA
Current Turbo(s) of choice: Twin S500SX

Driver: Wade Moody
Vehicle: Chevy Duramax
Racing Venue: NADM, NHRDA
Current Turbo(s) of choice: Twin S300SX3
"We run the BorgWarner EFR 7670 in our Team Need for Speed Scion tC, and as I initiated for my first ever run in the car I was literally blown away. The motor had the most linear power curve I have ever felt in a turbo motor and there simply was no lag! And even better: As we are now approaching the 2012 Formula Drift finals, we still haven’t had a single turbo issue. We have put the car through everything from the extreme temperatures of Las Vegas to wet thunderstorms in New Jersey, and our EFR has been with us all the time - battle after battle. The performance and reliability of the BorgWarner EFR turbo series goes way beyond anything I’ve previously seen in the world of turbochargers."

– Fred Aasbo

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: 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: Mike Ryan Motorsports
Driver: Mike Ryan
Vehicle: Freightliner
Racing Venue: Pikes Peak International Hill Climb
Current Turbo(s) of choice: Compound S410GX & S510SX

Driver: Mike Reichen
Vehicle: Mitsubishi EVO
Racing Venue: Standing mile/Drag Racing/Dyno
Current Turbo(s) of choice: Single S400SX
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></th>
<th>#1</th>
<th>#2</th>
<th>#3</th>
<th>#4</th>
<th>#5</th>
<th>#6</th>
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<td>Compressor Pressure Ratio</td>
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<td>1.71</td>
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<tr>
<td>Compressor Outlet Temp (deg F)</td>
<td>149.05</td>
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<tr>
<td>Intake Manifold Air Temp (deg C)</td>
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<td>81.27</td>
<td>83.25</td>
<td>89.23</td>
<td>93.89</td>
<td>95.72</td>
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<tr>
<td>Intake Manifold Air Density (lb/m³)</td>
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<td>0.000071</td>
<td>0.000085</td>
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<td>0.000089</td>
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<td>Density Ratio (Intercooled)</td>
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<tr>
<td>Actual Flow Rate (lb/min)</td>
<td>5.89</td>
<td>12.29</td>
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<td>39.69</td>
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<td>Actual Flow Rate (cfm)</td>
<td>83.4</td>
<td>178.13</td>
<td>300.03</td>
<td>396.14</td>
<td>494.94</td>
<td>575.52</td>
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<tr>
<td>Correct Air Flow Rate (lb/min)</td>
<td>5.94</td>
<td>12.4</td>
<td>20.91</td>
<td>27.67</td>
<td>34.64</td>
<td>40.33</td>
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<td>Correct Air Flow Rate (kg/sec)</td>
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<td>0.209</td>
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<td>Correct Air Flow Rate (kg/hr)</td>
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<td>752</td>
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<td>1096</td>
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<tr>
<td>Correct Air Flow Rate (m³/sec)</td>
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<td>0.085</td>
<td>0.143</td>
<td>0.189</td>
<td>0.237</td>
<td>0.276</td>
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<tr>
<td>1/BSAC (hp-min/lb)</td>
<td>12</td>
<td>11.5</td>
<td>10.8</td>
<td>10.3</td>
<td>9.9</td>
<td>9.3</td>
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<tr>
<td>Turbo Shaft 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>
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<td>Engine Power (Hp)</td>
<td>71.5</td>
<td>142.4</td>
<td>224.9</td>
<td>285.1</td>
<td>342.5</td>
<td>376.5</td>
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<td>Torque (lb-ft)</td>
<td>187.67</td>
<td>249.36</td>
<td>295.31</td>
<td>299.45</td>
<td>299.78</td>
<td>282.5</td>
</tr>
<tr>
<td>Fuel Requirement (lb/hr)</td>
<td>30.7</td>
<td>64.1</td>
<td>108</td>
<td>142.5</td>
<td>178.1</td>
<td>207.1</td>
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### TURBINE MATCH OUTPUTS

