

High-Performance Turbochargers Catalog



2023

 **BorgWarner**

High Performance Turbochargers

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Boost like the pros.

From the first appearance of forced induction motor vehicles at the Indianapolis Motor Speedway® in 1952 to the Mulsanne Straight of Le Mans and the winding roads of Nürburgring, BorgWarner turbochargers have made their mark. That legacy of excellence is available to all, whether racing to a checkered flag or simply looking to add some boost to a coveted garage project. BorgWarner's dedication to quality and performance is embedded in every genuine BorgWarner turbocharger and continues to power the next generation of performance enthusiasts.



BorgWarner Turbochargers Boost These Series:

INDYCAR
IMSA
World Endurance Championship
Formula Drift
Global Time Attack
World Time Attack
IHRA
SCCA
NASA

The Borg-Warner Trophy™

The Borg-Warner Trophy, is synonymous with high performance, speed and leading-edge automotive technology. In 1936, Eddie Rickenbacker, of the Indianapolis Speedway, unveiled the Borg-Warner Trophy and officially announced it as the prize for the champion of the Indy 500.

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

Today, the trophy is housed in the Hall of Fame Museum at the Indianapolis Motor Speedway®. Each May, the Borg-Warner Trophy is featured at a number of Indianapolis 500 events. These include 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 along with the winning car and driver for photographs. A tradition dating back to 1936 when after winning his third race, Louis Meyer received the first trophy and promptly said, "winning the Borg-Warner Trophy is like winning an Olympic medal."



The Borg-Warner Trophy™ is a registered trademark of BorgWarner Inc.

11 Years Of Indy 500 Champions Boosted By BorgWarner



Marcus Ericsson, 2022



Helio Castroneves, 2021



Takuma Sato, 2020



Simon Pagenaud, 2019



Will Power, 2018



Takuma Sato, 2017



Alexander Rossi, 2016



Juan Pablo Montoya, 2015



Ryan Hunter-Reay, 2014



Tony Kanaan, 2013



Dario Franchitti, 2012

BorgWarner, the official turbocharger partner of INDYCAR since 2012.

Global Time Attack

Team: PZ Tuning
Driver: Will Au-Yeung
Vehicle: 2012 Honda Civic Si
Racing Venue: 2018 Global Time Attack Pro Unlimited Champion, 2022 Super Lap Battle, 2021 Pikes Peak Hill Climb
Current Turbo of choice: EFR 9274



Photo courtesy Camden Thrasher/HPD

Baja

Team: Honda Off-Road Racing
Racing Venue: Three Baja 1000 Class 7 wins
Five Baja 500 Class 7 wins
Current Turbo of choice: Twin EFR 6258's



Formula Drift

Team: Papadakis Racing
Driver: Fredric Aasbø
Vehicle: 2022 Toyota Supra
Racing Venue: Formula Drift PRO, (3x Series Champion 2015, 2021 & 2022)
Current Turbo of choice: EFR-9280



Helio Castroneves

No matter the circuit, Helio Castroneves is known for his historic success and domination in the world of racing. With new record-setting performances around the globe, Castroneves' legend continues to grow as he pushes the limits of the sport. Powered by EFR series turbochargers from BorgWarner, Helio and the world's fastest drivers are equipped with industry-leading boosting technology, driven by our dedication to excellence.

All boosted by **BorgWarner EFR**

IMSA Driver Championship (2020)

24 Hours of Daytona - overall winner (2021,2022)

Indy 500 (4x winner, twice with EFR)

Petit Le Mans (2022)



No one has time to wait for Boost.



Our Advanced Aftermarket Product engineers are no strangers to the race track. They sit in the driver's seat. They spend hours under the hood. Their expertise has sparked innovations for racing and performance enthusiasts around the world. The official turbocharger of the NTT IndyCar Series, BorgWarner's EFR turbochargers, offer an unprecedented combination of advanced technologies.

Designed for competitive motorsports, AirWerks Series turbochargers provide durable, scalable, strong boost for enthusiasts who want a more powerful replacement or customizable turbocharger.



Match Bot INSTRUCTIONAL

The team at BorgWarner has developed Match Bot, an interactive turbo matching program that is internet based. The program begins by entering the engine input data. For each piece of input data, helpful pop-up's are provided. These useful tips guide the user

through entering appropriate engine targets by means of giving optimal example ranges. Parameters such as BSFC, VE, and exhaust gas temperature are often difficult for the user to estimate, but helpful suggestions are offered each step of the way.

Each required input has suggested ranges that help users estimate values for categories such as Volumetric Efficiency and Brake Specific Fuel Consumption

Required Inputs	#1	#2	#3	#4	#5	#6
Engine Speed rpm	2000	3000	4000	5000	6000	7000
Volumetric Efficiency %	85	95	100	100	105	105
Boost Pressure (Gauge) psi	5	10	15	17	17	17
Intercooler Effectiveness %	99	95	95	92	90	90
Intercooler Pressure Drop psi	0.2	0.2	0.3	0.4	0.5	0.6
Air Filter Restriction psi	0.08	0.1	0.12	0.15	0.18	0.2
Muffler System Backpressure psi	0.5	1	1.3	1.5	1.8	2
Compressor Efficiency %	66	70	74	76	72	66
Turbine Efficiency %	75	73	72	71	70	70
Exhaust Gas Inlet Temperature deg F	1550	1600	1650	1650	1650	1650
Turbine Expansion Ratio	1.18	1.36	1.61	1.81	1.98	2.18

Solutions for single or twin turbo configurations

Corrects turbo speed and capability for operating altitude

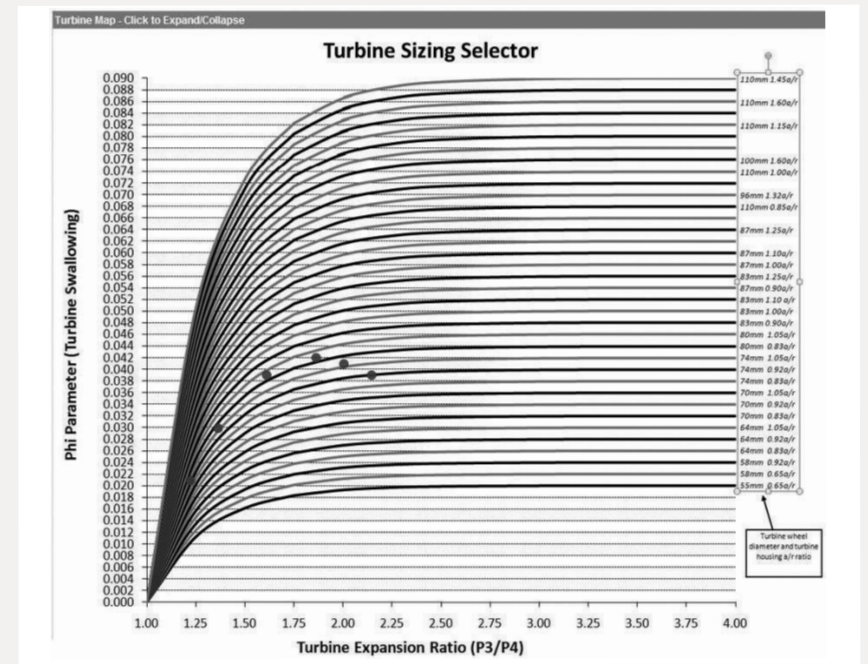
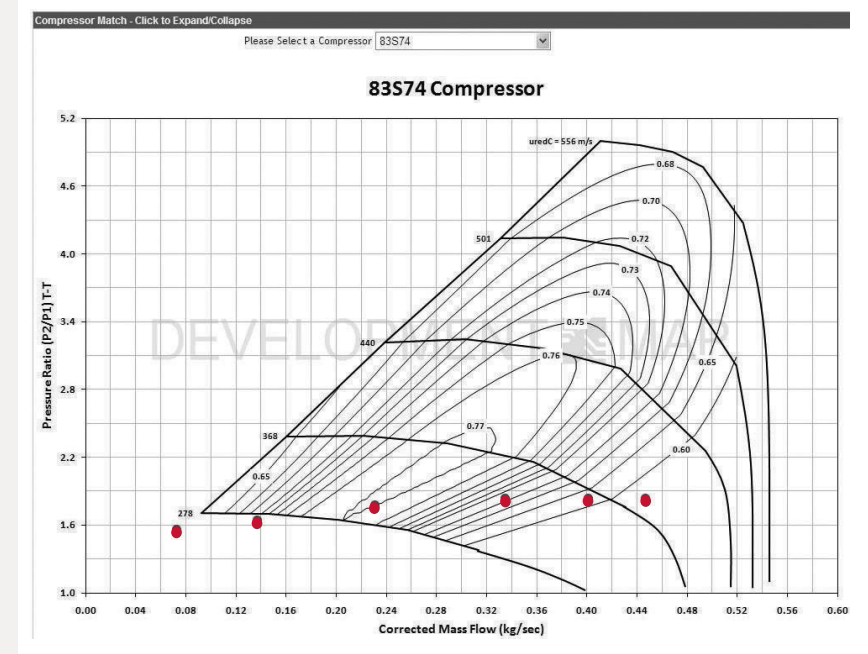
The Match Bot Interactive
Tool Can Be Found At: borgwarnerboosted.com

Calculated Outputs

		#1	#2	#3	#4	#5	#6
Compressor Pressure Ratio	\	1.36	1.71	2.07	2.22	2.23	2.23
Compressor Outlet Temp	deg F	149.05	200.46	240.46	252.92	263.94	282.25
Intake Manifold Air Temp	deg F	75.74	81.27	83.25	89.23	93.89	95.72
Intake Manifold Air Density	lb/in3	0.000057	0.000071	0.000085	0.000009	0.000089	0.000088
Density Ratio (Intercooled)	\	1.34	1.67	2.01	2.12	2.1	2.09
Actual Flow Rate (Not Corrected)	lb/min	5.89	12.29	20.69	27.32	34.13	39.69
Actual Flow Rate (Not Corrected)	cfm	85.4	178.13	300.03	396.14	494.94	575.52
Correct Air Flow Rate	lb/min	5.94	12.4	20.91	27.67	34.64	40.33
Correct Air Flow Rate	kg/sec	0.045	0.094	0.158	0.209	0.262	0.305
Correct Air Flow Rate	kg/hr	161	337	568	752	941	1096
Correct Air Flow Rate	m3/sec	0.041	0.085	0.143	0.189	0.237	0.276
1/BSAC	hp-min/lb	12	11.5	10.8	10.3	9.9	9.3
Turbo Shaft Power	Hp	2.49	8.79	19.49	27.74	36.8	46.94
Engine Power	Hp	71.5	142.4	224.9	285.1	342.5	376.5
Torque	lb-ft	187.67	249.36	295.31	299.45	299.78	282.5
Fuel Requirement	lb/hr	30.7	64.1	108	142.5	178.1	207.1

Turbine Match Outputs

Exhaust Manifold Pressure	psi	3.2	6.6	10.9	14.4	17.7	21.4
Engine Delta Pressure (dP)	psi	2	3	4	3	-1	-4
Turbine Swallowing Parameter	PHI	0.0219	0.0213	0.0258	0.0267	0.0283	0.0287
Turbine Corrected Flow @ 59F	lb/min	9.2	15.2	18.4	19	20.2	20.5
Is the Wastegate Flow Choked	\	No	No	No	No	Yes	Yes
Wastegate Flow Area @ CF=0.8	in2	0.03	0.13	0.44	0.73	0.96	1.11
Port Diameter Requirement	mm	5	11	19	24	28	30



Text-Based Output is Provided as Well as Graphical Mapping



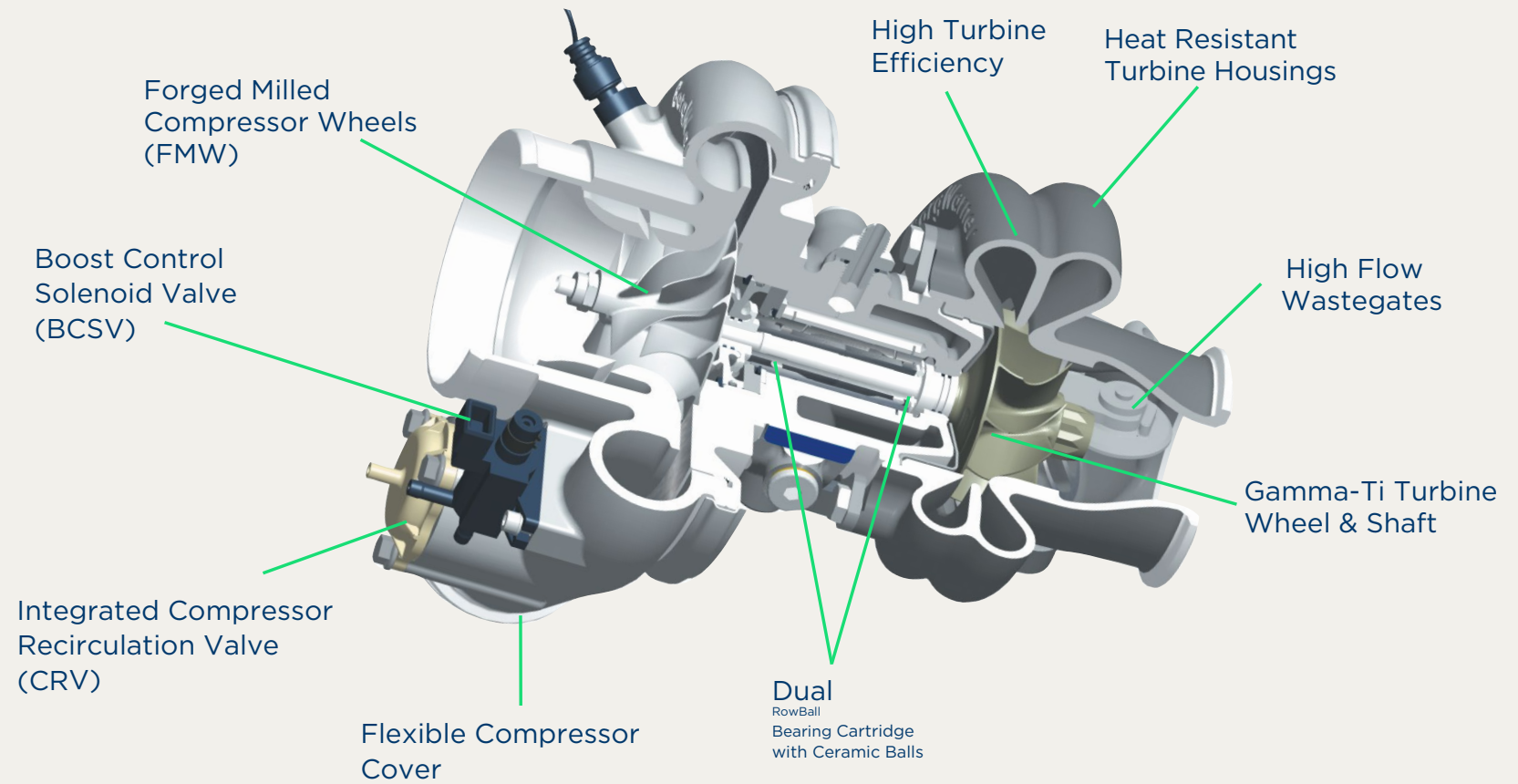
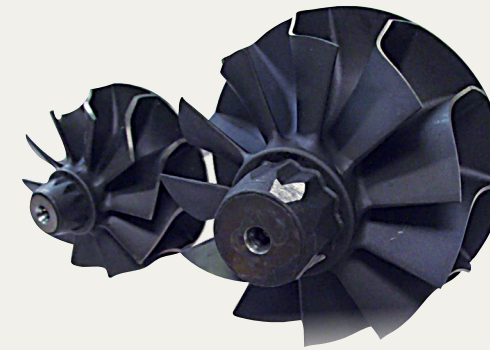
What kind of turbocharger would you build for your high-performance car?

The engineers in BorgWarner's Advanced Aftermarket Product group created a wish list of every notable design characteristic. They used materials that had never been combined into an aftermarket turbocharger. EFR delivers quick boost response, powerful performance and reliable durability.

Why do the world's most prominent auto manufacturers select products from BorgWarner?

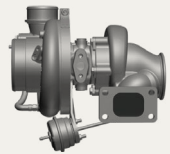
Simply put, we are the world leader in turbos for high speed, high temperature gasoline engines engineered specifically for drag racing, pulling and road racing.

EFR 58mm and 80mm Gamma-Ti turbine wheels

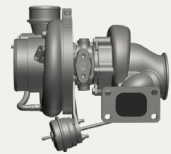




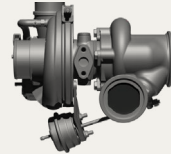
ROTOR GROUPS



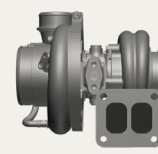
A-TYPE
B1 Frame Size
0.64 A/R, T25 Flange
Single Scroll
Wastegated



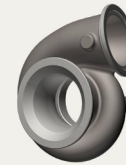
F-TYPE
B1 Frame Size
0.85 A/R, T25 Flange
Single Scroll
Wastegated



F(V)-TYPE
B1 Frame Size
0.85 A/R, V-Band Inlet
Single Scroll
Wastegate

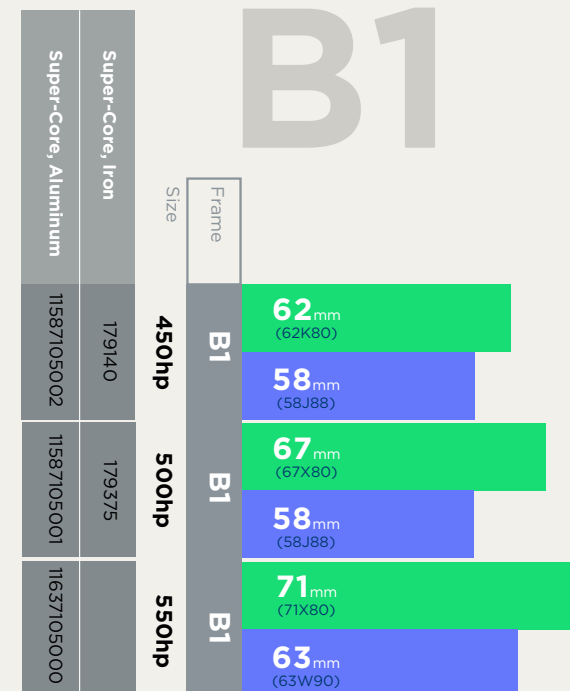


G-TYPE
B1 Frame Size
0.80 A/R, T4 Flange
Twin Scroll
Wastegated



I-TYPE
B1 Frame Size
0.85 A/R, V-Band Inlet
Single Scroll
Non-Wastegated

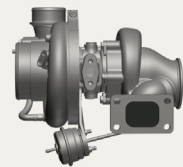
179150 11581009006			11589880036 11581008002	
179388 11581009006	11589880034 11581008000	11589880035 11581008001	11589880037 11581008002	sold as turbine housing kit 11581008003
	11639880005 11631008000	11639880006 11631008001	11639880002 11631008002	sold as turbine housing kit 11631008003



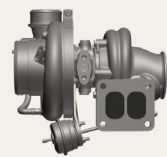
KEY

Turbo Assembly
Turbine Housing Assembly

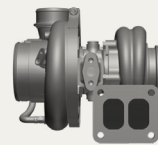
COMPRESSOR
TURBINE



B-TYPE
B2 Frame Size
0.83 A/R, T3 Flange
Single Scroll
Wastegated



C-TYPE
B2 Frame Size
0.92 A/R, T4 Flange
Twin Scroll
Wastegated



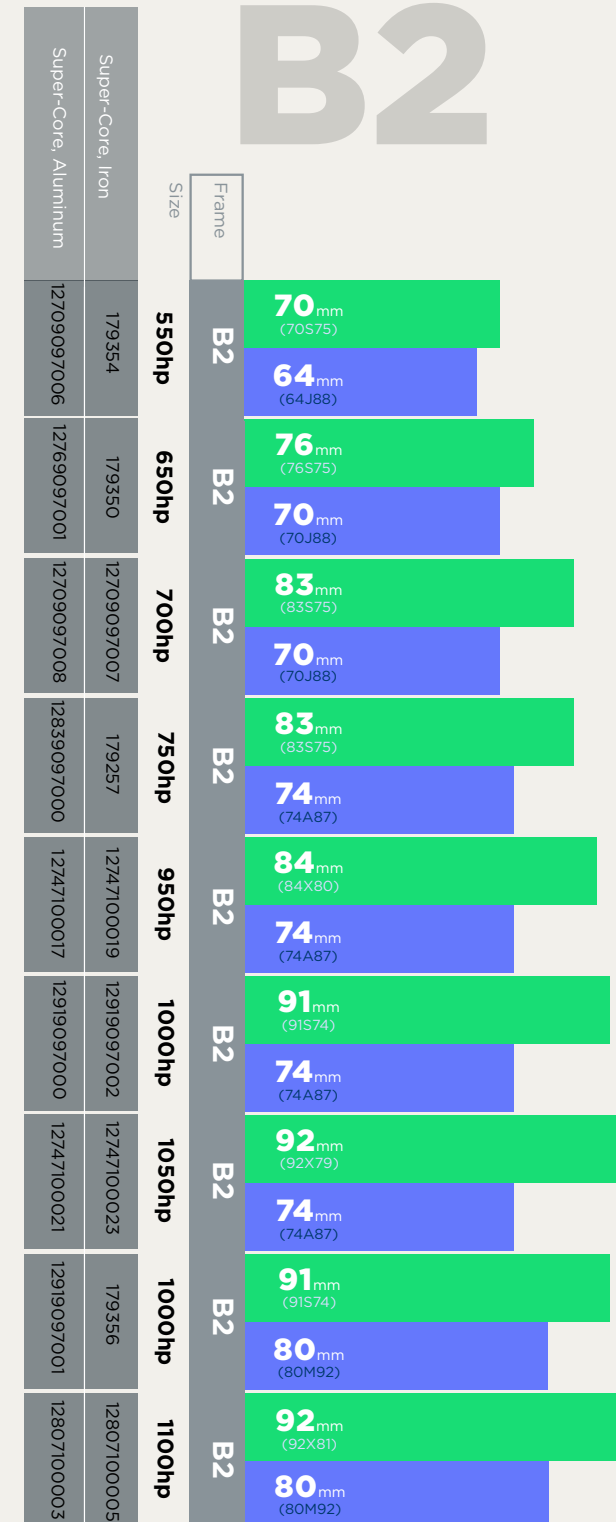
D-TYPE
B2 Frame Size
1.05 A/R, T4 Flange
Twin Scroll
Non-Wastegated



H-TYPE
B2 Frame Size
1.45 A/R, T4 Flange
Twin Scroll
Non-Wastegated

B2

179355 12641008006	179389 12641008007	179391 12641019016	
179351 12701008014	179390 12701008016	179392 12701019047	
12701008014	12701008016	12701019047	
179258 12741008000	179357 12741008001	179393 12741019002	sold as turbine housing kit 12741008003
12741008000	12741008001	12741019002	sold as turbine housing kit 12741008003
12741008000	12741008001	12741019002	sold as turbine housing kit 12741008003
12741008000	12741008001	12741019002	sold as turbine housing kit 12741008003
179358 12801008002	12809880000 12801019009	179394 12801019001	sold as turbine housing kit 12801008006
12801008002	12801019009	12801019001	sold as turbine housing kit 12801008006