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<tr>
<th></th>
<th>psi</th>
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<th>psi</th>
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<tr>
<td>Exhaust Manifold Pressure</td>
<td>3.2</td>
<td>6.6</td>
<td>10.9</td>
<td>14.4</td>
<td>17.7</td>
<td>21.4</td>
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<td>Engine Delta Pressure (dpF)</td>
<td>2</td>
<td>3</td>
<td>4</td>
<td>3</td>
<td>-1</td>
<td>-4</td>
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<tr>
<td>Turbine Swallowing Parameter</td>
<td>PH1</td>
<td>0.0219</td>
<td>0.0213</td>
<td>0.0258</td>
<td>0.0267</td>
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<tr>
<td>Turbine Corrected Flow @ 59F</td>
<td>lb/min</td>
<td>9.2</td>
<td>15.2</td>
<td>18.4</td>
<td>19</td>
<td>20.2</td>
</tr>
<tr>
<td>Is the WasteGate Flow Choked</td>
<td>\</td>
<td>No</td>
<td>No</td>
<td>No</td>
<td>Yes</td>
<td>Yes</td>
</tr>
<tr>
<td>WasteGate Flow Area @ CF=0.8</td>
<td>in²</td>
<td>0.03</td>
<td>0.13</td>
<td>0.44</td>
<td>0.73</td>
<td>0.96</td>
</tr>
<tr>
<td>Port Diameter Requirement</td>
<td>mm</td>
<td>5</td>
<td>11</td>
<td>19</td>
<td>24</td>
<td>28</td>
</tr>
</tbody>
</table>

Text Based Output is Provided as Well as Graphical Mapping
Honda HR28TT V6
The engine that powered Honda Performance Development’s ARX03b chassis to class wins at the 2012 LeMans and the 12 hours of Sebring.
Boost provided by twin EFR-6758 turbochargers
An Equation for Engine Boosting Excellence

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.

EFR Product Feature Set
An Equation for Engine Boosting Excellence

Under the product leadership of Brock Fraser, Director, Global Commercial Diesel Application Engineering, a team was assembled and the project began with the proverbial clean-sheet of paper. No legacy products, no preconceived notions of what a turbo could or could not have; no restrictions. The aerodynamics for the product line were selected using a range of optimized combinations that would give users turbo solutions anywhere between 250 and 1000 horsepower capability per turbo. Next, a list of every notable design characteristic for an engine boosting device was tabled. Specific interest was given to new ideas that had never been formed in metal or had never been combined into an aftermarket turbo. Ninety-five percent of the input “stuck” with only the truly exotic being excluded as those elements that would take too long to develop. Moreover, the turbo would be so expensive that the average performance enthusiast who wanted to buy the product could not afford it!

After the AAP program took shape, the concept was presented to members of the BorgWarner senior management team. It didn’t take long for them to embrace the vision of giving the performance aftermarket something truly remarkable. Management’s approval to proceed with our mission led to one of the most aggressive new program introductions in the history of BorgWarner’s independent aftermarket. Weeks and months of product development would bring forth a creation that would set a new standard in the performance aftermarket. The result is the new EFR (Engineered for Racing) line of turbos from BorgWarner. These turbos contain a bevy of key attributes such as Gamma-Ti turbine wheels, dual ceramic ball bearing cartridges and investment cast stainless steel turbine housings. Collectively, those features help give the EFR line its innovative appeal and will provide a breakthrough experience in durability, device responsiveness and installer/user satisfaction.

2011 LMP2 Class Champion, American Le Mans Series
Team: Level 5 Motorsports
Vehicle: Honda - HPD ARX03b
Racing Venue: American Le Mans Series, World Endurance Championship
Turbo of choice: Twin EFR-6758s
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>
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</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>
</table>
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.

Turbine Housing Options

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<tr>
<th>Turbine Housing Part Number</th>
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<tbody>
<tr>
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<td>0.64</td>
<td>T25</td>
<td>Single Scroll WG</td>
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</tbody>
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<table>
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<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>
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<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 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**

---

**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>
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<td>Single Scroll WG</td>
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<td>12641008007</td>
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<td>Twin Scroll WG</td>
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<td>12641019016</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
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**Part Numbers**

- Turbo Part Number: 179355
- Turbo Frame Size: B2
- Super Core Part Number: 179354
- Comp. Wheel Outer Dia. (mm): 70
- Comp. Wheel Inducer Dia.: 52
- Turbine Wheel Outer Dia.: 64
- Turbo A/R: 0.83
- Inlet Flange Config.: T3

---

**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>
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<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
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<tbody>
<tr>
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<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>

Turbine Frame Dimensions

Turbo Frame Dimensions

Corrected Mass Flow (lbs/min) | 0 | 5 | 10 | 16 | 21 | 26 | 31 | 37 | 42 | 48 | 53 | 58 | 64 |
<table>
<thead>
<tr>
<th></th>
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<tbody>
<tr>
<td>Pressure Ratio</td>
<td>0.6</td>
<td>0.65</td>
<td>0.7</td>
<td>0.72</td>
<td>0.73</td>
<td>0.74</td>
<td>0.75</td>
<td>0.76</td>
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<td>1.6</td>
<td>2.2</td>
<td>2.8</td>
<td>3.4</td>
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</table>

Part Number | Frame Size | Part Number | Outer Dia. (mm) | Inducer Dia. | Outer Dia. A/R Config. |
<table>
<thead>
<tr>
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<tbody>
<tr>
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<td>179354</td>
<td>70</td>
<td>52</td>
<td>64 .92 T4</td>
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</tbody>
</table>

Table of Super Core Configuration

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

Corrected Mass Flow (lbs/min) | 0 | 5 | 10 | 16 | 21 | 26 | 31 | 37 | 42 | 48 | 53 | 58 | 64 |
<table>
<thead>
<tr>
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<tbody>
<tr>
<td>Pressure Ratio</td>
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<td>0.65</td>
<td>0.7</td>
<td>0.72</td>
<td>0.73</td>
<td>0.74</td>
<td>0.75</td>
<td>0.76</td>
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<td>1.6</td>
<td>2.2</td>
<td>2.8</td>
<td>3.4</td>
</tr>
</tbody>
</table>

Not included with turbo assemblies:

- Speed sensor
- Turbine outlet V-Band
- Turbine inlet gasket
- Oil drain gasket or drain port fitting
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>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>
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<td>T3</td>
<td>Single Scroll WG</td>
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<tr>
<td>12641008007</td>
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<td>T4</td>
<td>Twin Scroll WG</td>
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<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>
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<tbody>
<tr>
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<td>70</td>
<td>52</td>
<td>64</td>
<td>1.05</td>
<td>T4</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 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</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
</tr>
</thead>
<tbody>
<tr>
<td>Part Number</td>
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<tr>
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<td>Twin Scroll WG</td>
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<tr>
<td>12701019047</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

Part Number Frame Size Part Number Outer Dia. (mm) Inducer Dia. Outer Dia. A/R Config.
179351 B2 179350 76

Corrected Mass Flow (lbs/min)

Pressure Ratio

Corrected Mass Flow (lbs/min)

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</th>
<th>A/R</th>
<th>Inlet Flange Shape</th>
<th>Housing Config.</th>
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<tbody>
<tr>
<td>Part Number</td>
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<td>0.83</td>
<td>T3</td>
<td>Single Scroll WG</td>
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<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>

Part Number Frame Size Part Number Outer Dia. (mm) Inducer Dia. Outer Dia. A/R Config.
179351 B2 179350 76
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>
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</thead>
<tbody>
<tr>
<td>12701008014</td>
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<td>Single Scroll WG</td>
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<td>T4</td>
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<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>Turbine Wheel Outer Dia.</th>
<th>Turbo A/R</th>
<th>Inlet Flange Config.</th>
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<tbody>
<tr>
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<td>76</td>
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</tr>
</tbody>
</table>
**EFR 7670**