COMPRESSOR
TURBINE

Turbo Assembly
Turbine Housing Assembly

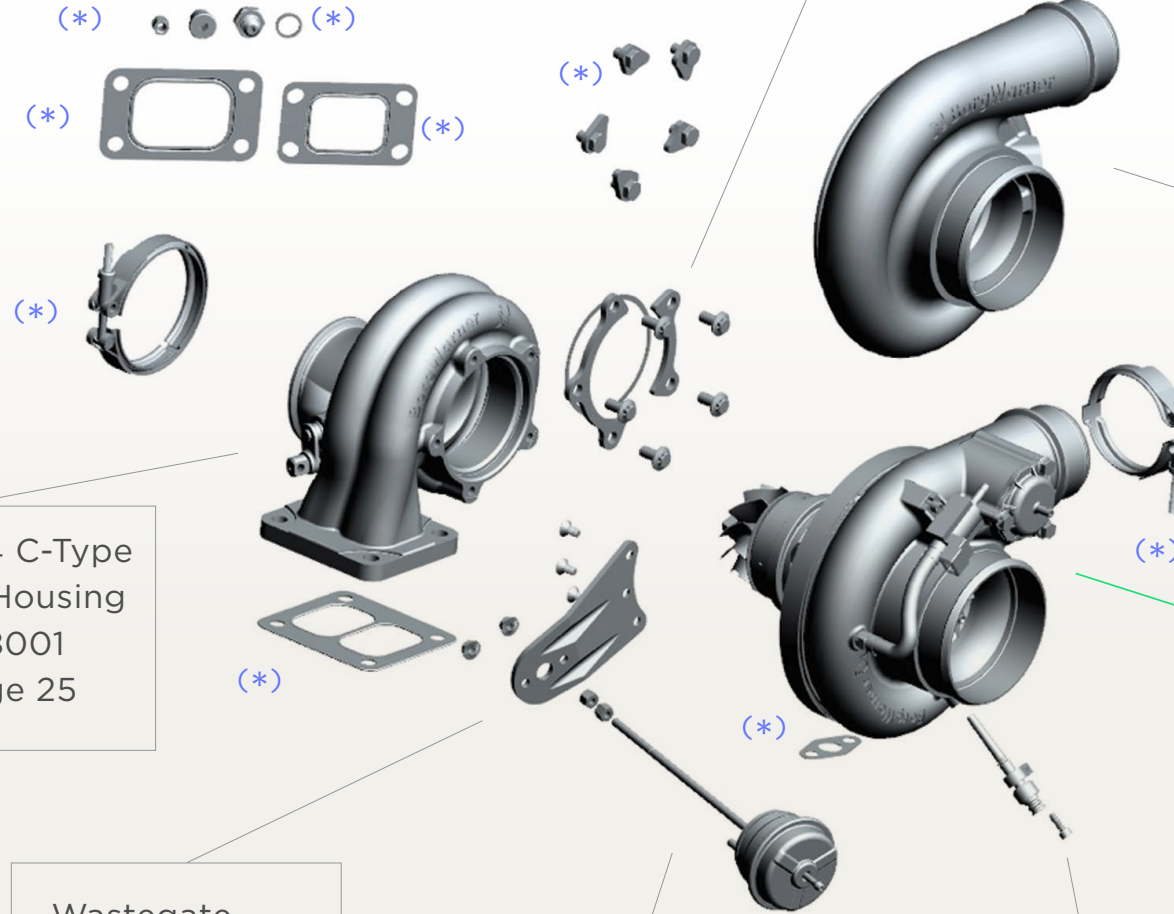


The right turbo for you.

This example shown illustrates how to select part numbers to create a highly optioned EFR 9174-C turbo.

EFR Hardware Installation Kit 179423. Components are listed on page 30 and shown here with a (*).

Turbine Housing Clamp Plate Kit (recommended for Aluminum B2 Bearing Housings) from page 30



SX-E Style Compressor Cover, 12911013005 from page 25

EFR 9174 C-Type Turbine Housing 12741008001 from page 25

EFR 9174 Super-Core with Aluminum Bearing Housing: 12919097000 from page 25

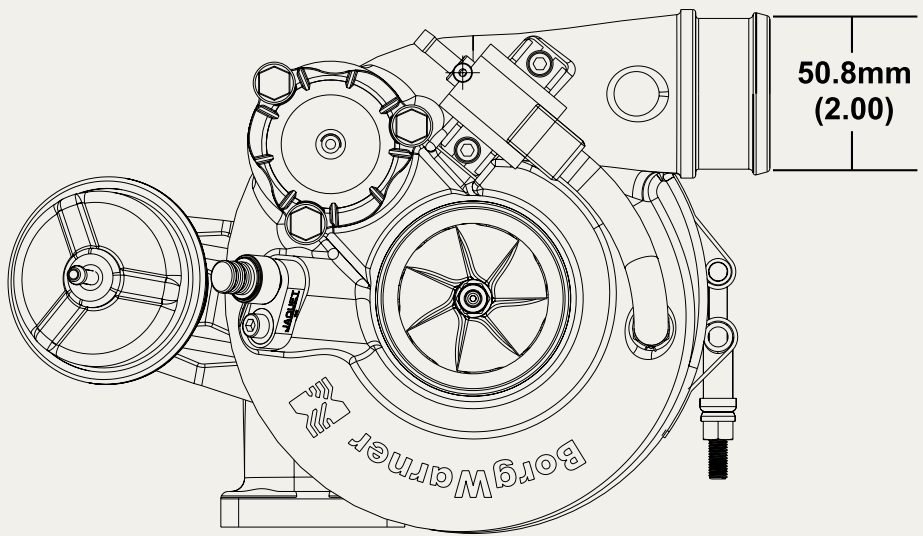
Wastegate Canister Bracket Kit 179429 from page 30

Wastegate Canister from page 30
Low Boost 179285
Medium Boost 179286
High Boost 179287
Refer to page 29 for preload guide

Speed Sensor Kit 179430 from page 30 Installation guide shown on page 55

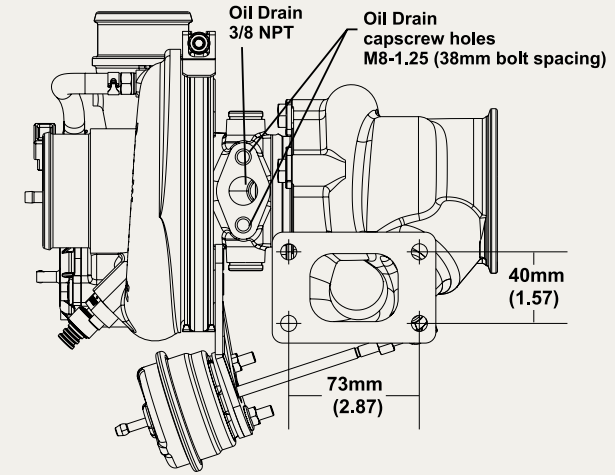
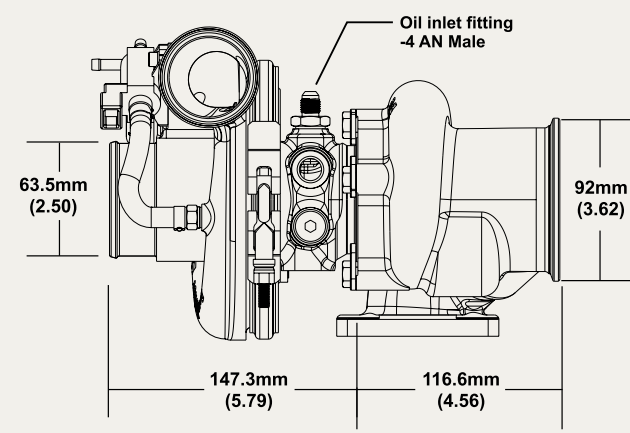
B1

FRAME SIZE

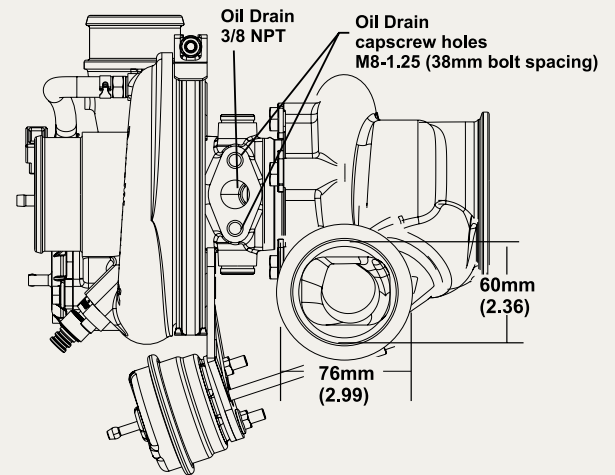
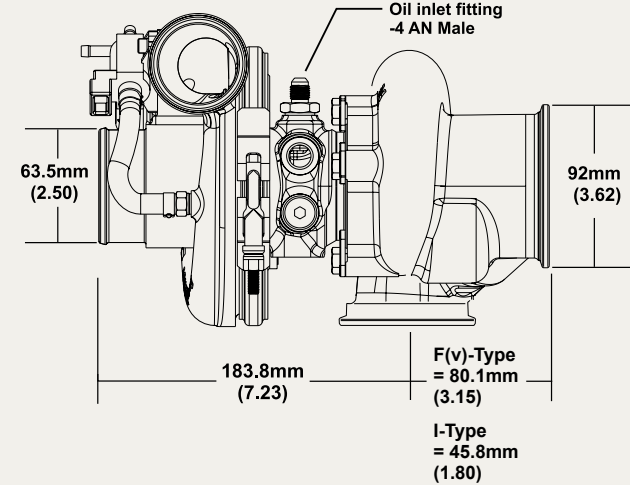


*Speed sensor details, see page 55

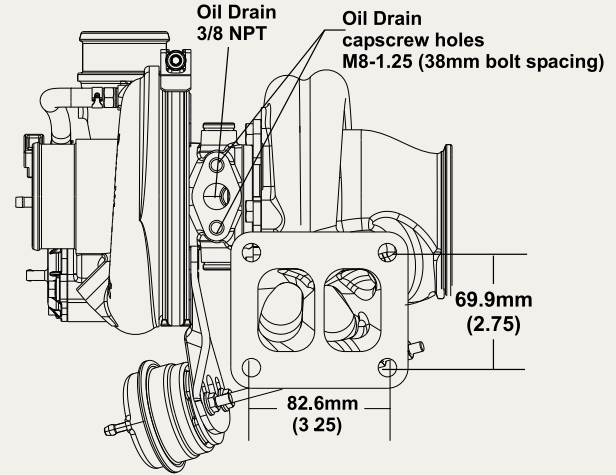
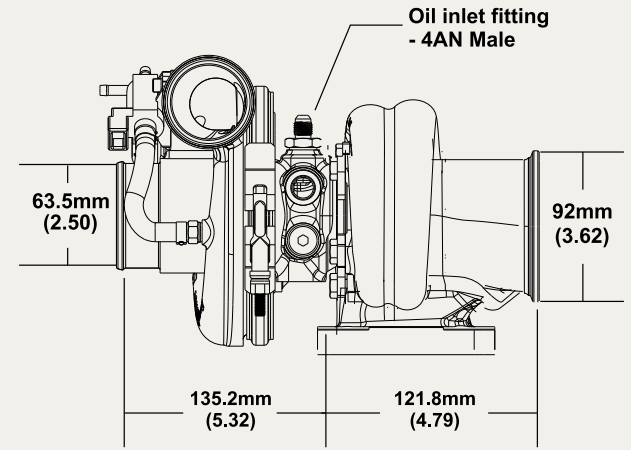
A & F - TYPE



F(V) & I - TYPE



G - TYPE

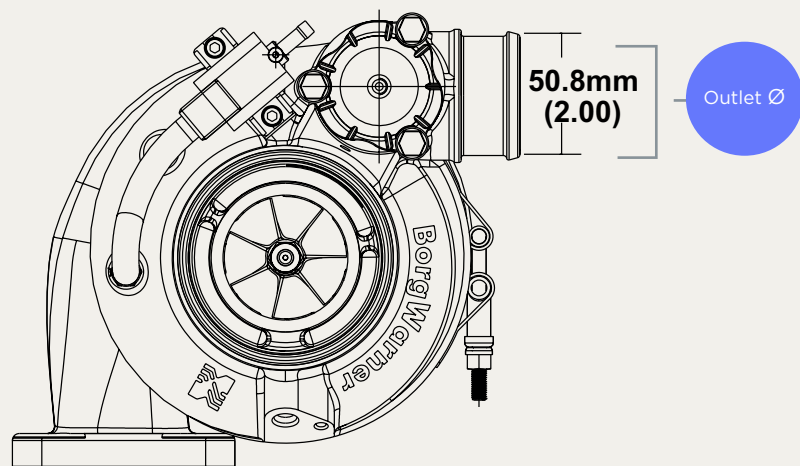


Turbo Frame Dimensions

For all 6258 / 6758 / 7163 EFR models.*

B2

FRAME SIZE



*Speed sensor details, see page 55

Compressor Outlet Ø

7064 / 7670 = 50.8mm (2.00)

8370 / 8374 / 9174 / 9180 = 63.5mm (2.50)

8474 / 9274 / 9280 = 63.5mm (2.50)

Compressor Inlet Ø

7064 / 7670 = 88.9mm (3.50)

8370 / 8374 / 9174 / 9180 = 101.6mm (4.00)

8474 / 9274 / 9280 = 101.6mm (4.00)

Dimension 'X'

7064 / 7670 D-Type = 142mm (5.60)

8370 / 8374 / 9180 D-Type = 148mm (5.82)

8370 / 8374 / 9180 H-Type = 140mm (5.51)

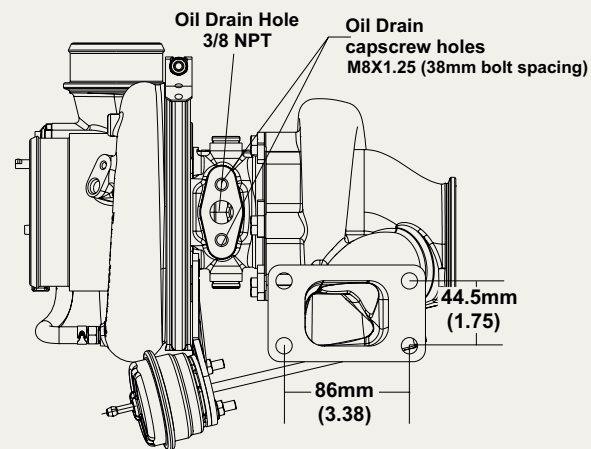
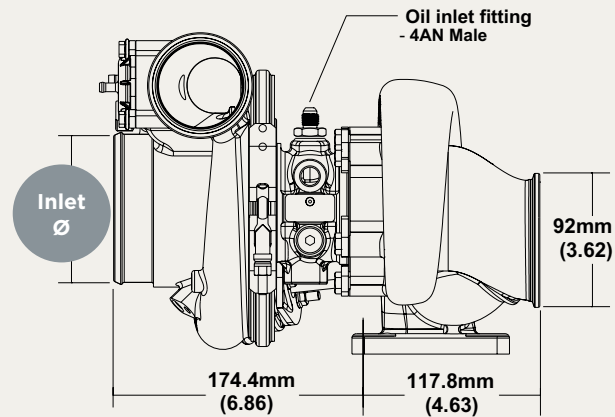
8474 / 9274 / 9280 H-Type = 140mm (5.51)

Dimension 'Y'

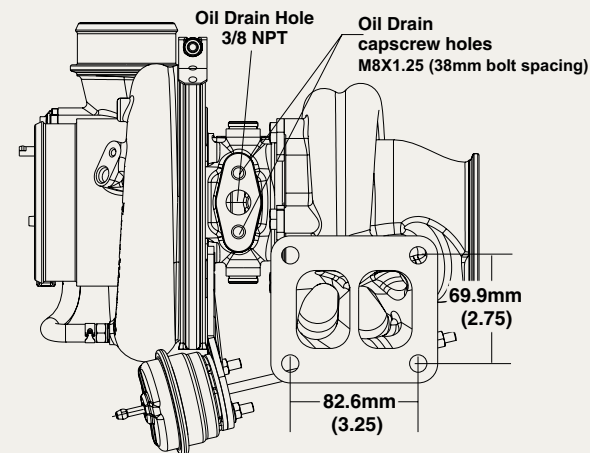
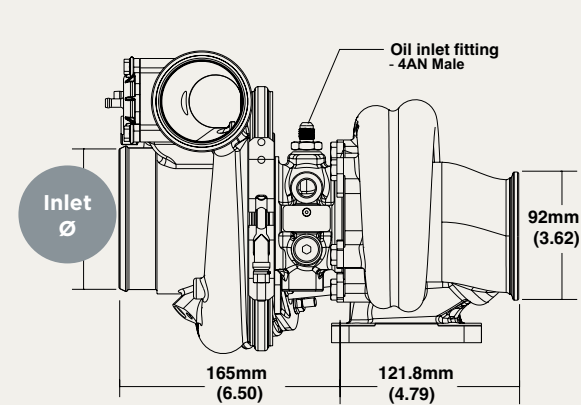
D-Type = 98.6mm (3.88)

H-Type = 106.4mm (4.19)

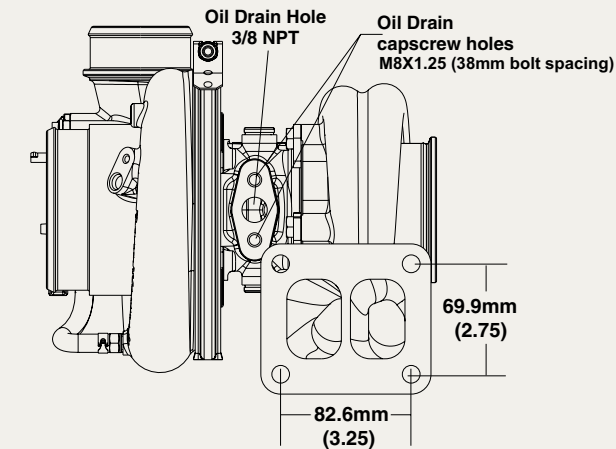
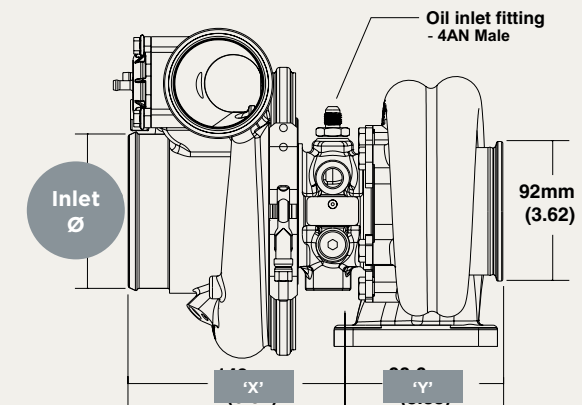
B - TYPE



C - TYPE



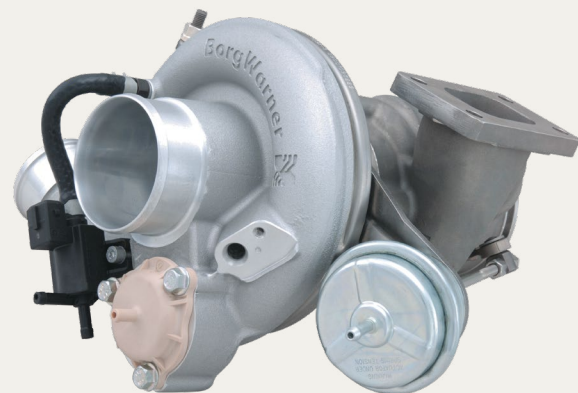
D & H - TYPE



Turbo Frame Dimensions

For all 7064 / 7670 / 8370 / 8374 / 8474 / 9174 / 9274 / 9180 and 9280 EFR models.*

EFR 6258-A 225-450 HP Turbo



EFR 6258-G 225-450 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
6258-A	179150	Iron	179140	11581009006	0.64	T25	Single	Yes
6258-F	-	-	-	-	-	-	-	-
6258-F(v)	-	-	-	-	-	-	-	-
6258-G	11589880036	Aluminum*	11587105002	11581008002	0.80	T4	Dual	Yes
6258-I	-	-	-	-	-	-	-	-
6258	-	Aluminum*	11587105002	-	-	-	-	-
6258	-	Iron	179140	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

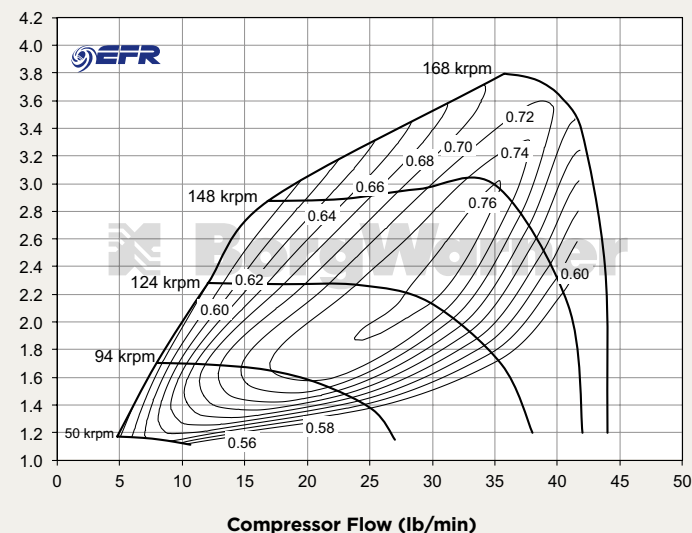
Turbo Frame Size	B1
Comp. Wheel Inducer Dia. (mm)	49
Comp. Wheel Outer Dia. (mm)	62
Turbine Wheel Exducer Dia. (mm)	51
Turbine Wheel Outer Dia. (mm)	58

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 6258 UNITS

Comp. Wheel Inducer Dia. (mm) 49
Comp. Wheel Outer Dia. (mm) 62



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

11621013032



Compressor Cover with 90° Outlet

11621003002



I-Type Turbine Housing

11581008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

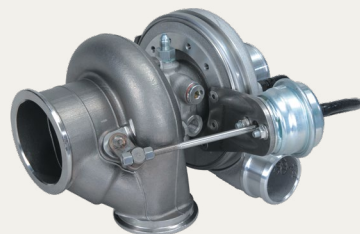
EFR 6758-A 250-500 HP Turbo



EFR 6758-F 250-500 HP Turbo



EFR 6758-F(v) 250-500 HP Turbo



EFR 6758-G 250-500 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
6758-A	179388	Iron	179375	11581009006	0.64	T25	Single	Yes
6758-F	11589880034	Aluminum*	11587105001	11581008000	0.85	T25	Single	Yes
6758-F(v)	11589880035	Aluminum*	11587105001	11581008001	0.85	V-Band	Single	Yes
6758-G	11589880037	Aluminum*	11587105001	11581008002	0.80	T4	Twin	Yes
6758-I	-	-	-	11581008003	0.85	V-Band	Single	No
6758	-	Aluminum*	11587105001	-	-	-	-	-
6758	-	Iron	179375	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