375 - 650 HP Turbo

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### Turbo Frame Dimensions

- **Turbo Frame Dimensions**
- **92mm (3.62)**
- **88.9mm (3.50)**
- **142mm (5.60)**
- **98.8mm (3.88)**

---

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

---

### Turbo Specifications

- **Part Number:** 179392
- **Frame Size:** B2
- **Super Core Part Number:** 179350
- **Comp. Wheel Outer Dia. (mm):** 76
- **Comp. Wheel Inducer Dia.:** 57
- **Turbine Wheel Outer Dia.:** 70
- **Turbine A/R:** 1.05
- **Inlet Flange Config.:** 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.

Turbo 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>
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<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>
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<tr>
<td>12741019002</td>
<td>10.5</td>
<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>
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 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>
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</thead>
<tbody>
<tr>
<td>12741008000</td>
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<td>Twin Scroll WG</td>
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<tr>
<td>12741019002</td>
<td>1.05</td>
<td>T4</td>
<td>Twin Scroll Non-WG</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.

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<table>
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<th>Turbine Housing Part Number</th>
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<tbody>
<tr>
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<td>12741019002</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
- 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>
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<td>Single Scroll WG</td>
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<td>12801019001</td>
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<td>T4</td>
<td>Twin Scroll Non-WG</td>
</tr>
</tbody>
</table>

Turbo Frame Dimensions

<table>
<thead>
<tr>
<th>Turbo Frame Size</th>
<th>Part Number</th>
<th>Outer Dia. (mm)</th>
<th>Inducer Dia.</th>
<th>A/R Shape</th>
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<tr>
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<td>12801019001</td>
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</tr>
</tbody>
</table>

Corrected Mass Flow (lbs/min)

Pressure Ratio

www.borgwarnerboosted.com
EFR 9180
600 - 1000 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
- 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>
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<tbody>
<tr>
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<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>
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<tr>
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<td>68</td>
<td>80</td>
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</tbody>
</table>
Ancillary Parts

EFR Series

Speed Sensor Kit
Part Number 179430
(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
Part Number 179423
(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
(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
Part Number 179424
(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
Part Number 179425
(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
Part Number 179426
(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>0.83a/r TH</th>
<th>0.92a/r TH</th>
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<td>179285, 179286 or 179287</td>
</tr>
</tbody>
</table>

### 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

## EFR Wastegate Canister Bracket Kit Selection Guide

<table>
<thead>
<tr>
<th>Core Assy</th>
<th>0.64a/r TH</th>
<th>0.83a/r TH</th>
<th>0.92a/r TH</th>
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## EFR Turbine Housing Product Selection Guide

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<td>179150</td>
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### Legend

- **Turbo Assy P/N**
- **Loose Turb Hsg P/N**

WG = Wastegate

---

Turbo Tech Eliminator EFR Turbo System for Sea-Doo. This Rotax 4-Tec engine family boost has provided by EFR 6758.
### Ancillary Parts

#### EFR Series

<table>
<thead>
<tr>
<th>Rod &amp; Spring Preload (mm / nut turns)</th>
<th>Full Stroke Capability inches (mm)</th>
<th>179282, 179420, or 179285 LOW BOOST WG CANISTER</th>
<th>179283, 179421, or 179286 MEDIUM BOOST WG CANISTER</th>
<th>179284, 179422, or 179287 HIGH BOOST WG CANISTER</th>
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<tr>
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<td>Crack-Open Pressure</td>
<td>Full Stroke Pressure</td>
<td>Crack-Open Pressure</td>
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<tr>
<td>0 0.67&quot; (17mm)</td>
<td></td>
<td>4.0 psi</td>
<td>13.7 psi</td>
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<td>1 0.63&quot; (16mm)</td>
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<td>4.9 psi</td>
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<td>9.6 psi</td>
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<td>2 0.59&quot; (15mm)</td>
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<td>5.7 psi</td>
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<td>3 0.55&quot; (14mm)</td>
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<td>6.1 psi</td>
<td>14.1 psi</td>
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<tr>
<td>4 0.51&quot; (13mm)</td>
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<td>6.8 psi</td>
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<td>5 0.47&quot; (12mm)</td>
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<td>9 0.31&quot; (8mm)</td>
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<td>9.9 psi</td>
<td>14.7 psi</td>
<td>15.9 psi</td>
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**Note 1:** Avoid too little preload. The diaphragm can rub (and wear) against the top of the can. We recommend 2mm of preload as a starting point.