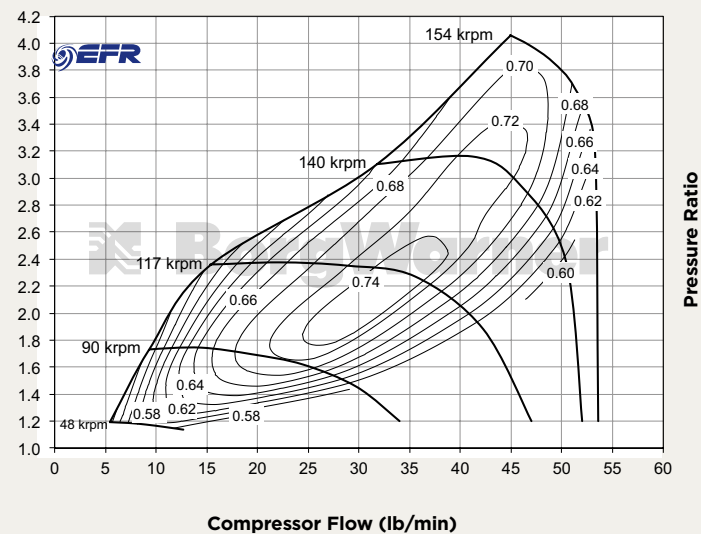
Turbo Frame Size	B1
Comp. Wheel Inducer Dia. (mm)	54
Comp. Wheel Outer Dia. (mm)	67
Turbine Wheel Exducer Dia. (mm)	51
Turbine Wheel Outer Dia. (mm)	58

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 6758 UNITS

Comp. Wheel Inducer Dia. (mm) 54
Comp. Wheel Outer Dia. (mm) 67



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

11671013004



Compressor Cover with 90° Outlet

11671003001



I- Type Turbine Housing

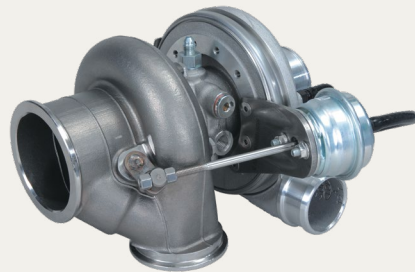
11581008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 7163-F 300-550 HP Turbo



EFR 7163-F(v) 300-550 HP Turbo



EFR 7163-G 300-550 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
7163-F	11639880005	Aluminum*	11637105000	11631008000	0.85	T25	Single	Yes
7163-F(v)	11639880006	Aluminum*	11637105000	11631008001	0.85	V-Band	Single	Yes
7163-G	11639880002	Aluminum*	11637105000	11631008002	0.80	T4	Twin	Yes
7163-I	-	-	-	11631008003	0.85	V-Band	Single	No
7163	-	Aluminum*	11637105000	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

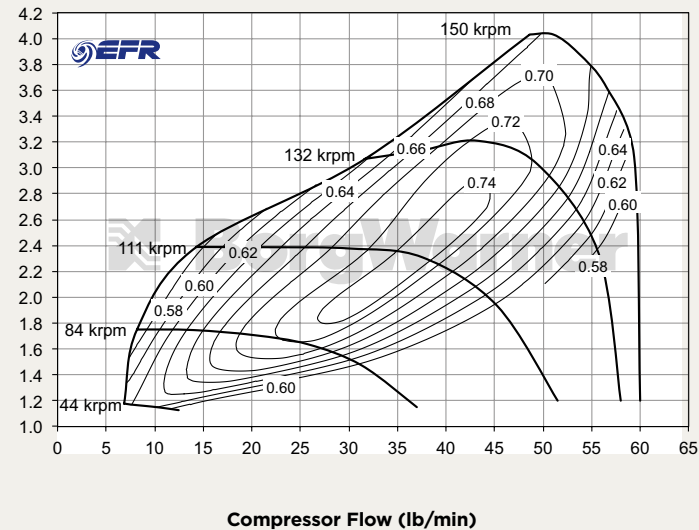
Turbo Frame Size	B1
Comp. Wheel Inducer Dia. (mm)	57
Comp. Wheel Outer Dia. (mm)	71
Turbine Wheel Exducer Dia. (mm)	56
Turbine Wheel Outer Dia. (mm)	63

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 7163 UNITS

Comp. Wheel Inducer Dia. (mm) 57
Comp. Wheel Outer Dia. (mm) 71



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

11711013004



Compressor Cover with 90° Outlet

11711013001



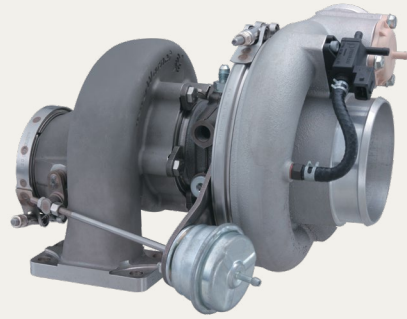
I- Type Turbine Housing

11631008003

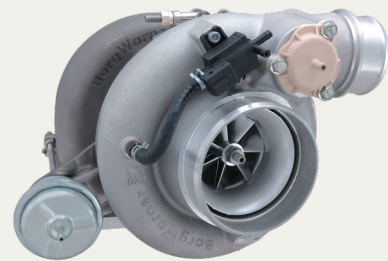
SEE PAGE 15 FOR FRAME DIMENSIONS

SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 7064-B
300-550 HP Turbo



EFR 7064-C
300-550 HP Turbo



EFR 7064-D
300-550 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
7064-B	179355	Iron	179354	12641008006	0.83	T3	Single	Yes
7064-C	179389	Iron	179354	12641008007	0.92	T4	Twin	Yes
7064-D	179391	Iron	179354	12641019016	1.05	T4	Twin	No
7064	-	Aluminum*	12709097006	-	-	-	-	-
7064	-	Iron	179354	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

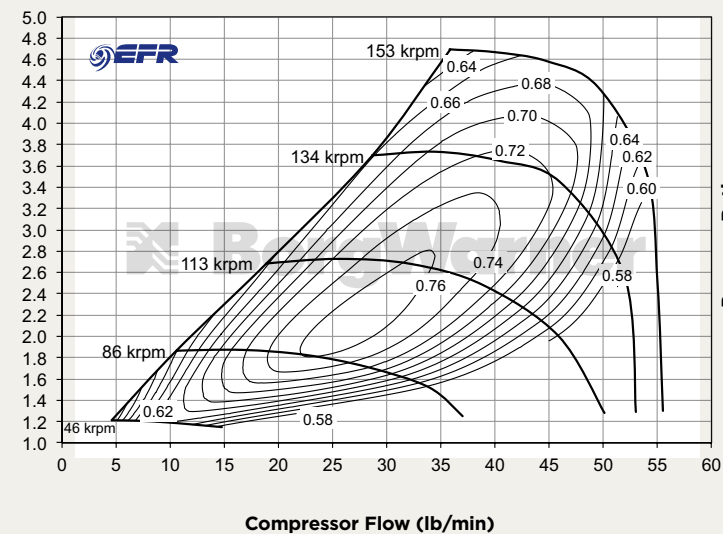
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	52
Comp. Wheel Outer Dia. (mm)	70
Turbine Wheel Exducer Dia. (mm)	56
Turbine Wheel Outer Dia. (mm)	64

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 7064 UNITS

Comp. Wheel Inducer Dia. (mm) 52
Comp. Wheel Outer Dia. (mm) 70



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

12701013022

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

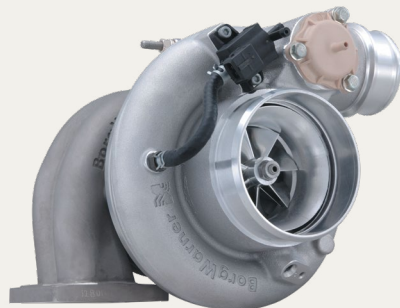
EFR 7670-B
375-650 HP Turbo



EFR 7670-C
375-650 HP Turbo



EFR 7670-D
375-650 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
7670-B	179351	Iron	179350	12701008014	0.83	T3	Single	Yes
7670-C	179390	Iron	179350	12701008016	0.92	T4	Twin	Yes
7670-D	179392	Iron	179350	12701019047	1.05	T4	Twin	No
7670	-	Aluminum*	12769097001	-	-	-	-	-
7670	-	Iron	179350	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

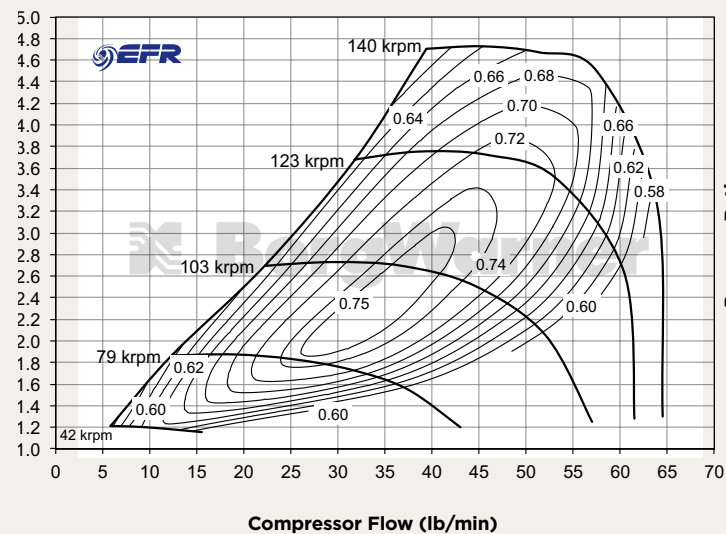
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	57
Comp. Wheel Outer Dia. (mm)	76
Turbine Wheel Exducer Dia. (mm)	61
Turbine Wheel Outer Dia. (mm)	70

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 7670 UNITS

Comp. Wheel Inducer Dia. (mm) 57
Comp. Wheel Outer Dia. (mm) 76



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

12761013034

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 8370 Aluminum Super-Core 475-700 HP Turbo



EFR 8370 Iron Super-Core 475-700 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
8370-B	-	-	-	12701008014	0.83	T3	Single	Yes
8370-C	-	-	-	12701008016	0.92	T4	Twin	Yes
8370-D	-	-	-	12701019047	1.05	T4	Twin	No
8370	-	Aluminum*	12709097008	-	-	-	-	-
8370	-	Iron	12709097007	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

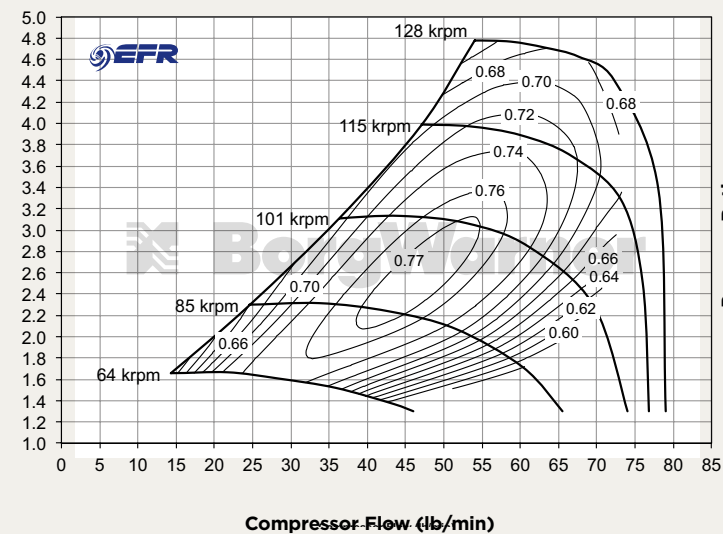
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	62
Comp. Wheel Outer Dia. (mm)	84
Turbine Wheel Exducer Dia. (mm)	61
Turbine Wheel Outer Dia. (mm)	70

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 8370 & 8374 UNITS

Comp. Wheel Inducer Dia. (mm) 62
Comp. Wheel Outer Dia. (mm) 84



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets

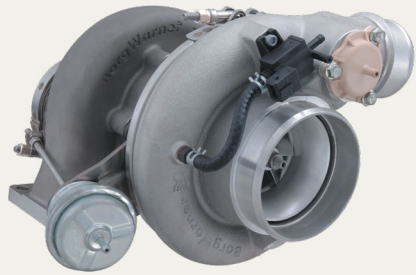


Compressor Cover SX-E Style

12831013012

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

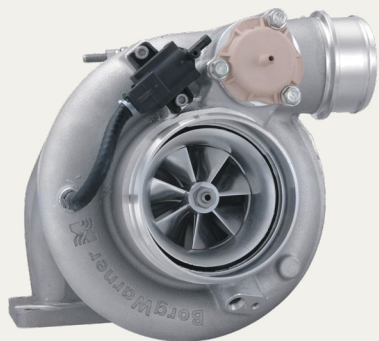
EFR 8374-B
475-750 HP Turbo



EFR 8374-C
475-750 HP Turbo



EFR 8374-D
475-750 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
8374-B	179258	Iron	179257	12741008000	0.83	T3	Single	Yes
8374-C	179357	Iron	179257	12741008001	0.92	T4	Twin	Yes
8374-D	179393	Iron	179257	12741019002	1.05	T4	Twin	No
8374-H	-	-	-	12741008003	1.45	T4	Twin	No
8374	-	Aluminum*	12839097000	-	-	-	-	-
8374	-	Iron	179257	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

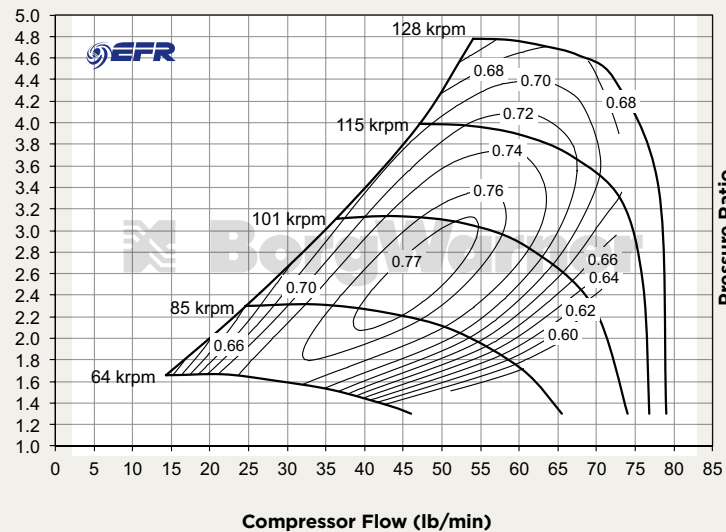
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	62
Comp. Wheel Outer Dia. (mm)	84
Turbine Wheel Exducer Dia. (mm)	65
Turbine Wheel Outer Dia. (mm)	74

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 8374 & 8370 UNITS

Comp. Wheel Inducer Dia. (mm) 62
Comp. Wheel Outer Dia. (mm) 84



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

12831013012



H-Type Turbine Housing

12741008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 8474 Aluminum Super-Core 500-950 HP Turbo



EFR 8474 Iron Super-Core 500-950 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
8474-B	-	-	-	12741008000	0.83	T3	Single	Yes
8474-C	-	-	-	12741008001	0.92	T4	Twin	Yes
8474-D	-	-	-	12741019002	1.05	T4	Twin	No
8474-H	-	-	-	12741008003	1.45	T4	Twin	No
8474	-	Aluminum*	12747100017	-	-	-	-	-
8474	-	Iron	12747100019	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

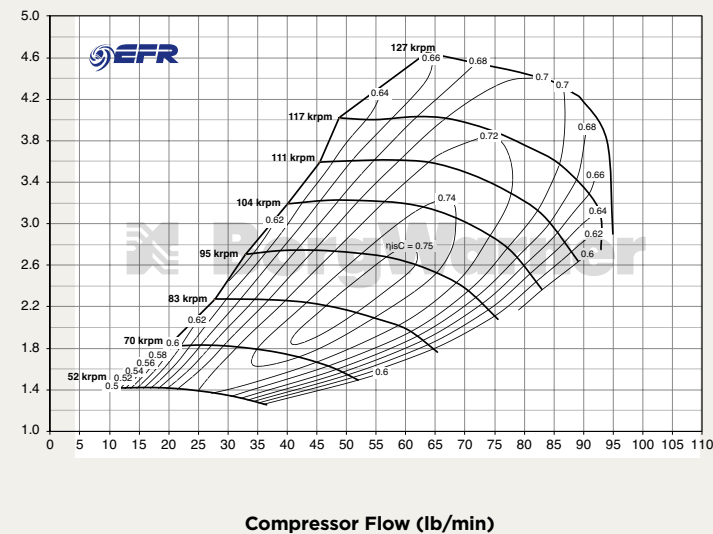
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	68
Comp. Wheel Outer Dia. (mm)	84
Turbine Wheel Exducer Dia. (mm)	65
Turbine Wheel Outer Dia. (mm)	74

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 8474 UNITS

Comp. Wheel Inducer Dia. (mm) 68
Comp. Wheel Outer Dia. (mm) 84



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



H-Type Turbine Housing

12741008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 9174 Aluminum Super-Core 600-1000 HP Turbo



EFR 9174 Iron Super-Core 600-1000 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
9174-B	-	-	-	12741008000	0.83	T3	Single	Yes
9174-C	-	-	-	12741008001	0.92	T4	Twin	Yes
9174-D	-	-	-	12741019002	1.05	T4	Twin	No
9174-H	-	-	-	12741008003	1.45	T4	Twin	No
9174	-	Aluminum*	12919097000	-	-	-	-	-
9174	-	Iron	12919097002	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

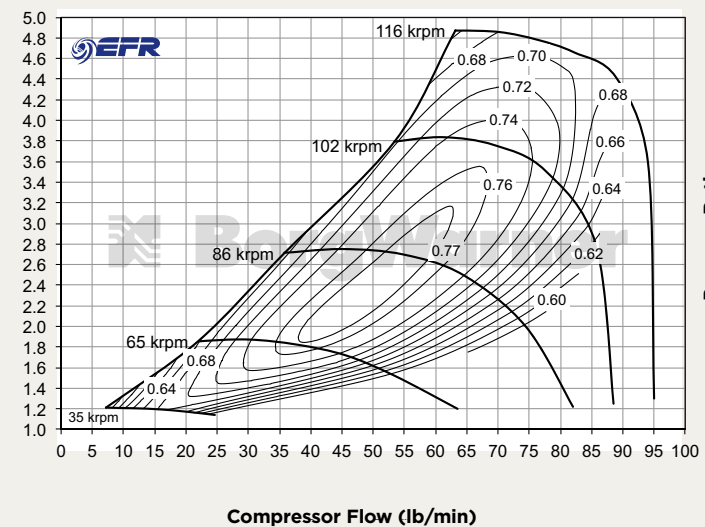
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	68
Comp. Wheel Outer Dia. (mm)	91
Turbine Wheel Exducer Dia. (mm)	65
Turbine Wheel Outer Dia. (mm)	74

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 9174 AND 9180 UNITS

Comp. Wheel Inducer Dia. (mm) 68
Comp. Wheel Outer Dia. (mm) 91



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover SX-E Style

12911013005

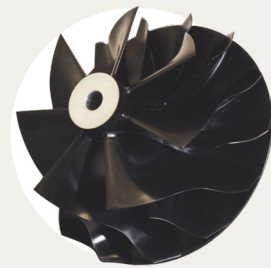


H-Type Turbine Housing

12741008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 9274 Aluminum Super-Core 600-1050 HP Turbo



EFR 9274 Iron Super-Core 600-1050 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
9274-B	-	-	-	12741008000	0.83	T3	Single	Yes
9274-C	-	-	-	12741008001	0.92	T4	Twin	Yes
9274-D	-	-	-	12741019002	1.05	T4	Twin	No
9274-H	-	-	-	12741008003	1.45	T4	Twin	No
9274	-	Aluminum*	12747100021	-	-	-	-	-
9274	-	Iron	12747100023	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

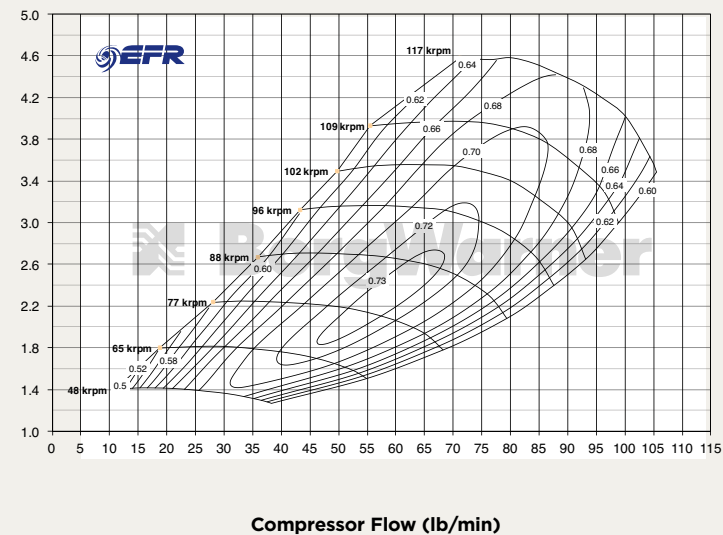
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	72
Comp. Wheel Outer Dia. (mm)	91
Turbine Wheel Exducer Dia. (mm)	65
Turbine Wheel Outer Dia. (mm)	74

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 9274 & 9280 UNITS

Comp. Wheel Outer Dia. (mm) 91
Comp. Wheel Inducer Dia. (mm) 72



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



H-Type Turbine Housing

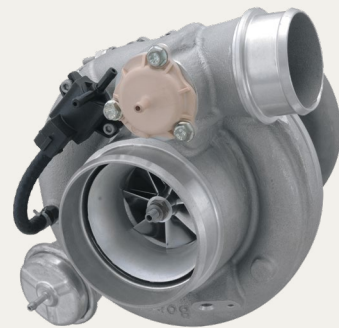
12741008003

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

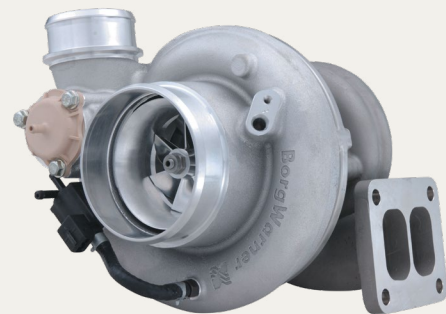
EFR 9180-B 600-1000 HP Turbo



EFR 9180-C 600-1000 HP Turbo



EFR 9180-D 600-1000 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
9180-B	179358	Iron	179356	12801008002	0.83	T3	Single	Yes
9180-C	1280988000	Iron	179356	12801019009	0.92	T4	Twin	Yes
9180-D	179394	Iron	179356	12801019001	1.05	T4	Twin	No
9180-H	-	-	-	12801008006	1.45	T4	Twin	No
9180	-	Aluminum*	12919097001	-	-	-	-	-
9180	-	Iron	179356	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