**Note 2:** Avoid too much preload. The actuator won't have enough remaining stroke and the wastegate valve opening angle (hence flow capacity) will be limited.

**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 *do not apply more than* 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.

### Performance Highlights

**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
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.
S1BG

120 - 320 HP Turbo

Turbo Frame Dimensions

- 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>Turbo Wheel O.D.</th>
<th>Turbo Wheel O.D. (mm)</th>
<th>Turbo Wheel Exducer</th>
<th>Turbo Wheel Exducer (mm)</th>
<th>Turbine A/R</th>
<th>Cartridge Assembly</th>
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www.borgwarnerboosted.com
S200
320 - 580 HP Turbo

Turbo Frame Dimensions

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>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D.</th>
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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)

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<th>Comp. Wheel O.D. (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel O.D. (mm)</th>
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S300SX3
320 - 800 HP Turbo

Turbo Frame Dimensions

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

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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)

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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 Air Filter
- Ram Air Intake Tube
- High Flow Fuel Injectors
- Boost Control Fitting

Dodge 5.9 Engine Performance Turbo Upgrade Chart

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<thead>
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<th>Stock Horsepower</th>
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<th>Turbo Mfr. Model Number</th>
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BorgWarner involvement in the sport compact arena created a BorgWarner first… a purpose built, engineered for high performance, production turbocharger.

The formal S400SX turbo program came to life in 2004 as a project that teamed BorgWarner with GM Racing. The objective of the AirWerks program was to help create reliable and consistent boost for GM’s Pro FWD sport compact racecars. After several meetings with the GM Racing team, the basic design and performance targets were established.

The S400SX turbos were constructed under the supervision of the BorgWarner Turbo and Emissions Systems Aftermarket Product Development Team and select members of the North American Technical Sport Center Headquarters. The units were built as prototypes and the suffix “X” was added to the standard model nomenclature to help distinguish this unique motorsport component from the standard commercial product assembled at the same location.

By the end of the 2005 race season, the S400SX had begun to create a presence in the sport compact arena. The GM Racing Cobalt was the first and only front-wheel-drive/four-cylinder to surpass 200mph in the quarter mile. Moreover, it ran the quickest and fastest FWD pass ever with 7.292s @ 201.61. The very same year, Brent Rau pushed his Mitsubishi Eclipse to a new ET record of 6.976 and established a new Pro Outlaw RWD MPH record of 198.29. The introduction of the S400SX with these initial race teams proved to form lasting relationships which are still honored today.

GM Racing Chevy Cobalt the first sport compact drag racecar to exceed 200MPH.

Boosted by a BorgWarner AirWerks S400SX
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>
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</tr>
<tr>
<td>177103</td>
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<td>177104</td>
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<tr>
<td>177105</td>
<td>1.25</td>
</tr>
</tbody>
</table>

Turbine Housing

* Super core options found on page 51

[Table content]

*Super core options found on page 51*
**S400SX3**
500 - 950 HP Turbo

**Turbo Frame Dimensions**

**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**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
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<tbody>
<tr>
<td>178787</td>
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<td>1.25</td>
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</table>

* Super core options found on page 51

www.borgwarnerboosted.com

**Turbine Housing**

<table>
<thead>
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<th>Part Number</th>
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<tr>
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<tr>
<td>179176</td>
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<td>179177</td>
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<tr>
<td>179178</td>
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<tr>
<td>179179</td>
<td>179172</td>
</tr>
<tr>
<td>14009097000</td>
<td>318396</td>
</tr>
</tbody>
</table>

* Super core options found on page 51
**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**

---

**Turbine Housing**

<table>
<thead>
<tr>
<th>Part Number</th>
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<tbody>
<tr>
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* Super core options found on page 51
**S400SX3**

**550 - 1100 HP Turbo**

---

**Turbo Frame Dimensions**

<table>
<thead>
<tr>
<th>Dimension</th>
<th>Measurement</th>
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<tr>
<td>3.00</td>
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<tr>
<td>3.25</td>
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<tr>
<td>2.75</td>
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</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

---

**Compressor Map**

---

**Turbine Housing**

<table>
<thead>
<tr>
<th>Part Number</th>
<th>A/R</th>
</tr>
</thead>
<tbody>
<tr>
<td>178787</td>
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<tr>
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**Compressor Flow (lbs/m)** vs **Pressure Ratio**

---

<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>Super Core</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
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</thead>
<tbody>
<tr>
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<td>76.00</td>
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<td>3.22</td>
<td>81.74</td>
<td>1.10</td>
<td>178781*</td>
<td>178782 318396</td>
<td></td>
</tr>
</tbody>
</table>

* Super core options found on page 51

---

**Flat “V” Clamp Outlet**

---

**Extended Tip Technology Compressor Wheel**

---

**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>
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<tr>
<td>178788</td>
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<tr>
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</tr>
<tr>
<td>178790</td>
<td>1.25</td>
</tr>
</tbody>
</table>

*Super core options found on page 51*

---

**Turbo Frame Dimensions**

- Flat “V” Clamp Outlet
- 3.00 in x 3.25 in x 2.75 in

---

**Table: Turbo Specifications**

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D. (mm)</th>
<th>Comp. Wheel Inducer Dia. (mm)</th>
<th>Comp. Wheel Tuned Inducer Dia. (mm)</th>
<th>Turbine Wheel O.D. (mm)</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Super Core</th>
<th>Part Number</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
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<td>1.25</td>
<td>179179*</td>
<td>179181</td>
<td>318396</td>
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</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

### Turbo Frame Dimensions

#### 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>
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<tbody>
<tr>
<td>178787</td>
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<td>178789</td>
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</tr>
<tr>
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<td>1.25</td>
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</tbody>
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* Super core options found on page 51

**Turbo Frame Dimensions**

<table>
<thead>
<tr>
<th>Turbo</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 Inducer Dia.</th>
<th>Turbine Wheel Inducer Dia. (mm)</th>
<th>Turbine A/R</th>
<th>Super Core</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
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<tbody>
<tr>
<td>179182</td>
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<td>82.20</td>
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<td>87.37</td>
<td>3.22</td>
<td>81.74</td>
<td>1.25</td>
<td>179184*</td>
<td>179183 318396</td>
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</tbody>
</table>
S400SX3
500 - 1050 HP Turbo

Turbo Frame Dimensions

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>Part Number</th>
<th>A/R</th>
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</thead>
<tbody>
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<tr>
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<td>177105</td>
<td>1.25</td>
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</tbody>
</table>

Turbine Housing

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Dia.</th>
<th>Comp. Wheel Dia. (mm)</th>
<th>Turbo Wheel O.D.</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>
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</thead>
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<tr>
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<td>71.08</td>
<td>3.29</td>
<td>83</td>
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<td>2.93</td>
<td>74</td>
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</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

---

### Turbo Frame Dimensions

- 4.21
- 5.75
- 4.43
- 2.75
- 5.00
- 5.75
- 5.55
- 5.34

---

### Compressor Map

(Applicable to part numbers 177101)