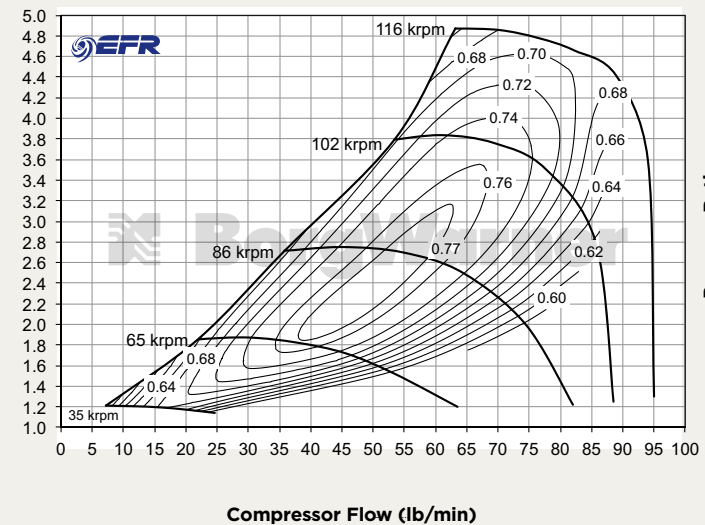
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	68
Comp. Wheel Outer Dia. (mm)	91
Turbine Wheel Exducer Dia. (mm)	73
Turbine Wheel Outer Dia. (mm)	80

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 9180 & 9174 UNITS

Comp. Wheel Inducer Dia. (mm) 68
Comp. Wheel Outer Dia. (mm) 91



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



Compressor Cover
SX-E Style

12911013005



H-Type
Turbine Housing

12801008006

SEE PAGE 15 FOR FRAME DIMENSIONS

SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

EFR 9280 Aluminum Super-Core 600-1100 HP Turbo



EFR 9280 Iron Super-Core 600-1100 HP Turbo



Product - (TYPE)	Complete Turbo	Bearing Housing Material	Super-Core**	TURBINE HOUSING				
				Assembly	A/R	Inlet	Scroll	Wastegate
9280-B	-	-	-	12801008002	0.83	T3	Single	Yes
9280-C	-	-	-	12801019009	0.92	T4	Twin	Yes
9280-D	-	-	-	12801019001	1.05	T4	Twin	No
9280-H	-	-	-	12801008006	1.45	T4	Twin	No
9280	-	Aluminum*	12807100003	-	-	-	-	-
9280	-	Iron	12807100005	-	-	-	-	-

*Aluminum bearing housings require cooling

**The following components are not included as part of the Super-Core: Turbine Housing, Clamp Plate Hardware, Wastegate, and Actuator

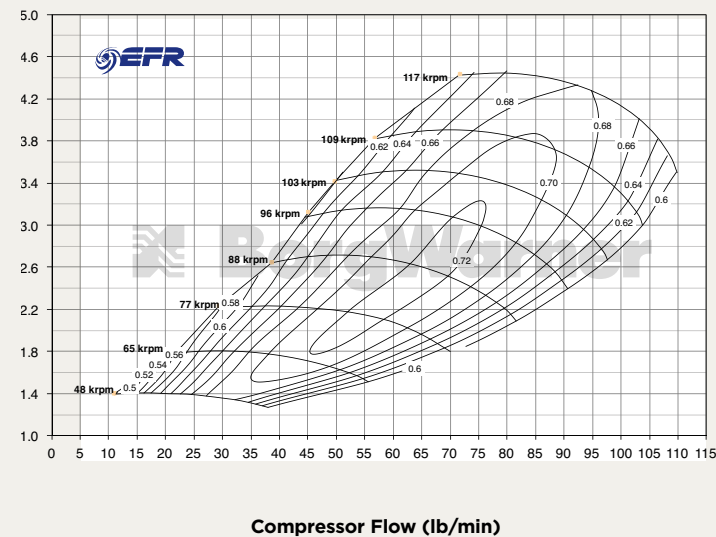
Turbo Frame Size	B2
Comp. Wheel Inducer Dia. (mm)	74
Comp. Wheel Outer Dia. (mm)	91
Turbine Wheel Exducer Dia. (mm)	73
Turbine Wheel Outer Dia. (mm)	80

FEATURES

- Gamma-Ti turbine wheel
- Integrated Compressor Recirculation Valve (CRV)
- Dual ceramic ball bearing assembly with metal cage
- Boost Control Solenoid Valve (BCSV)
- Forged Milled Compressor Wheel (FMW)
- Extended tip technology
- Compressor cover with speed sensor mounting provisions

COMPRESSOR MAP / APPLICABLE TO ALL 9280 UNITS

Comp. Wheel Inducer Dia. (mm) 74
Comp. Wheel Outer Dia. (mm) 91



OPTIONAL HARDWARE

See page 30 for: Speed Sensor, Turbine Gaskets & V-Bands, Oil Drain Gasket & Fitting, Actuators & Brackets



H-Type Turbine Housing

12801008006

SEE PAGE 15 FOR FRAME DIMENSIONS
SEE PAGE 55 FOR SPEED SENSOR INSTALLATION DETAILS

Ancillary Parts

EFR WASTEGATE CANISTER SELECTION GUIDE

Core Assy.	A-TYPE 0.64a/r TH	G-TYPE 0.80a/r TH	B-TYPE 0.83a/r TH	F & F(v)-TYPE 0.85a/r TH	C-TYPE 0.92a/r TH		
6258	179282, 179283, or 179284	179420, 179421, or 179422		179282, 179283, or 179284			
6258*	Optional Super Short Canister 59001107255, 59001107262, or 59001107261					Optional Super Short Canister 59001107255, 59001107262, or 59001107261	
6758							
6758*							
7163*							
7064		179285, 179286, or 179287		179285, 179286, or 179287			
7670							
8374							
8474							
9274							
9180							
9280							

EFR WASTEGATE CANISTER BRACKET KIT SELECTION

Core Assy.	A-TYPE 0.64a/r TH	G-TYPE 0.80a/r TH	B-TYPE 0.83a/r TH	F & F(v)-TYPE 0.85a/r TH	C-TYPE 0.92a/r TH
6258	179427 Super Short Canister 59007119007	179428		179427 Super Short Canister 59007119007	
6258*					
6758					
6758*					
7163*					
7064			179428		179428
7670			179429		179429
8374					
8474					
9274					
9180					
9280					

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 CANISTER PRELOAD GUIDE

ROD & SPRING FULL STROKE		LOW BOOST		MEDIUM BOOST		HIGH BOOST	
		179282, 179420, OR 179285 STANDARD CANISTER 59001107255 SUPER SHORT CANISTER		179283, 179421, OR 179286 STANDARD CANISTER 59001107262 SUPER SHORT CANISTER		179284, 179422, OR 179287 STANDARD CANISTER 59001107261 SUPER SHORT CANISTER	
PRELOAD	CAPABILITY	WG Crack-Open Pressure (psi)	Full Stroke Pressure (psi)	WG Crack-Open Pressure (psi)	Full Stroke Pressure (psi)	WG Crack-Open Pressure (psi)	Full Stroke Pressure (psi)
(mm / nut turns)	inches (mm)						
0	0.67" (17mm)	4.0 psi	13.7 psi	8.8 psi	20.6 psi	16.8 psi	32.3 psi
1	0.63" (16mm)	4.9 psi	13.8 psi	9.6 psi	20.6 psi	17.3 psi	32.3 psi
2	0.59" (15mm)	5.7 psi	14.0 psi	10.8 psi	20.6 psi	17.6 psi	32.3 psi
3	0.55" (14mm)	6.1 psi	14.1 psi	11.2 psi	20.6 psi	17.8 psi	32.3 psi
4	0.51" (13mm)	6.8 psi	14.3 psi	11.9 psi	20.6 psi	17.9 psi	32.3 psi
5	0.47" (12mm)	7.3 psi	14.4 psi	12.3 psi	20.6 psi	18.1 psi	32.3 psi
6	0.43" (11mm)	8.0 psi	14.4 psi	13.2 psi	20.6 psi	18.6 psi	32.3 psi
7	0.39" (10mm)	8.5 psi	14.6 psi	14.0 psi	20.6 psi	19.0 psi	32.3 psi
8	0.35" (9mm)	9.1 psi	14.6 psi	14.5 psi	20.6 psi	19.3 psi	32.3 psi
9	0.31" (8mm)	9.6 psi	14.7 psi	14.8 psi	20.6 psi	19.4 psi	32.3 psi
10	0.28" (7mm)	9.9 psi	14.7 psi	15.9 psi	20.6 psi	19.6 psi	32.3 psi
		Use with up to 13 psi applied pressure		Use with up to 19 psi applied pressure		Use with up to 31 psi applied pressure	

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.

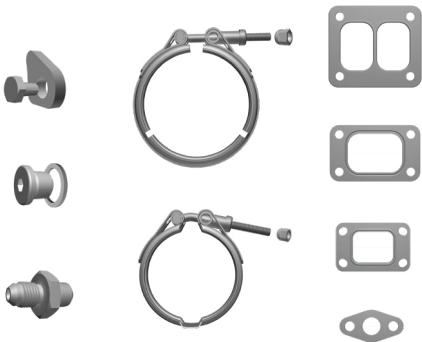
Note 3: When using solenoid valve boost control, the signal pressure that the WG canister sees can be bled off. Select a canister that will allow nearly full stroke.

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" as well as Super Short boost actuator canisters can be purchased from an EFR dealer.


Ancillary Parts

Hardware/Installation Kit
#179423



- (1) Turbine housing outlet V-band clamp
- (2) V-band clamp nuts
- (2) Water port plugs
- (6) Water port plug sealing washers
- (1) Oil inlet fitting (-4an) w/seal and washer
- (1) Compressor cover outlet V-band clamp for 83, 84, 91 & 92mm
- (5) Clamp plate bolts
- (5) Clamp plates, 1-hole
- (1) Turbine inlet gasket for T25 flange
- (1) Turbine inlet gasket for T3 flange
- (1) Turbine inlet gasket for T4 divided flange
- (2) Oil gasket

Clamp Kit, Turbine Housing to Bearing Housing for Aluminum B2 Bearing Housings
#59007119005



- (1) Clamp Plate, 3-hole
- (1) Clamp Plate, 2-hole
- (5) Bolts, Cross drilled A286
- (1) Shim

Boost Control Solenoid Valve (BCSV) Kit
#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

CRV Spring

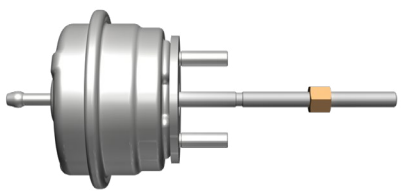


- Softer spring w/blue mark #58061191379
- Standard / Stiffer Spring w/o mark #58061191364

V-Band, Turbine Inlet for F(v) Housings
#59001095100




Super Short Canister



59001107255	59001107262	59001107261
Low Boost	Medium Boost	High Boost

Wastegate Bracket Kit for Super Short Canisters
#59007119007



- (1) Stainless steel bracket
- (2) 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

Compressor Recirculation Valve Kit (CRV)
#179424



- (1) Plastic cover w/hose nipple
- (1) CRV disabling block-off plate
- (1) Diaphragm/piston assembly
- (1) Stiffer Spring #58061191364
- (3) Cover plate bolts w/locking compound

Speed Sensor Kit



#179430

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

***Note: See Turbo Speed Gauge (TSG-1) below and also on page 60.

Wastegate Hose Kit
#179426

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




Turbo Speed Gauge (TSG-1)

The Turbo Speed Gauge (TSG-1) monitors turbo speed, and a whole lot more

- Plug and play solution for turbos outfitted with BorgWarner turbo speed sensors
- Includes open auxiliary channels for other devices such as MAP, Thermocouples, and Pressure Transducers
- Able to pass speed sensor and auxiliary channels through to data acquisition and/or engine ECU
- Graphically plots speed on a scrolling screen
- Converts speed to 0-5v signal
- Easily configurable for all BorgWarner turbocharger rotor groups

***Note: Available through select BorgWarner distributors





The Passion of Power

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. The program also can assist those customers who are looking to increase the performance of their factory turbocharged car or retrofit a naturally-aspirated engine.

Driver: Glen Hunter

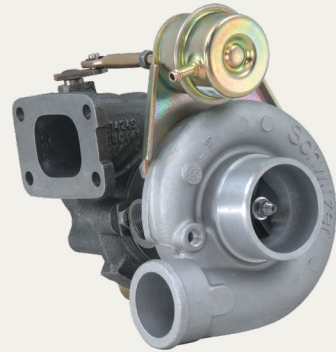
Vehicle: 1956 Chevrolet Bel Air

Turbo of choice: Twin S400SX-E 88mm

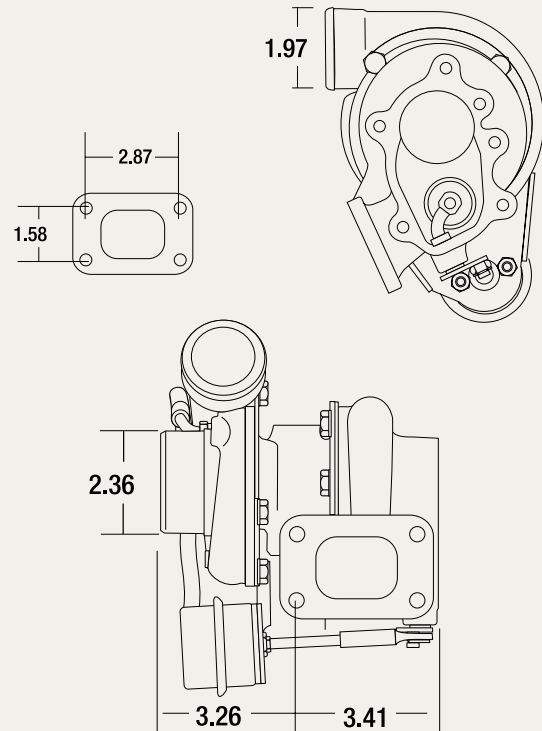


S1BG

120-320 HP Turbo



TURBO FRAME DIMENSIONS



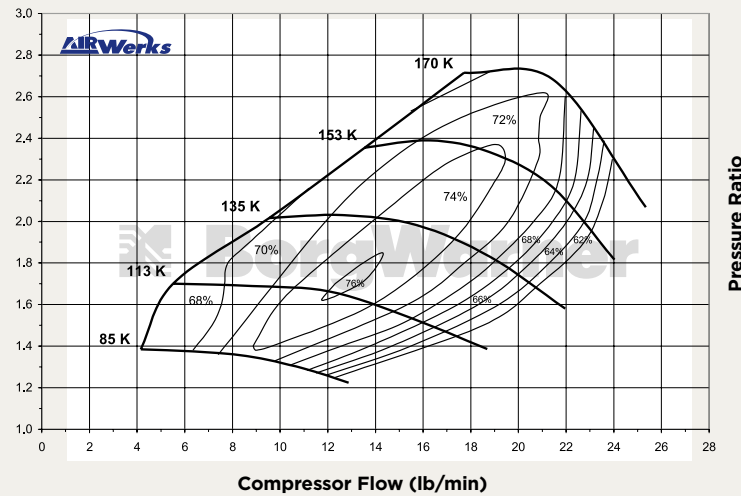
Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit
313295	1.90	48.31	1.35	34.21	1.85	46.99	1.58	40.00	0.35	N/A	318374
313296	2.08	52.91	1.55	39.32	2.08	52.92	1.80	45.73	0.46	315358	318374
313683	2.08	52.91	1.55	39.32	2.08	52.92	1.80	45.73	0.61	N/A	318374
313297	2.28	57.96	1.70	43.28	2.08	52.92	1.80	45.73	0.61	313737	318374
313798	2.28	57.96	1.70	43.28	2.08	52.92	1.80	45.73	0.81	313737	318374

FEATURES

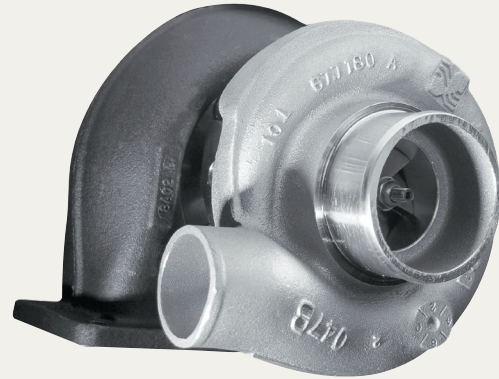
- Twin hydrodynamic journal bearings
- Integrated wastegate assembly
- Adjustable compressor and turbine housing orientation

COMPRESSOR MAP / APPLICABLE TO PART NUMBER 313296

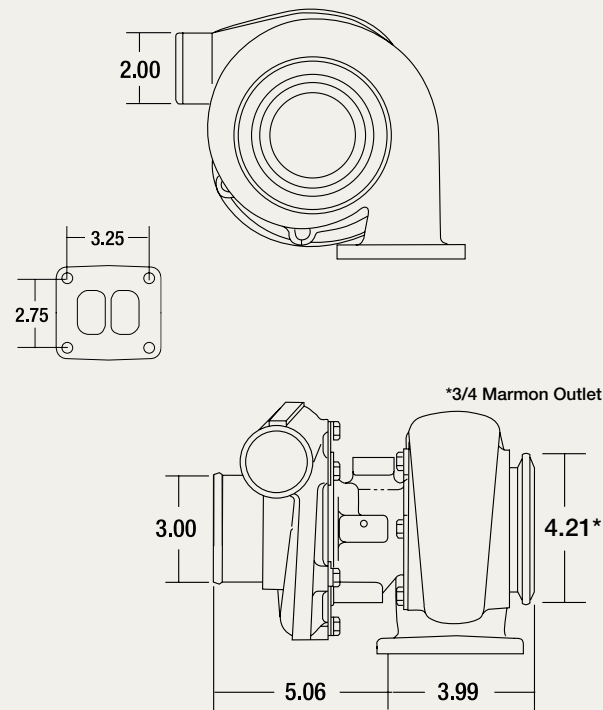
Comp. Wheel Inducer Dia. (mm) 39.32
Comp. Wheel Outer Dia. (mm) 52.91



S200SX 220-580 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Turbine Inlet	Cartridge Assembly	Service Kit
177258	2.74	69.57	1.81	45.90	2.74	69.56	2.42	61.43	0.83	VTF	176639	318383
177267	2.74	69.57	1.95	49.56	2.74	69.56	2.42	61.43	1.09	VTF	176642	318383
177257	2.74	69.57	2.00	50.72	2.74	69.56	2.42	61.43	0.83	VTF	176638	318383
177268	3.00	76.20	2.20	55.80	2.74	69.56	2.42	61.43	1.22	VTF	176637	318383
178034*	3.00	76.20	2.20	55.80	2.74	69.56	2.42	61.43	1.22	VTF	N/A	318383
178042*	3.00	76.20	2.20	55.80	2.74	69.56	2.42	61.43	1.27	VTF	N/A	318383

*Compressor inlet diameter 4.00"

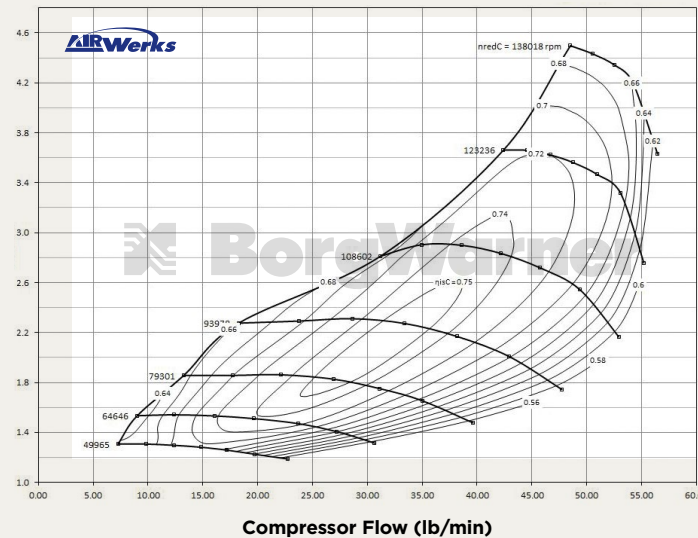
FEATURES

- 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

Comp. Wheel Inducer Dia. (mm) 55.80
Comp. Wheel Outer Dia. (mm) 76.20



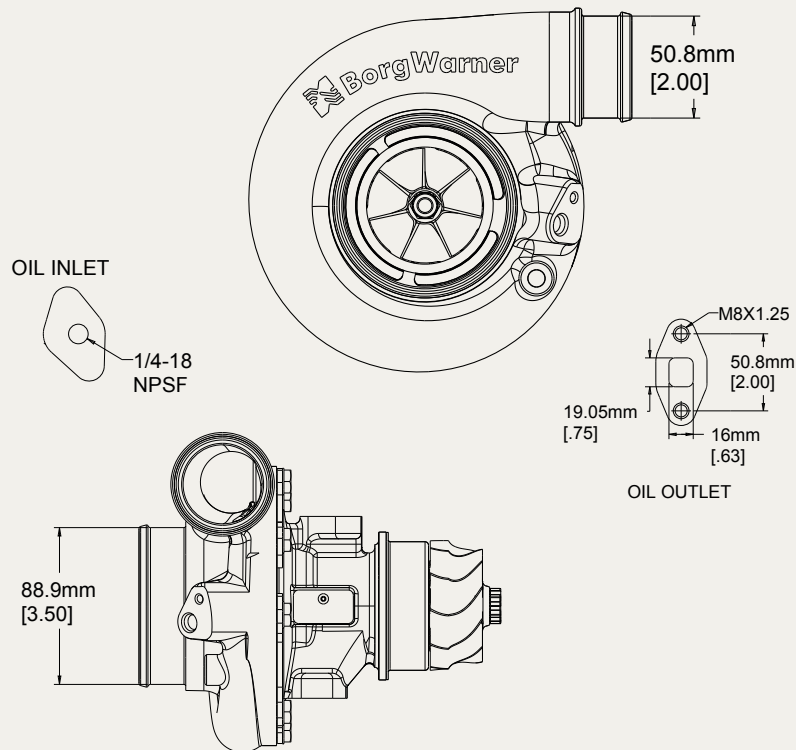
TURBINE HOUSING

Part #	A/R	Inlet Configuration	Notes
177191	0.83	Volute, Twin Flow	T4 Bolt Pattern T3 Volute Opening 70mm Turbine Wheel
177193	1.00		
177196	1.09		
177192	1.15		
177194	1.22		
178331	1.27		

S200SX-E 300-650 HP Turbo



SUPER-CORE FRAME DIMENSIONS



See page 55 for speed sensor details

borgwarnerboosted.com

Super-Core Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Service Kit
12709095019	2.74	69.60	2.05	52.17	2.74	69.56	2.42	61.43	318383
12769095003	3.00	76.20	2.25	57.15	2.74	69.56	2.42	61.43	318383

All turbine housing mounting hardware, clamp plates and cap screws are included with Super-Core.