---

### 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)

---

### Turbine Housing

<table>
<thead>
<tr>
<th>Part Number</th>
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<tbody>
<tr>
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<td>176810</td>
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<td>1.10</td>
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<td>176812</td>
<td>1.25</td>
</tr>
<tr>
<td>(176806 Only)</td>
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</tr>
</tbody>
</table>

---

### Full marmon clamp

---

**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

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Comp. Wheel O.D.</th>
<th>Comp. Wheel Inducer Dia.</th>
<th>Comp. Wheel (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel Exducer (mm)</th>
<th>Turbine Wheel A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
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<tbody>
<tr>
<td>177287</td>
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83mm (O.D.) Turbine Wheel

<table>
<thead>
<tr>
<th>Component</th>
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<tr>
<td>Turbo</td>
<td>178855</td>
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<tr>
<td>Super Core</td>
<td>179352</td>
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</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>
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<tbody>
<tr>
<td>Turbo</td>
<td>179171</td>
<td>179174</td>
<td>179176</td>
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<tr>
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<td>179175</td>
<td>178781</td>
<td>179179</td>
<td>179184</td>
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Turbo Housing Options

<table>
<thead>
<tr>
<th>Part No.</th>
<th>A/R</th>
<th>Outlet Configuration</th>
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<tbody>
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<td>177102</td>
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<tr>
<td>177103</td>
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<td>Flat V</td>
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<td>Flat V</td>
</tr>
<tr>
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<td>Flat V</td>
</tr>
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<table>
<thead>
<tr>
<th>Part No.</th>
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<th>Outlet Configuration</th>
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</tr>
<tr>
<td>178790</td>
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<td>Flat V</td>
</tr>
</tbody>
</table>

Paul Protacio, SFWD
S400SX3
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

Turbine Housing

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

* Super core options found on page 54
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>
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</table>

* Super core options found on page 54
BorgWarner
S500SX Super Core

Turbine Housing Configurations

110mm (O.D.) Turbine Wheel

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle</th>
<th>Reference No.</th>
<th>Year</th>
<th>HP</th>
<th>Litres</th>
<th>Service Turbo No.</th>
<th>Model Spec</th>
<th>Remarks</th>
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<tbody>
<tr>
<td>Porsche</td>
<td>911 Turbo</td>
<td>997.123.014.72</td>
<td>2005</td>
<td>480</td>
<td>3.6</td>
<td>5304 988 0060</td>
<td>BV50-2277</td>
<td>Stock Turbo (Right Side)</td>
</tr>
<tr>
<td>Porsche</td>
<td>911 Turbo</td>
<td>997.123.013.72</td>
<td>2005</td>
<td>480</td>
<td>3.6</td>
<td>5304 988 0061</td>
<td>BV50-2277</td>
<td>Stock Turbo (Left Side)</td>
</tr>
<tr>
<td>Porsche</td>
<td>911 GT2</td>
<td>997.123.078.71</td>
<td>2007</td>
<td>530</td>
<td>3.6</td>
<td>5304 988 0080</td>
<td>BV50-2280</td>
<td>Upgrade Turbo (Right Side)</td>
</tr>
<tr>
<td>Porsche</td>
<td>911 GT2</td>
<td>997.123.014.70</td>
<td>2007</td>
<td>530</td>
<td>3.6</td>
<td>5304 988 0081</td>
<td>BV50-2280</td>
<td>Upgrade Turbo (Left Side)</td>
</tr>
</tbody>
</table>
## Turbo Features

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

<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>Mini</td>
<td>JCW</td>
<td>From 2006</td>
<td>EP6 DTS</td>
<td>5303 988 0163</td>
<td>215</td>
<td>255</td>
<td>5303 988 0146</td>
<td>K03-2074D</td>
<td>Twin Scroll Turbine Housing</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
Audi A4 Upgrade

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.