FEATURES

- Integrated speed sensor port
- Forged milled compressor wheel
- Pre-machined boost port
- Optimized compressor stage aerodynamics



Not included with turbo assemblies: Speed sensor, Turbine outlet V-Band, Drain port fitting

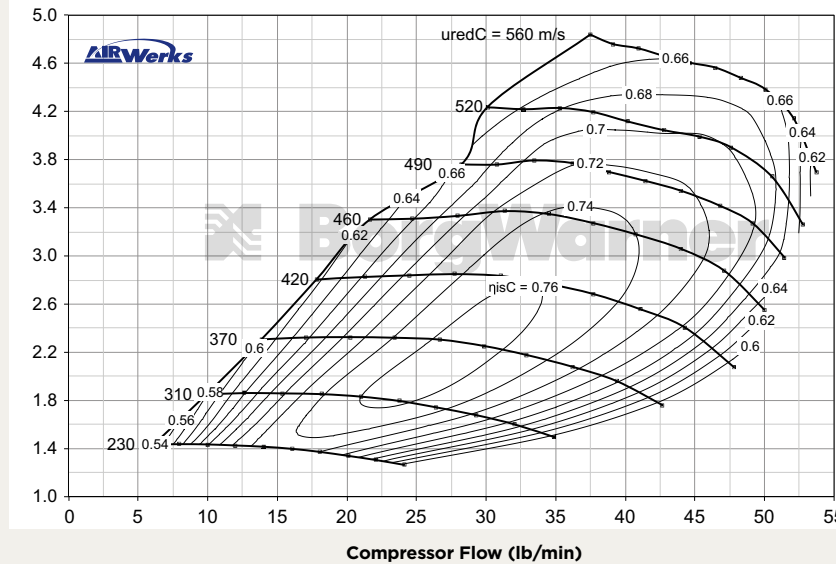
TURBINE HOUSING

Part #	A/R	Inlet Configuration	Notes
177191	0.83	Volute, Twin Flow	70mm Turbine Wheel
177193	1.00		
177196	1.09		
177192	1.15		
177194	1.22		
178331	1.27	T3 Volute Opening	

COMPRESSOR MAP / APPLICABLE TO PART NUMBER 313296

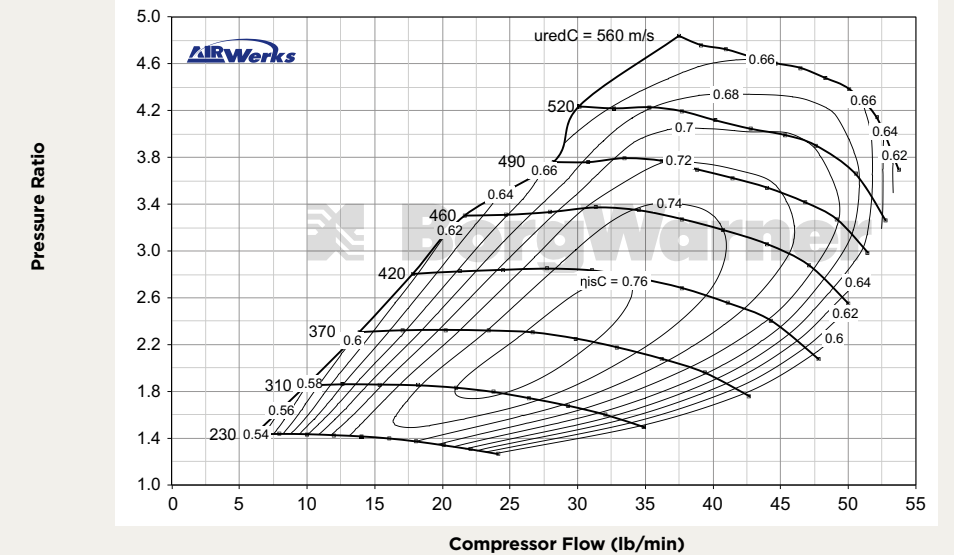
S200SX-E 300 - 550 HP Super-Core Part #: 12709095019

Comp. Wheel Inducer Dia. (mm) 52.17
Comp. Wheel Outer Dia. (mm) 69.60



S200SX-E 300 - 650 HP Super-Core Part #: 12769095003

Comp. Wheel Inducer Dia. (mm) 57.15
Comp. Wheel Outer Dia. (mm) 76.20

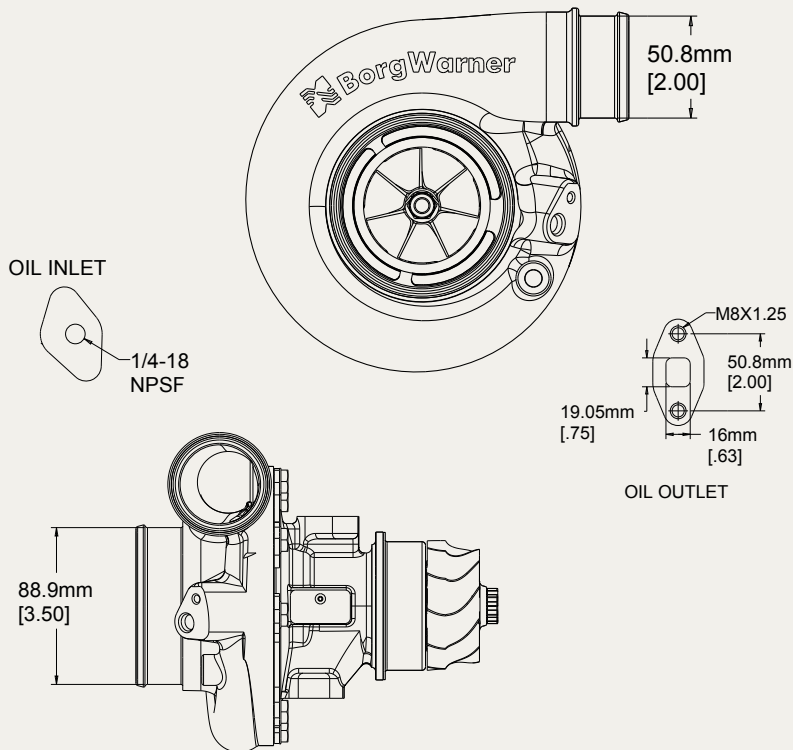


S200SX-R

300-775 HP Super-Core



SUPER-CORE FRAME DIMENSIONS



See page 55 for speed sensor details

Super-Core Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Service Kit
12707105086	2.99	76.00	2.28	58.00	2.74	69.56	2.42	61.43	318383

FEATURES

- Low rotor inertia (quicker spooling)
- Integrated speed sensor port
- Forged milled compressor wheel
- Pre-machined boost port
- Optimized compressor stage aerodynamics

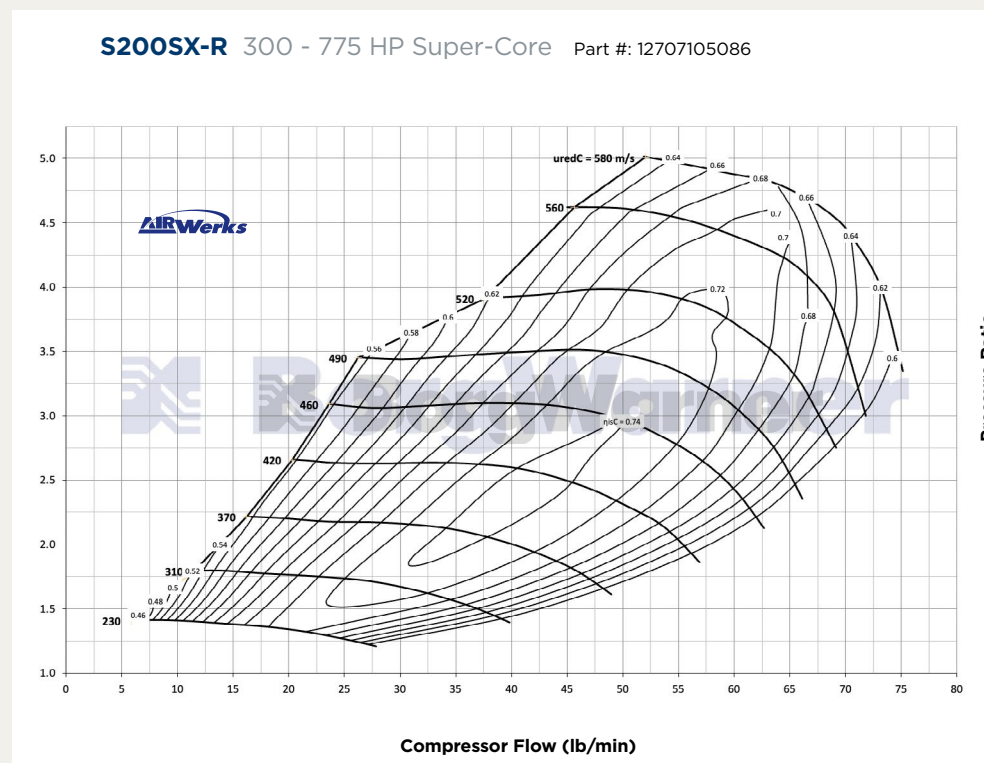


TURBINE HOUSING

Part #	A/R	Inlet Configuration	Notes
177191	0.83	Volute, Twin Flow	70mm Turbine Wheel
177193	1.00		
177196	1.09		
177192	1.15		
177194	1.22		
178331	1.27		

Not included with turbo assemblies: Speed sensor, Turbine outlet V-Band, Drain port fitting

COMPRESSOR MAP

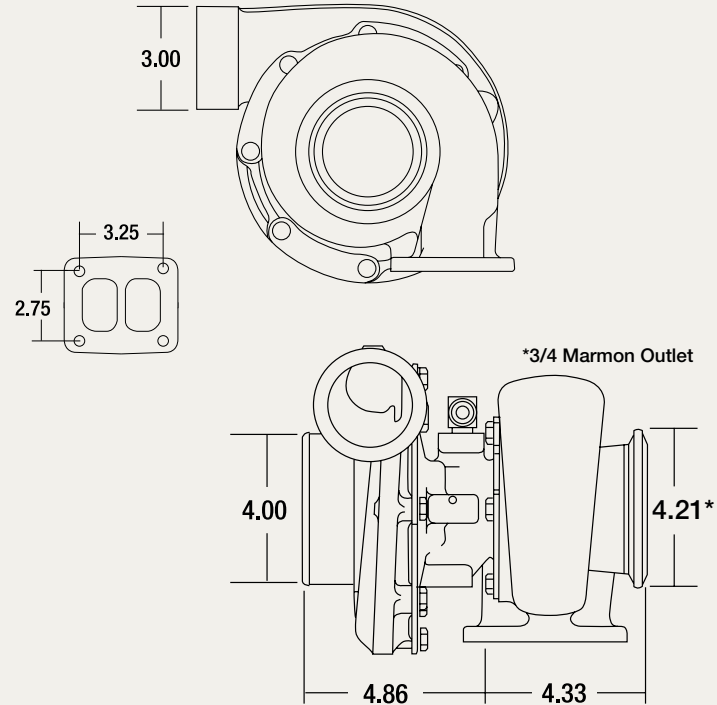


S300SX3

320-800 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel In-ducer Dia.	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Ex-ducer (in)	Turbine Wheel Ex-ducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
177281	3.60	91.44	2.60	66.11	3.14	79.76	2.89	73.37	0.88	176634	318393	13007110005
177275	3.60	91.44	2.60	66.11	3.14	79.76	2.89	73.37	0.91	176646	318393	13007110005
177272	3.29	83.47	2.36	60.03	3.00	76.20	2.66	67.56	0.91	176635	318393	13007110005

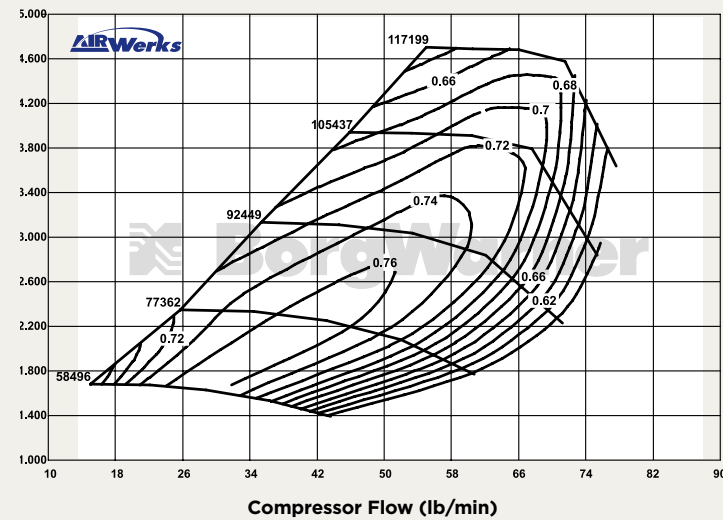
FEATURES

- 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

Comp. Wheel Inducer Dia. (mm) 66.11
Comp. Wheel Outer Dia. (mm) 91.44



TURBINE HOUSING

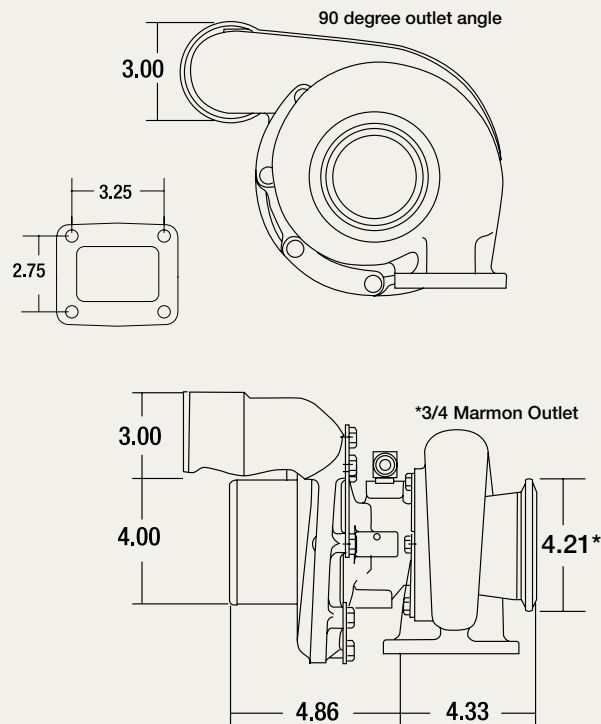
Part #	A/R	Inlet Configuration	Notes
177211	0.88	Volute, Open Flow	80mm Turbine Wheel
177208	0.91	Volute, Twin Flow	
179905	1.00	Volute, Twin Flow	
177210	0.88	Volute, Open Flow	76mm Turbine Wheel
177207	0.91	Volute, Twin Flow	
177209	1.00	Volute, Twin Flow	

S300SX3

320-800 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
177280	3.29	83.47	2.36	60.03	3.00	76.20	2.66	67.56	0.88	171901	318393	13007110005
177283	3.44	87.37	2.48	62.99	3.00	76.20	2.66	67.56	0.88	176648	318393	13007110005
177284	3.60	91.44	2.60	66.11	3.14	79.76	2.89	73.37	0.91	176650	318393	13007110005

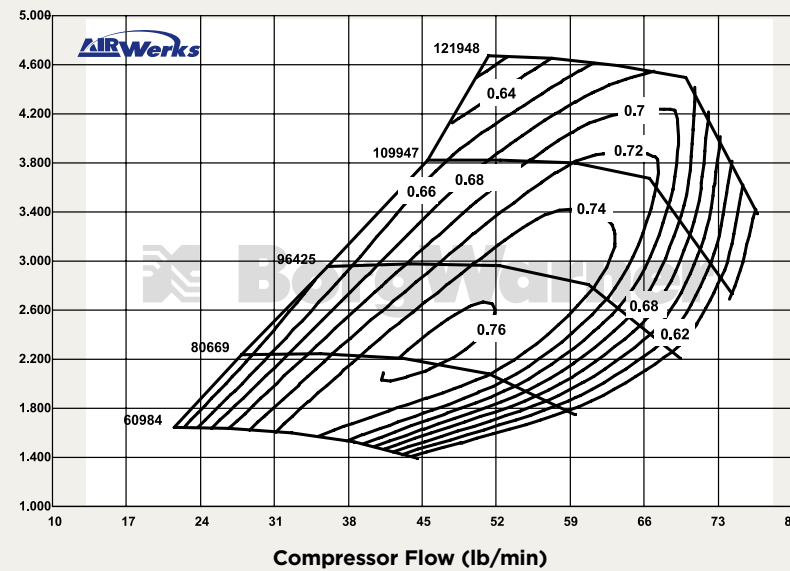
FEATURES

- 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

Comp. Wheel Inducer Dia. (mm) 62.99
Comp. Wheel Outer Dia. (mm) 87.37

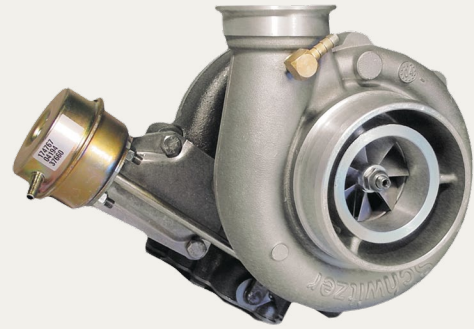


TURBINE HOUSING

Part #	A/R	Inlet Configuration	Notes
177211	0.88	Volute, Open Flow	80mm Turbine Wheel
177208	0.91	Volute, Twin Flow	
179905	1.00	Volute, Twin Flow	
177210	0.88	Volute, Open Flow	T4 Inlet
177207	0.91	Volute, Twin Flow	
177209	1.00	Volute, Twin Flow	

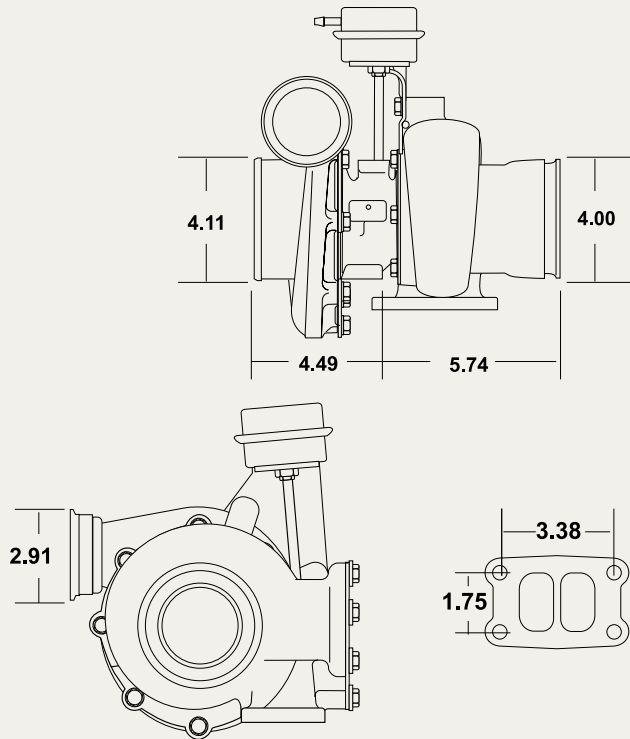
S300GX

Cummins 5.9 Upgrade



BorgWarner S300G Upgrade Turbo for Cummins 5.9 Engines

TURBO FRAME DIMENSIONS



Turbo Part #	Comp Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine wheel O.D. (in)	Turbine wheel O.D. (mm)	Turbine wheel exducer (in)	Turbine wheel exducer (mm)	Turbine housing A/R	Super Core	Service Kit	Service Kit (360° thrust bearing)
174430	3.29	83.47	2.25	57.15	2.92	74.17	2.54	64.52	0.80	NA	318393	13007110005
13749880014	3.00	76.20	2.25	57.15	2.92	74.17	2.54	64.52	0.80	13009097059	318393	13007110005

FEATURES

The BorgWarner S300GX replacement turbo is more than a great match for your Cummins 5.9 engine.

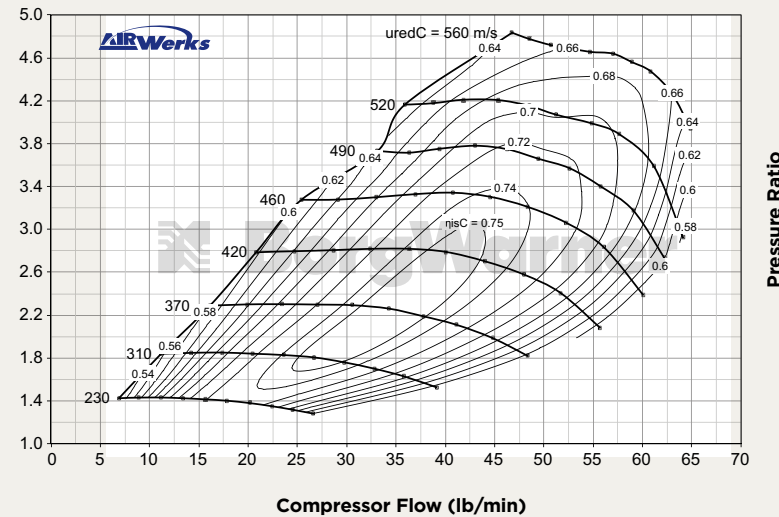
The S300G is aerodynamically designed to provide boost that can propel your Cummins 5.9 engine to 400 wheel horsepower. A rugged thrust bearing system helps insure the durability of your S300G, even under these extreme load conditions.

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

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

COMPRESSOR MAP / APPLICABLE TO PART NUMBER 13749880014

Comp. Wheel Inducer Dia. (mm) 57.15
Comp. Wheel Outer Dia. (mm) 76.20

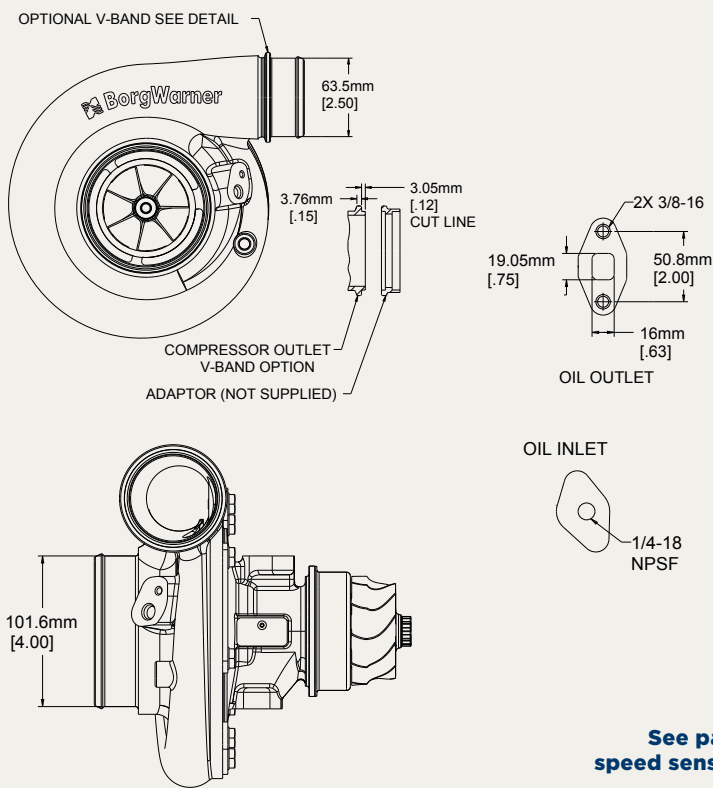


S300SX-E

400-1100 HP Super-Core



SUPER-CORE FRAME DIMENSIONS



See page 55 for speed sensor details

Super-Core Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Service Kit (360° thrust bearing)
13009097056	3.29	83.47	2.42	61.44	3.00	76.20	2.66	67.56	13007110005
13009097053	3.29	83.47	2.42	61.44	3.14	79.76	2.89	73.37	13007110005
13009097006	3.44	87.37	2.48	62.99	3.00	76.20	2.66	67.56	13007110005
13009097047	3.44	87.37	2.48	62.99	3.14	79.76	2.89	73.37	13007110005
13009097008	3.44	87.37	2.54	64.47	3.00	76.20	2.66	67.56	13007110005
13009097055	3.44	87.37	2.54	64.47	3.14	79.76	2.89	73.37	13007110005
13009097049	3.60	91.44	2.60	66.11	3.14	79.76	2.89	73.37	13007110005
13009097051	3.60	91.44	2.72	69.00	3.14	79.76	2.89	73.37	13007110005
13009095091	3.58	91.00	2.83	72.00	3.14	79.76	2.89	73.37	13007110005

All turbine housing mounting hardware, clamp plates and cap screws included with Super-Core.

FEATURES

- 360 degree thrust bearing
- Integrated speed sensor port
- Forged milled compressor wheel
- Flexible compressor cover outlet options
- Pre-machined boost port
- Optimized compressor stage aerodynamics



Not included with turbo assemblies: Speed sensor, Turbine outlet V-Band, Drain port fitting

TURBINE HOUSING

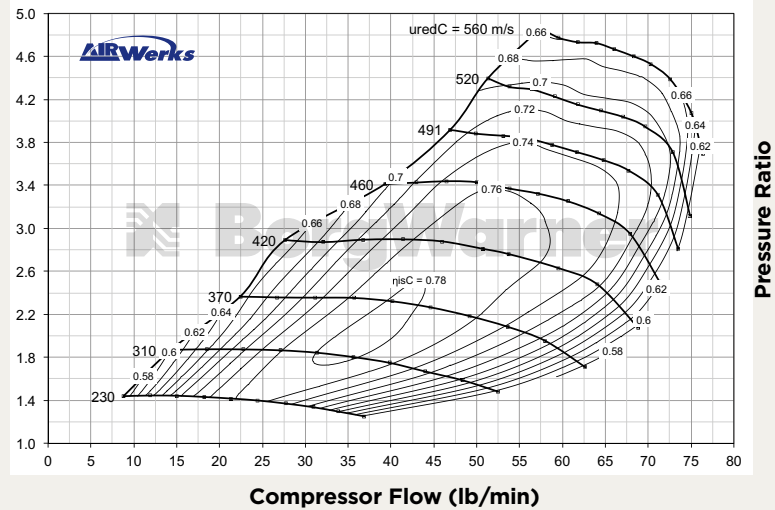
Part #	A/R	Inlet Configuration	Notes
177211	0.88	Volute, Open Flow	80mm Turbine Wheel
177208	0.91	Volute, Twin Flow	
179905	1.00	Volute, Twin Flow	76mm Turbine Wheel
177210	0.88	Volute, Open Flow	
177207	0.91	Volute, Twin Flow	
177209	1.00	Volute, Twin Flow	



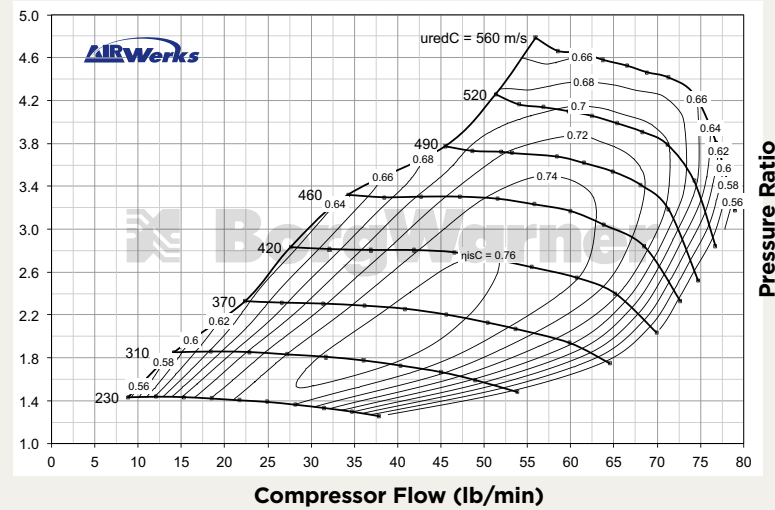
Robin Shute, The Sindy Club, Pikes Peak International Hill Climb three time KING OF THE MOUNTAIN champion (2019, 2021 & 2022)

Compressor Maps

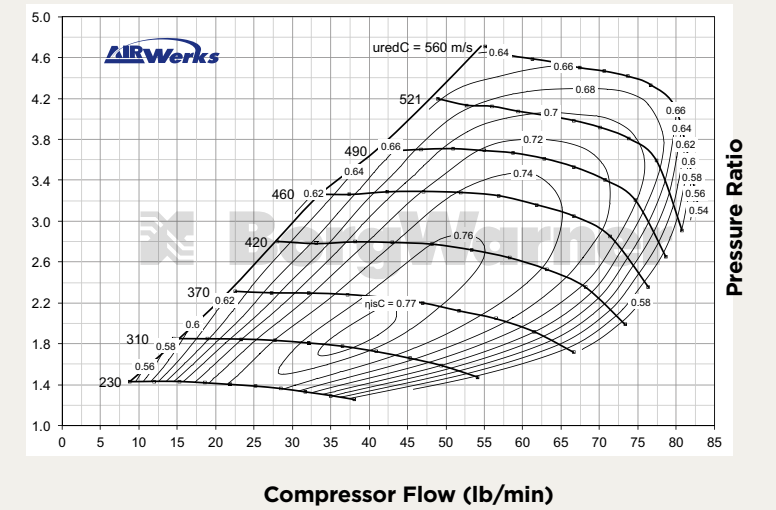
S300SX-E 400 - 775 HP
 Part #: 13009097053, 13009097056
 Comp. Wheel Inducer Dia. (mm) 61.44
 Comp. Wheel Outer Dia. (mm) 83.47



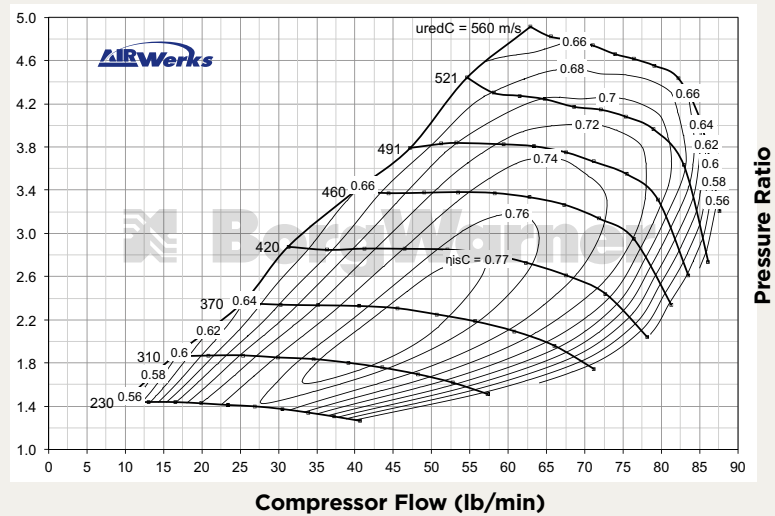
S300SX-E 450 - 785 HP
 Part #: 13009097006, 13009097047
 Comp. Wheel Inducer Dia. (mm) 62.99
 Comp. Wheel Outer Dia. (mm) 87.37



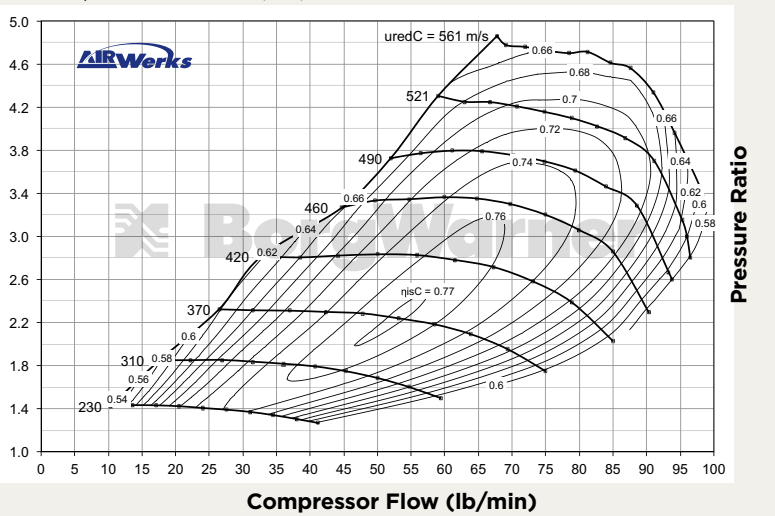
S300SX-E 450 - 825 HP
 Part #: 13009097008, 13009097055
 Comp. Wheel Inducer Dia. (mm) 64.47
 Comp. Wheel Outer Dia. (mm) 87.37



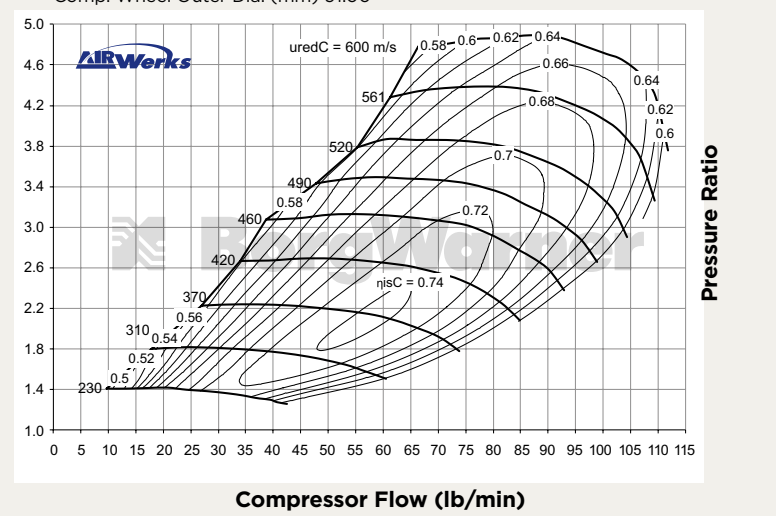
S300SX-E 500 - 875 HP
 Part #: 13009097049
 Comp. Wheel Inducer Dia. (mm) 66.11
 Comp. Wheel Outer Dia. (mm) 91.44



S300SX-E 500 - 1000 HP
 Part #: 13009097051
 Comp. Wheel Inducer Dia. (mm) 69.00
 Comp. Wheel Outer Dia. (mm) 91.44



S300SX-E 500 - 1100 HP
 Part #: 13009095091
 Comp. Wheel Inducer Dia. (mm) 72.00
 Comp. Wheel Outer Dia. (mm) 91.00

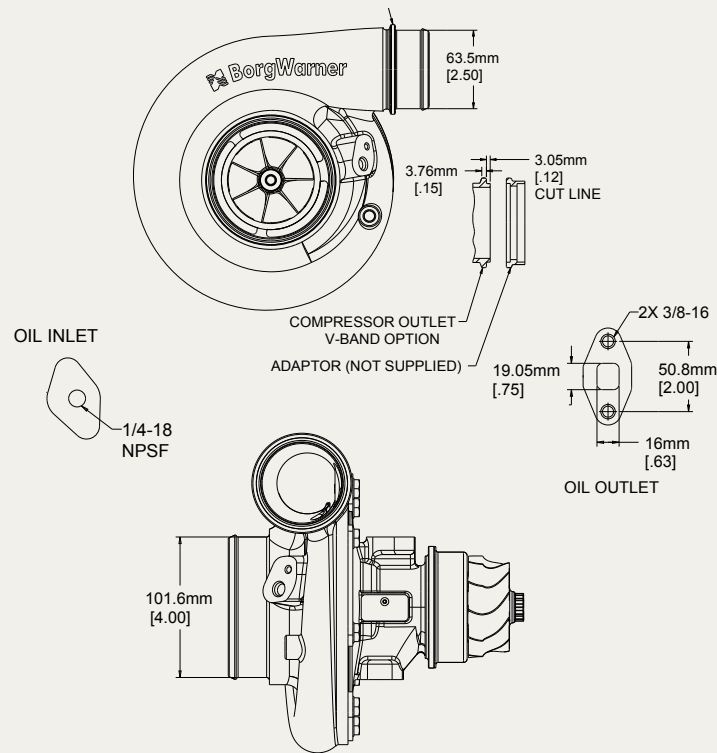


S300SX-R

400-1100 HP Super-Core



SUPER-CORE FRAME DIMENSIONS



See page 55 for speed sensor details

Super-Core Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Service Kit (360° thrust bearing)
13807105053	3.46	88.00	2.68	68.00	3.14	79.76	2.89	73.37	13007110005
13767105020	3.29	88.00	2.42	68.00	3.00	76.20	2.66	67.56	13007110005
13767105022	3.31	84.00	2.52	64.00	3.00	76.20	2.66	67.56	13007110005

FEATURES

- Low rotor inertia (quicker spooling)
- 360 degree thrust bearing
- Integrated speed sensor port
- Forged milled compressor wheel
- Flexible compressor cover outlet options
- Pre-machined boost port
- Optimized compressor stage aerodynamics



Not included with turbo assemblies: Speed sensor, Turbine outlet V-Band, Drain port fitting

TURBINE HOUSING

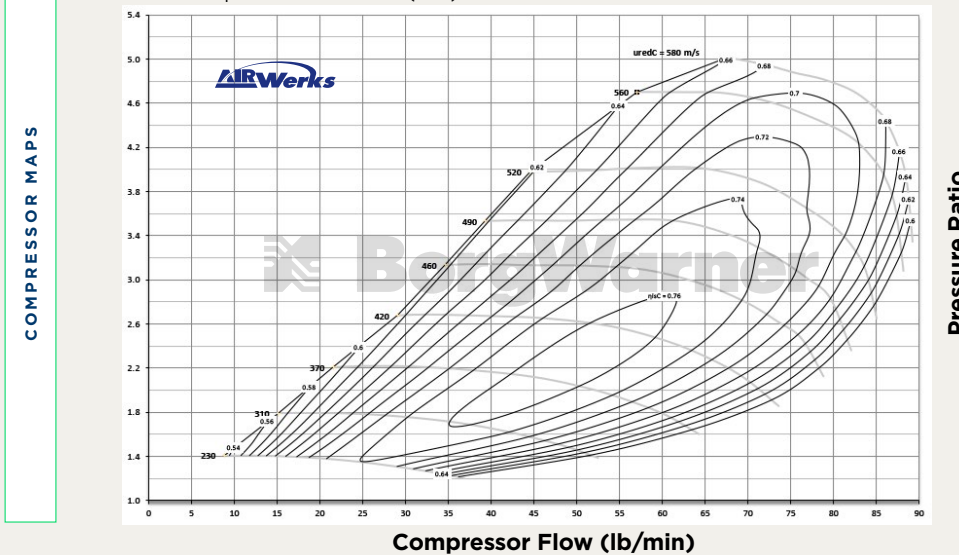
Part #	A/R	Inlet Configuration	Notes
177211	0.88	Volute, Open Flow	80mm Turbine Wheel
177208	0.91	Volute, Twin Flow	
179905	1.00	Volute, Twin Flow	
177210	0.88	Volute, Open Flow	T4 Inlet
177207	0.91	Volute, Twin Flow	
177209	1.00	Volute, Twin Flow	
177209	1.00	Volute, Twin Flow	

S300SX-R 400 - 950 HP

Part #: 13767105022

Comp. Wheel Inducer Dia. (mm) 64.00

Comp. Wheel Outer Dia. (mm) 84.00

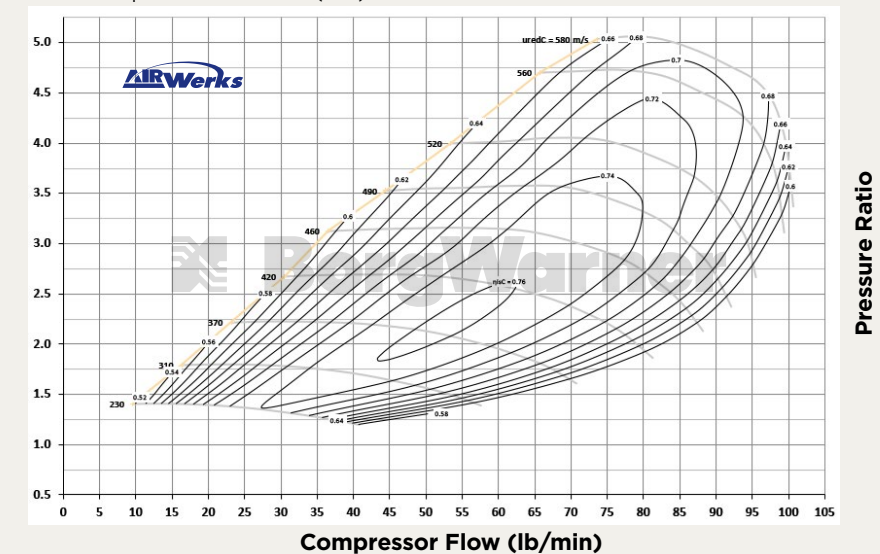


S300SX-R 500 - 1100 HP

Part #: 13767105020, 13807105053

Comp. Wheel Inducer Dia. (mm) 68.00

Comp. Wheel Outer Dia. (mm) 88.00

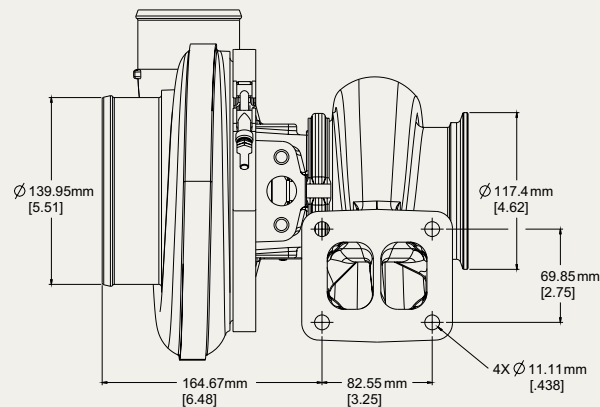
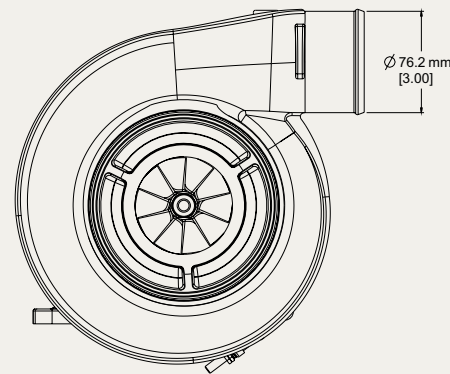


S400SX

400-1300 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Ex-ducer (in)	Turbine Wheel Ex-ducer (mm)	Turbine A/R	Super-Core	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
178855	3.60	91.44	2.66	67.66	3.29	83.47	2.92	74.29	1.10	179352	178856	318396	14007110000
14879880082	3.78	96.00	2.83	72.00	3.44	87.37	3.22	81.74	1.10	14009097006	14009097007	318396	14007110000
*179174	3.94	100.17	2.94	74.56					1.10	*179175	*14009097001	318396	14007110000
*179176	4.13	104.84	2.99	76.00					1.10	*178781	*178782	318396	14007110000
179180	4.32	109.73	3.16	80.30					1.25	179179	179181	318396	14007110000
179182	4.32	109.73	3.24	82.20					1.25	179184	179183	318396	14007110000

* Cast compressor wheel

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 connections
- Compressor cover recirculation grooves



TURBINE HOUSING

Part #	A/R	Inlet Configuration		Notes
177102	0.90	Volute, Twin Flow	T4 Inlet	83mm Turbine Wheel
177103	1.00			
177104	1.10			
177105	1.25	Volute, Twin Flow	T4 Inlet	87mm Turbine Wheel
178787	0.90			
178788	1.00			
178789	1.10			
178790	1.25			

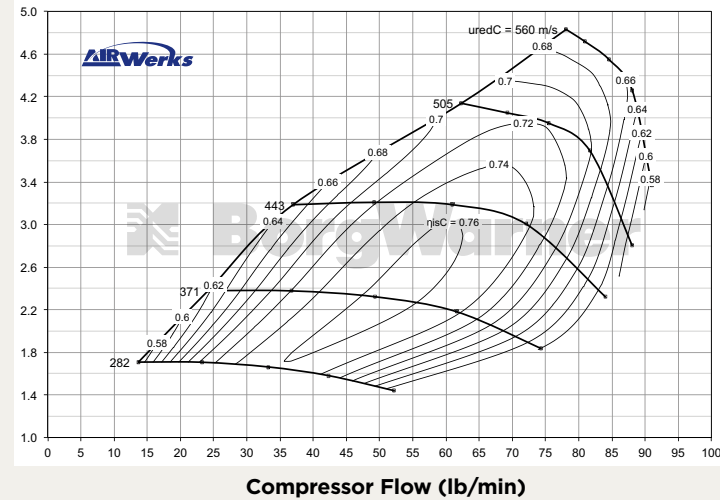


Grégoire Blachon, Pikes Peak Hill Climb, 2022 1st place Alternative Fuels (Diesel), Turbo of choice – Triple Compound BorgWarner turbos with EFR 7163