### Turbo Features

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

<table>
<thead>
<tr>
<th>Manufacturer</th>
<th>Vehicle</th>
<th>Year</th>
<th>Engine</th>
<th>Stock Turbo</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>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>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

<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 A4</td>
<td>95-99</td>
<td>1.8 liter 5-Valve, Inline</td>
<td>220</td>
</tr>
<tr>
<td>A6 / 1.8T</td>
<td></td>
<td></td>
<td></td>
</tr>
<tr>
<td>Passat</td>
<td>96-99</td>
<td>1.8 liter 5-Valve, Inline</td>
<td>220</td>
</tr>
</tbody>
</table>

Turbo Features

<table>
<thead>
<tr>
<th>Turbo Part Number</th>
<th>Compressor Wheel O.D.</th>
<th>Compressor Wheel Inducer Dia.</th>
<th>Compressor Wheel Factor (mm)</th>
<th>Turbine Wheel O.D.</th>
<th>Turbine Wheel Inducer Dia.</th>
<th>Turbine Wheel Factor (mm)</th>
<th>Turbine Wheel Exducer</th>
<th>Turbine Wheel Exducer Factor (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>
<td></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.

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<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>

Turbo Features

<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>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>
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/hsg, upgrade turbo has not. External pop-off valve has to be fitted. Moreover, K04-064 has a larger compressor housing discharge.
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.

Turbo Features

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

<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>Volvo</td>
<td>S40/V50/XC60/C70</td>
<td>From 2003</td>
<td>2.5L RNCRS</td>
<td>5304 988 0033</td>
<td>300</td>
<td>370</td>
<td>5316 998 0010</td>
<td>K16-2480D</td>
<td>Integrated Manifold</td>
</tr>
<tr>
<td>Ford</td>
<td>Focus</td>
<td>From 2005</td>
<td>2.5L RNCRS</td>
<td>5304 988 0033</td>
<td>300</td>
<td>370</td>
<td>5316 998 0010</td>
<td>K16-2480D</td>
<td>Integrated Manifold</td>
</tr>
</tbody>
</table>
K26

200 - 375 HP Turbo

Turbo Frame Dimensions

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

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>Turbo Frame Dimensions</th>
</tr>
</thead>
<tbody>
<tr>
<td>5326988-6720</td>
<td>2.60</td>
<td>1.73</td>
<td>44</td>
<td>2.52</td>
<td>64</td>
<td>2.00, 3.00, 1.50</td>
</tr>
<tr>
<td>5326988-7042</td>
<td>2.60</td>
<td>1.80</td>
<td>46</td>
<td>2.52</td>
<td>64</td>
<td>2.00, 3.00, 1.50</td>
</tr>
</tbody>
</table>

www.borgwarnerboosted.com
### Turbo Frame Dimensions

- **Bolt circle diameter**: 3.81
- **Diameter**: 3.37
- **Height**: 1.80
- **Height**: 2.00

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

### Compressor Map

#### Turbo Features

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

#### 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>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>11(^\circ)cm</td>
<td>5327 710 0518</td>
<td>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

Turbo Frame Dimensions

Compressor Map

Pressure Ratio

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 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>53299887120</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>

Stronger Than Cast Wheels
- Higher Pressure Ratio
- Resists High Cycle Fatigue
K44
1100 - 2000 HP Turbo

Turbo Frame Dimensions

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

Turbo Features

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>40²cm</td>
</tr>
<tr>
<td>5345 101 6301</td>
<td>36²cm</td>
</tr>
<tr>
<td>5344 101 6305</td>
<td>28²cm</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. (mm)</th>
<th>Turbo Wheel Exducer Dia.</th>
<th>Turbo Wheel Exducer Dia. (mm)</th>
<th>Turbo Wheel A/R</th>
<th>Cartridge Assembly</th>
<th>Service Kit</th>
</tr>
</thead>
<tbody>
<tr>
<td>5344 988 6900</td>
<td>6.14</td>
<td>4.24</td>
<td>107.7</td>
<td>140</td>
<td>4.92</td>
<td>125</td>
<td>32²cm</td>
<td>5344 710 0018</td>
<td>5344 711 0501</td>
</tr>
</tbody>
</table>
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