Compressor Maps

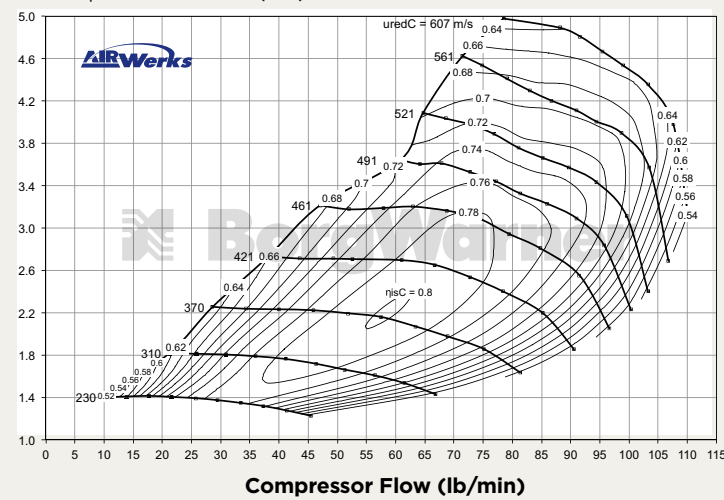
S400SX 400 - 900 HP
Part #: 178855

Comp. Wheel Inducer Dia. (mm) 67.66
Comp. Wheel Outer Dia. (mm) 91.44



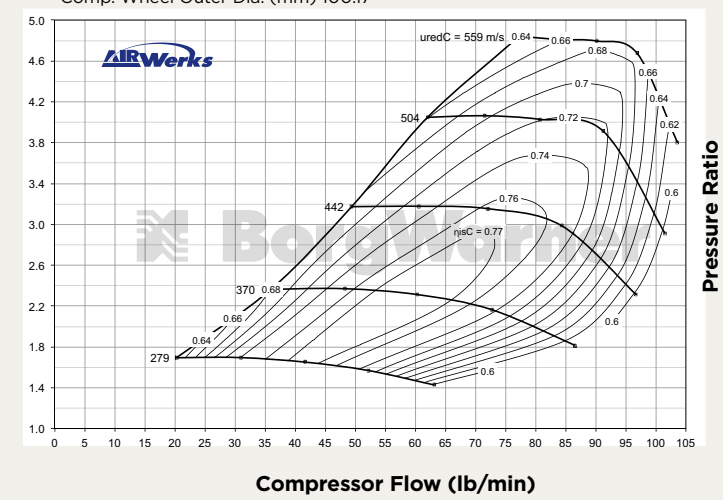
S400SX-E 500 - 1100 HP
Part #: 14879880082

Comp. Wheel Inducer Dia. (mm) 72.00
Comp. Wheel Outer Dia. (mm) 96.00



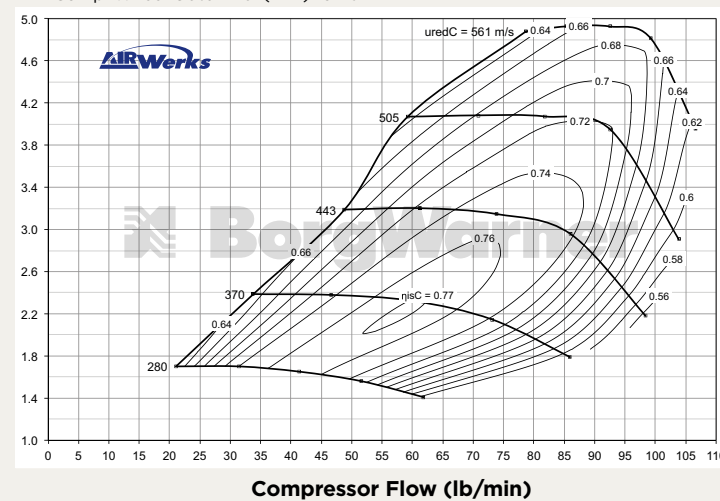
S400SX 500 - 1050 HP
Part #: 179174

Comp. Wheel Inducer Dia. (mm) 74.56
Comp. Wheel Outer Dia. (mm) 100.17



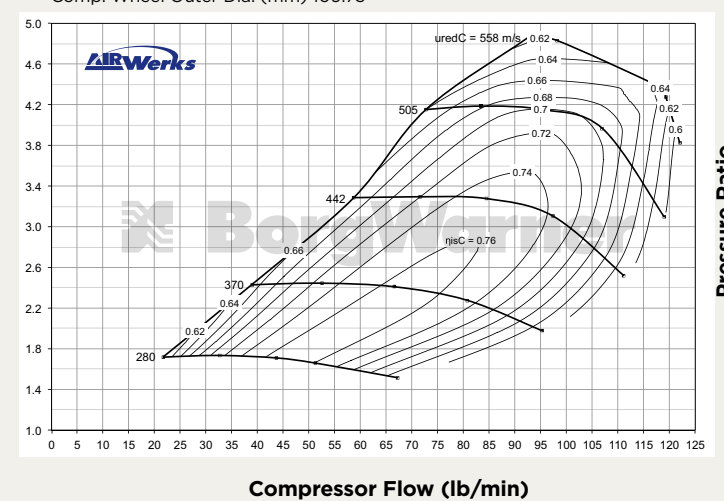
S400SX 550 - 1100 HP
Part #: 179176

Comp. Wheel Inducer Dia. (mm) 76.00
Comp. Wheel Outer Dia. (mm) 104.84



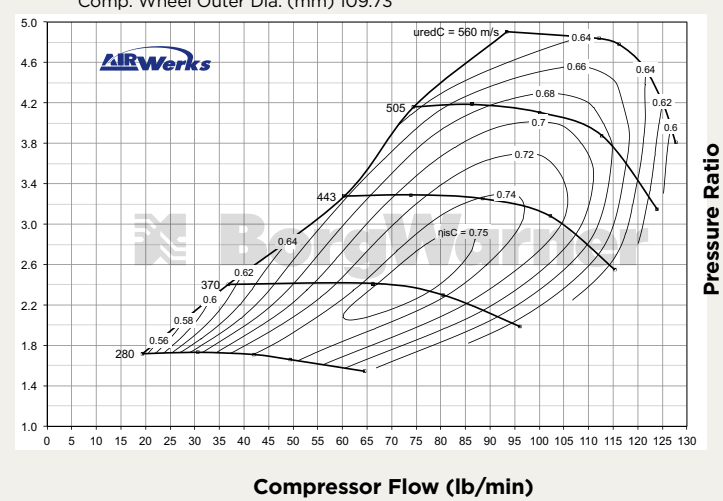
S400SX 750 - 1250 HP
Part #: 179180

Comp. Wheel Inducer Dia. (mm) 80.30
Comp. Wheel Outer Dia. (mm) 109.73



S400SX 750 - 1300 HP
Part #: 179182

Comp. Wheel Inducer Dia. (mm) 82.20
Comp. Wheel Outer Dia. (mm) 109.73

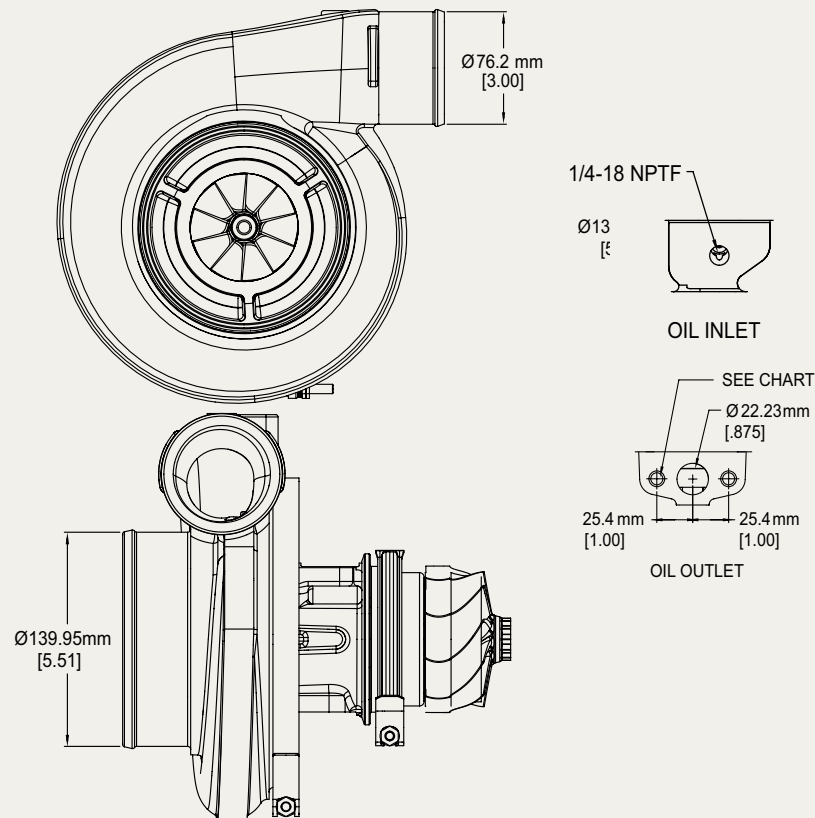


S400SX-E

500-1200 HP Turbo



SUPER-CORE FRAME DIMENSIONS



Super-Core	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Oil outlet thread	Service Kit (360° thrust bearing)
14009097006	3.78	96.00	2.83	72.00	3.44	87.37	3.22	81.74	M8 X 1.25	14007110000
14009097014	3.94	100.00	2.99	76.00	3.44	87.37	3.22	81.74	M10 X 1.5	14007110000

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 connections
- Compressor cover recirculation grooves

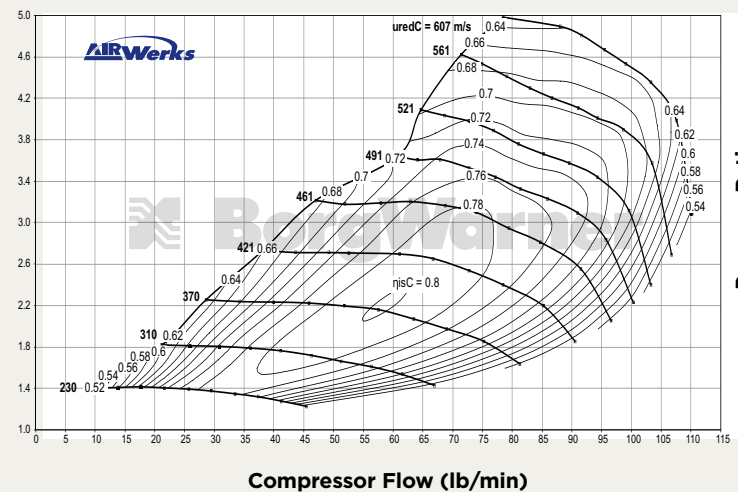


TURBINE HOUSING

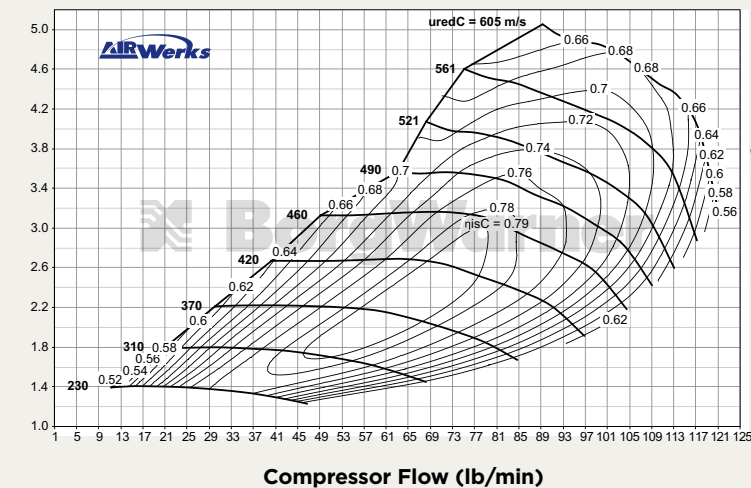
Part #	A/R	Inlet Configuration	Notes
178787	0.90	Volute, Twin Flow	87mm Turbine Wheel
178788	1.00		
178789	1.10		
178790	1.25		

COMPRESSOR MAPS

S400SX-E 500 - 1100 HP
Part #: 14009097006
Comp. Wheel Inducer Dia. (mm) 72.00
Comp. Wheel Outer Dia. (mm) 96.00



S400SX-E 550 - 1200 HP
Part #'s: 14009097013 & 14009097014
Comp. Wheel Inducer Dia. (mm) 76.00
Comp. Wheel Outer Dia. (mm) 100.00

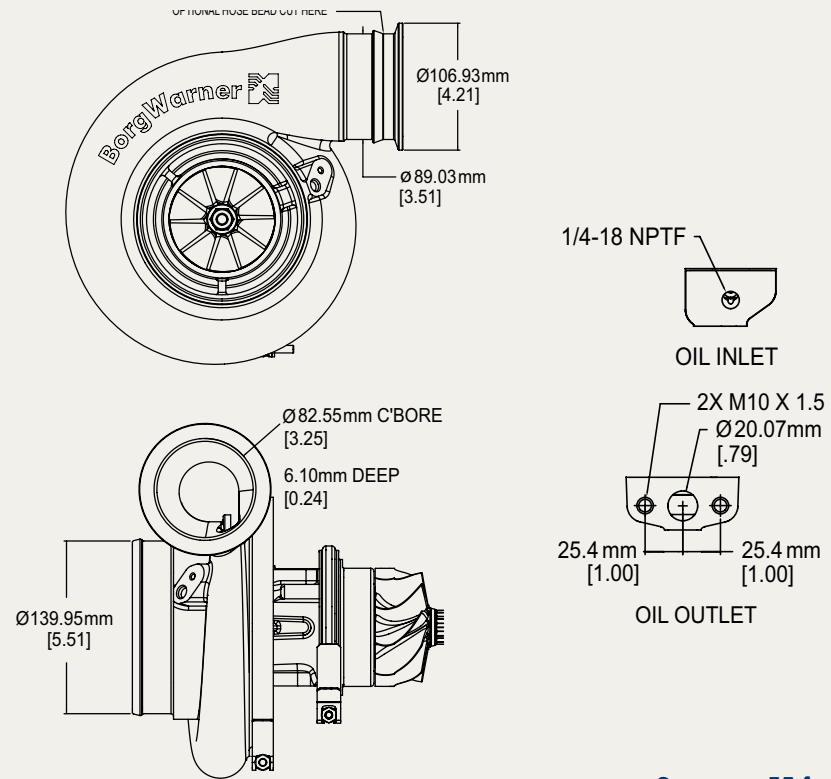


S400SX-E

650-1575 HP Turbo



SUPER-CORE FRAME DIMENSIONS



See page 55 for speed sensor details
borgwarnerboosted.com

Super-Core	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Service Kit (360° thrust bearing)
*14009097013	3.94	100.00	2.99	76.00	3.77	95.70	3.47	88.05	14007110003
14009097010	4.33	110.00	3.16	80.30	3.77	95.70	3.47	88.05	14007110003
14009097008	4.33	110.00	3.46	87.93	3.77	95.70	3.47	88.05	14007110003

*See page 46 for compressor map

FEATURES

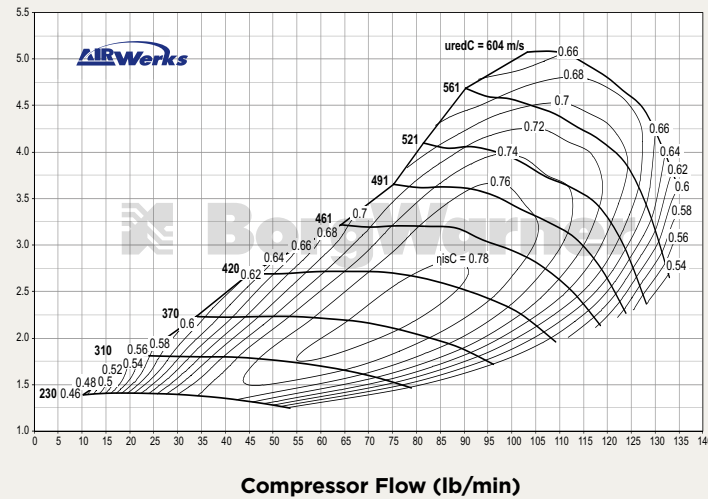
- Twin hydrodynamic journal bearings
- Extended Tip Technology Compressor Wheel
- Twin Scroll Turbine Housing
- Adjustable compressor and turbine housing orientation
- Standard turbine inlet and outlet connections
- Compressor cover recirculation grooves
- Pre-machined Speed sensor mounting boss
- V-Band or hose bead



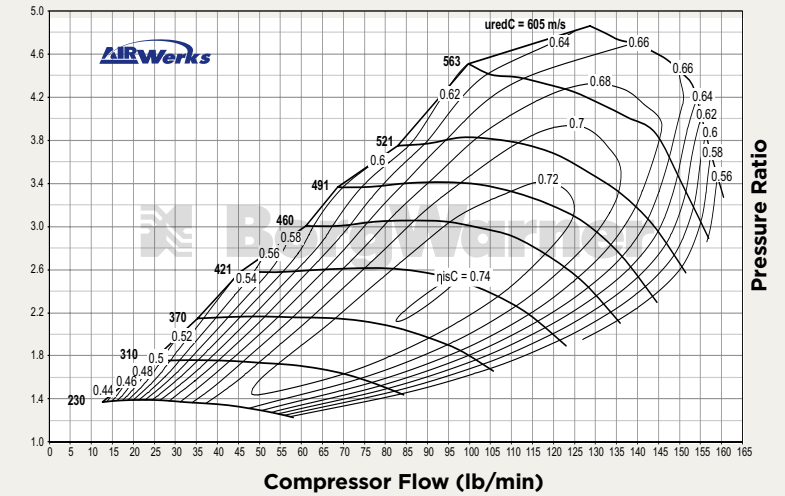
TURBINE HOUSING	Part #	A/R	Inlet Configuration	Notes
	14961019007	1.15	Volute, Twin Flow	96mm Turbine Wheel
	171698	1.32		
	14961016101	1.45		
	14961016100	1.58		

COMPRESSOR MAPS

S400SX-E 650 - 1350 HP
Part #: 14009097010
Comp. Wheel Inducer Dia. (mm) 80.30
Comp. Wheel Outer Dia. (mm) 110.00



S400SX-E 750 - 1575 HP
Part #: 14009097008
Comp. Wheel Inducer Dia. (mm) 76.00
Comp. Wheel Outer Dia. (mm) 100.00

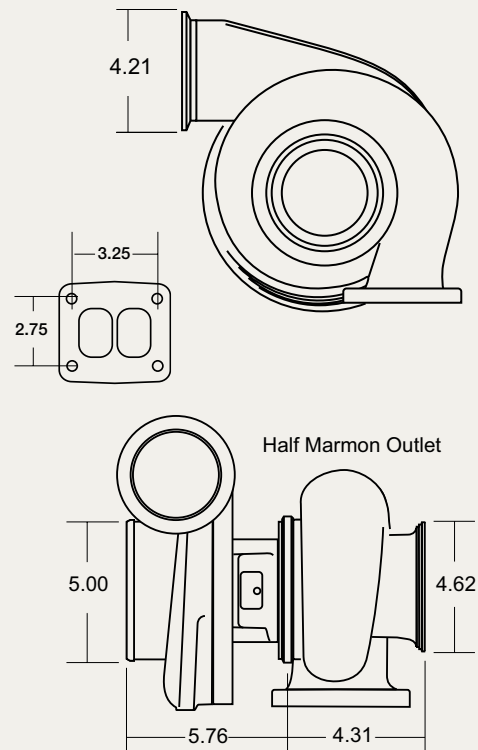


S400SX3

500-1050 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Ex-ducer (in)	Turbine Wheel Ex-ducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
177248	3.94	100.17	2.80	71.08	3.29	83.47	2.92	74.29	1.10	177249	318396	14007110000
177101	3.94	100.17	2.94	74.56	3.29	83.47	2.92	74.29	1.10	176807	318396	14007110000

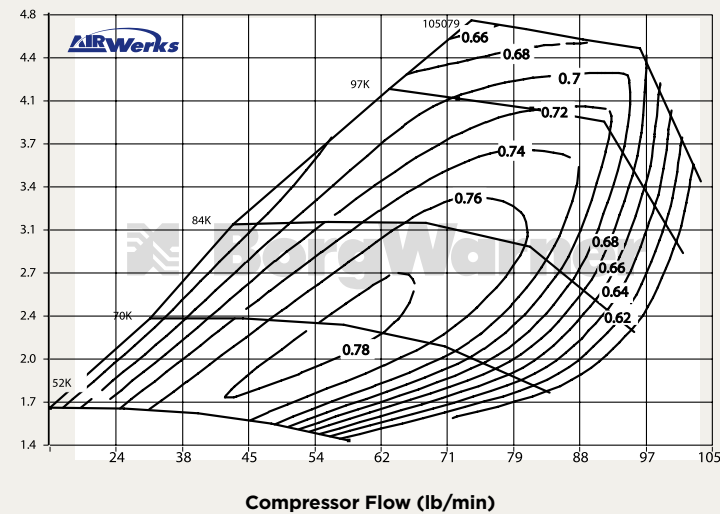
FEATURES

- 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
- V-band discharge



COMPRESSOR MAP / APPLICABLE TO PART NUMBER 177101

Comp. Wheel Inducer Dia. (mm) 74.56
Comp. Wheel Outer Dia. (mm) 100.17

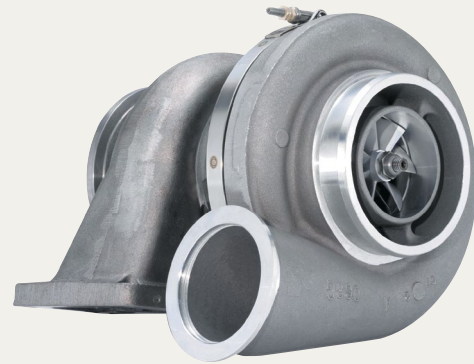


TURBINE HOUSING

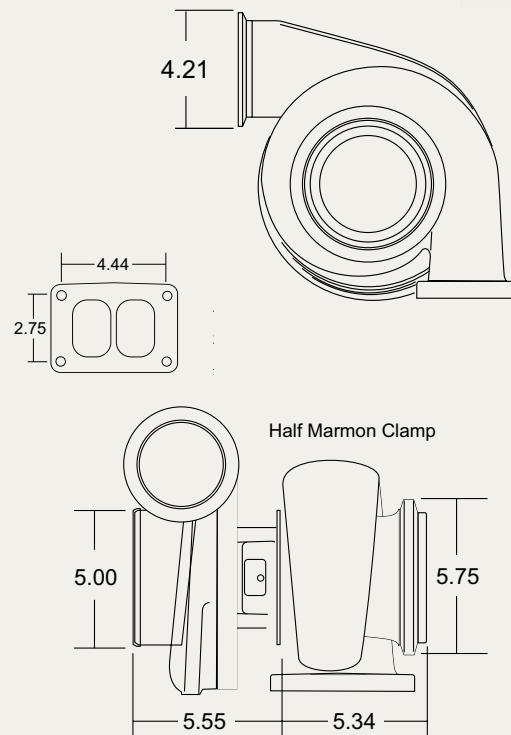
Part #	A/R	Inlet Configuration	Notes
177102	0.90	Volute, Twin Flow	83mm Turbine Wheel
177103	1.00		
177104	1.10		
177105	1.25		

S400SX4

500-1050 HP Turbo



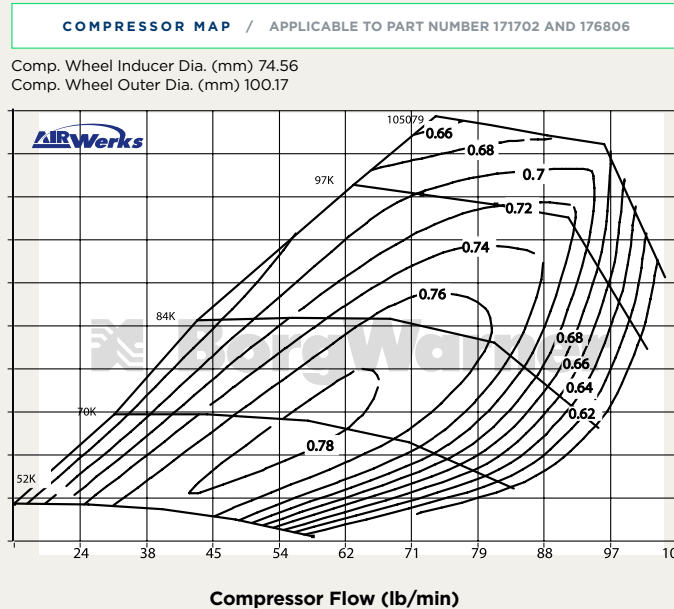
TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
171701	3.94	100.17	2.80	71.08	3.77	95.70	3.47	88.05	1.32	171699	176391	14007110003
171702	3.94	100.17	2.94	74.56	3.77	95.70	3.47	88.05	1.32	171703	176391	14007110003
176806	3.94	100.17	2.94	74.56	3.29	83.47	2.92	74.29	1.10	176807	318396	14007110000

FEATURES

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



TURBINE HOUSING FOR 176806 ONLY

Part #	A/R	Inlet Configuration		Notes
176809	0.90	Volute, Twin Flow	T6 Inlet	83mm Turbine Wheel
176810	1.00			
176811	1.10			
176812	1.25			

TURBINE HOUSING FOR 171701 AND 171702

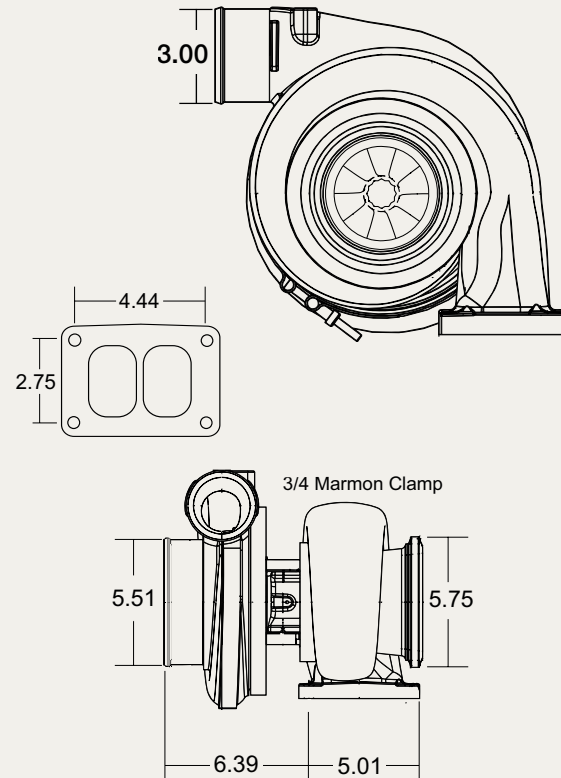
Part #	A/R	Inlet Configuration		Notes
14961019007	1.15	Volute, Twin Flow	T6 Inlet	96mm Turbine Wheel
171698	1.32			
14961016101	1.45			
14961016100	1.58			

S400SX4

750-1250 HP Turbo



TURBO FRAME DIMENSIONS



Turbo Part #	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Ex-ducer (in)	Turbine Wheel Ex-ducer (mm)	Turbine Housing A/R	Cartridge Assembly	Service Kit (Standard)	Service Kit (360° thrust bearing)
177287	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	1.32	176654	176391	14007110003

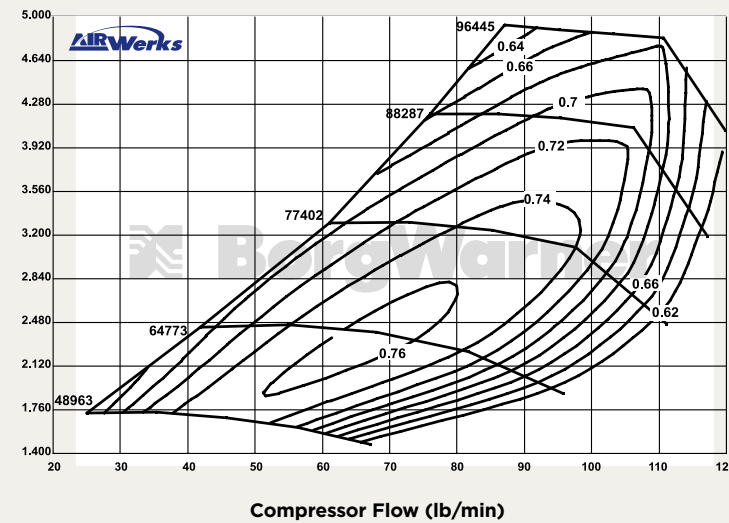
FEATURES

- 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

Comp. Wheel Inducer Dia. (mm) 80.30
Comp. Wheel Outer Dia. (mm) 109.73



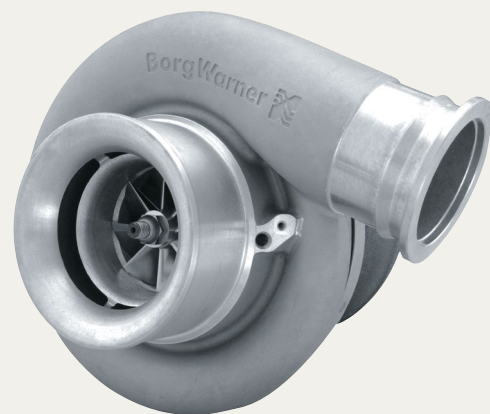
TURBINE HOUSING

Part #	A/R	Inlet Configuration		Notes
14961019007	1.15	Volute, Twin Flow	T6 Inlet	96mm Turbine Wheel
171698	1.32			
14961016101	1.45			
14961016100	1.58			

S500SX 900-1475 HP Turbo



S500SX 900-1575 HP Turbo



Turbo Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Ex-ducer (in)	Turbine Wheel Ex-ducer (mm)	Turbine Housing A/R	Super-Core	Cartridge Assembly	Service Kit (360° thrust bearing)
179188	4.73	120.20	3.47	88.19	4.32	109.73	3.90	99.08	0.85	179186*	179187	173611
179191	4.73	120.20	3.57	90.67	4.32	109.73	3.90	99.08	0.85	179190*	179189	173611

* Turbine Housing options found on page 50
See page 55 for speed sensor installation details

FEATURES

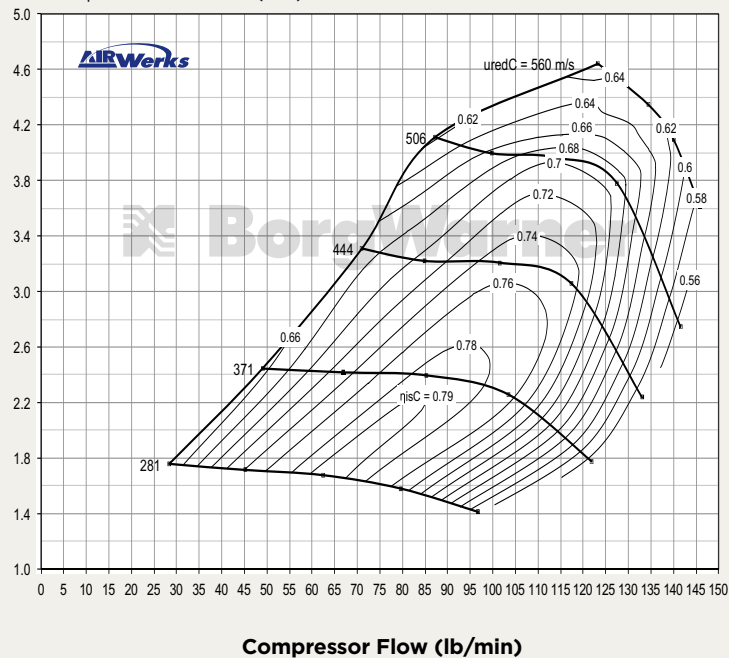
- Twin hydrodynamic journal bearings
- Extended Tip Technology Compressor Wheel
- Available in twin scroll and open flow turbine volute options
- Adjustable compressor and turbine housing orientation

- Compressor cover recirculation grooves
- Optimized compressor inlet geometry
- Dual machined compressor cover discharge connection (v-band or hose bead)
- Pre-machined speed sensor mounting boss

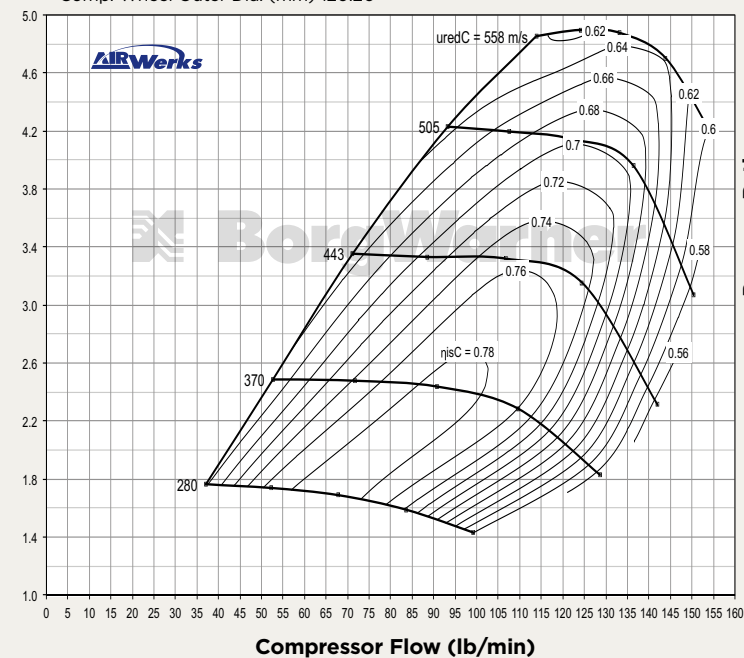


COMPRESSOR MAPS

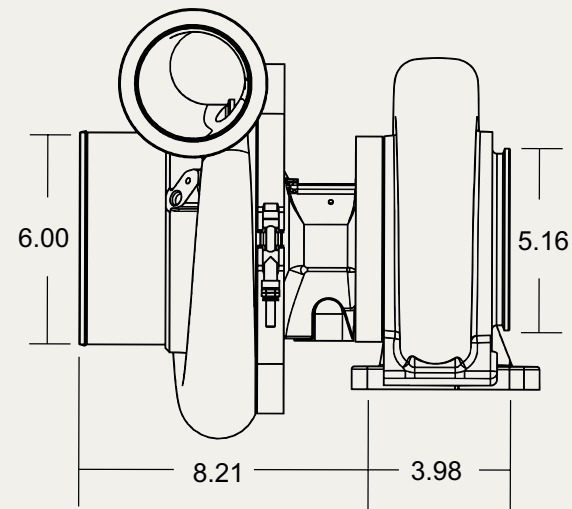
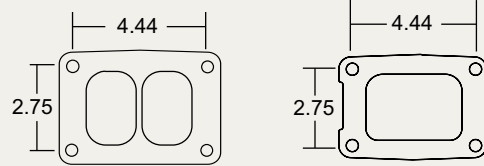
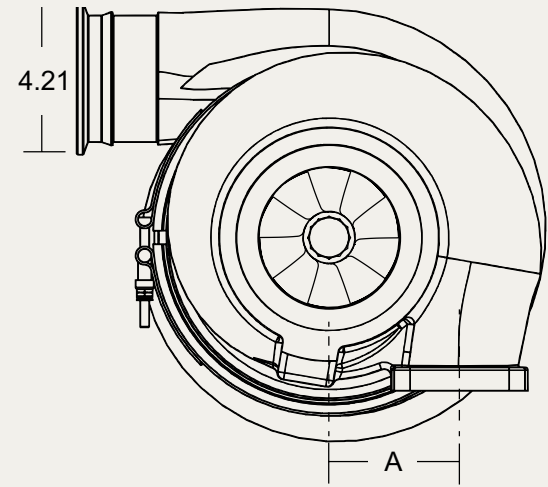
S500SX 900 - 1475 HP
Part #: 179188
Comp. Wheel Inducer Dia. (mm) 88.19
Comp. Wheel Outer Dia. (mm) 120.20



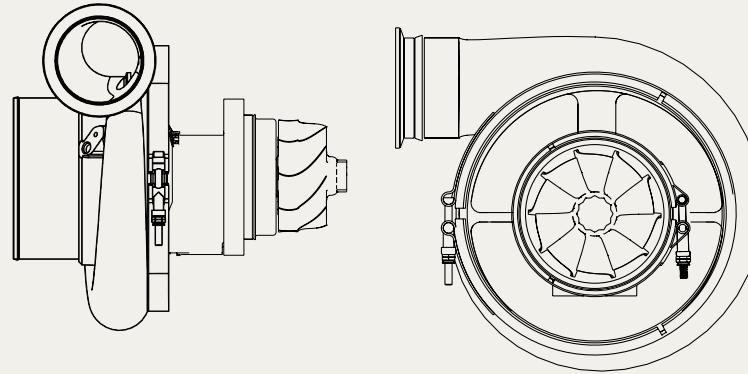
S500SX 900 - 1575 HP
Part #: 179191
Comp. Wheel Inducer Dia. (mm) 90.67
Comp. Wheel Outer Dia. (mm) 120.20



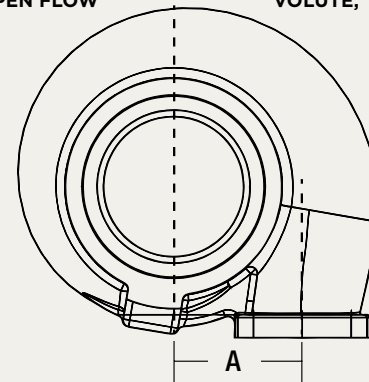
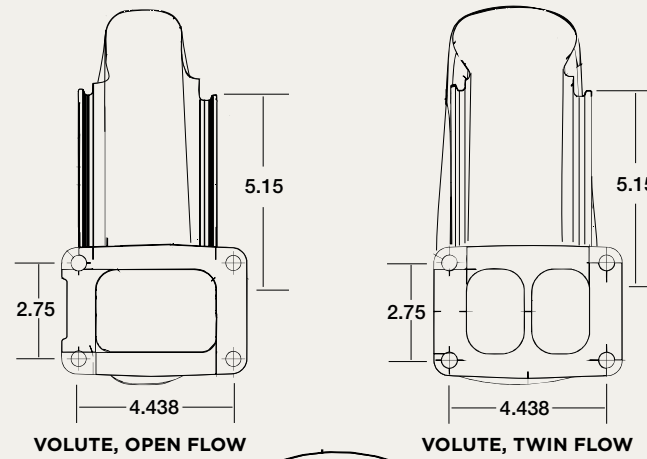
S500SX TURBO FRAME DIMENSIONS



S500SX Super-Core



TURBO FRAME DIMENSIONS



TURBINE HOUSING

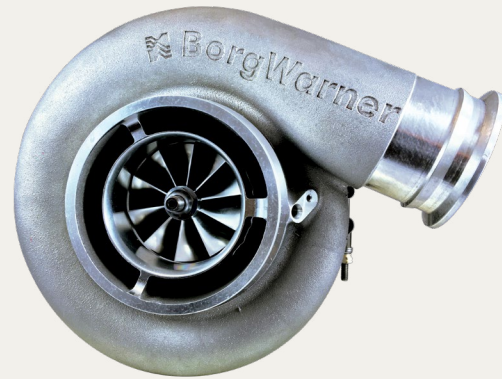
Part #	A/R	Turbine Inlet Centerline (A)	Other Notes
179159	0.85	3.62"	Volute, Open Flow
179160	1.00	3.62"	Volute, Open Flow
179161	1.15	4.25"	Volute, Open Flow
178498	1.30	3.62"	Volute, Open Flow; .50" Longer Turbine Discharge
179162	1.45	4.25"	Volute, Open Flow
179478	1.15	3.62"	Volute, Twin Flow (Divided)
179192	1.45	3.62"	Volute, Twin Flow (Divided)
179193	1.60	3.62"	Volute, Twin Flow (Divided)

110MM (O.D.) TURBINE WHEEL

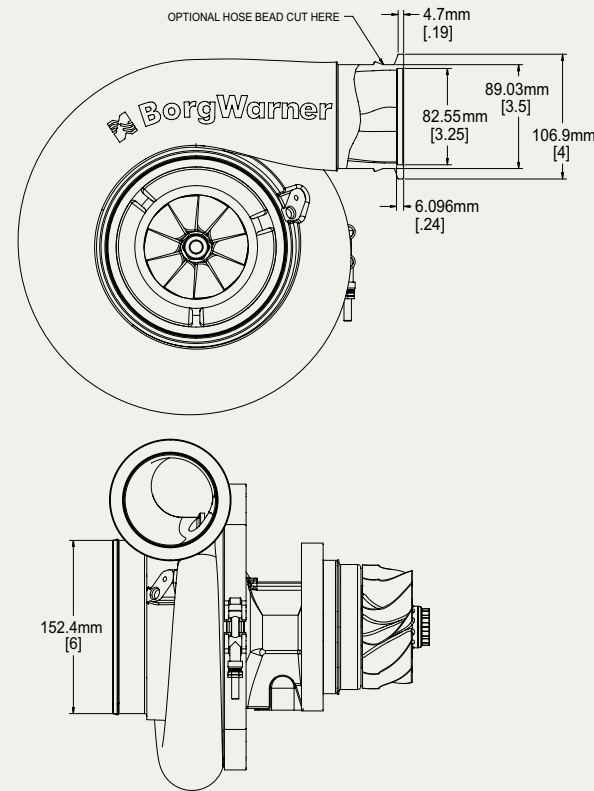
Component	Part #	Part #
Turbo	179188	179191
Super-Core	179186	179190

S500SX-E

900-1875 HP Turbo



TURBO FRAME DIMENSIONS



152

Super- Core	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer	Turbine Wheel Exducer (mm)	Service Kit (360° thrust bearing)
15009097001	4.72	120.00	3.46	87.93	4.32	109.73	3.90	99.08	173611
15009097002	4.72	120.00	3.69	93.80	4.32	109.73	3.90	99.08	173611

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 connections
- Compressor cover recirculation grooves
- Pre-machined speed sensor mounting boss
- V-band or hose bead



TURBINE HOUSING

*See page previous page

See page 55 for speed sensor installation details

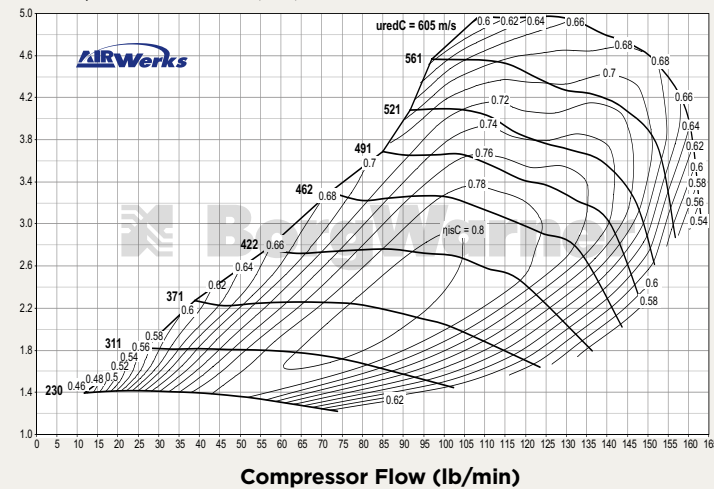
Part #	A/R	Inlet Configuration	Turbine Inlet to Centerline*	Notes
179159	0.85	Volute, Open Flow	3.62"	110 Turbine Wheel
179160	1.00	Volute, Open Flow	3.62"	
179161	1.15	Volute, Open Flow	4.25"	
178498	1.30	Volute, Open Flow (.50" longer discharge)	3.62"	
179162	1.45	Volute, Open Flow	4.25"	
179478	1.15	Volute, Twin Flow	3.62"	
179192	1.45	Volute, Twin Flow	3.62"	
179193	1.60	Volute, Twin Flow	3.62"	

COMPRESSOR MAPS

S500SX-E 900 - 1650 HP

Part #: 15009097001

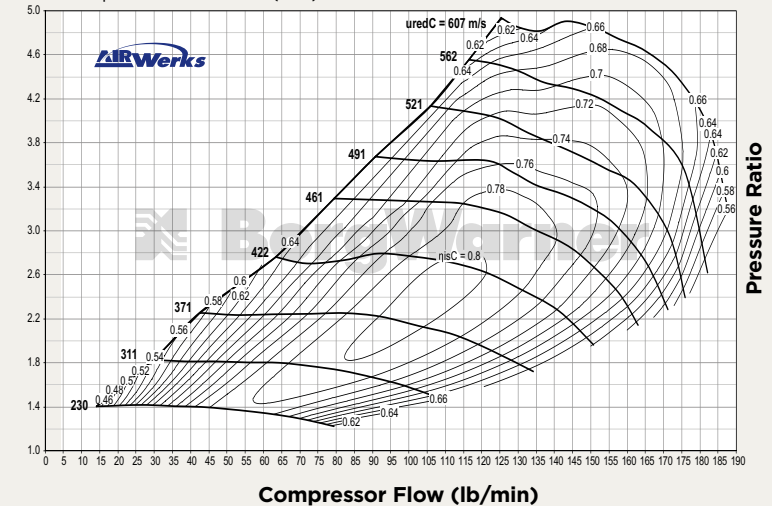
Comp. Wheel Inducer Dia. (mm) 87.93
Comp. Wheel Outer Dia. (mm) 120.00



S500SX-E 900 - 1875 HP

Part #: 15009097002

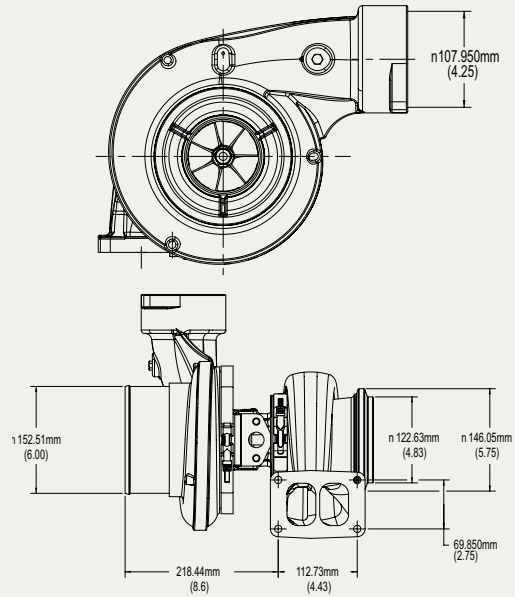
Comp. Wheel Inducer Dia. (mm) 93.80
Comp. Wheel Outer Dia. (mm) 120.00



S410SX

600-900 (HP Turbo-15L Diesel)

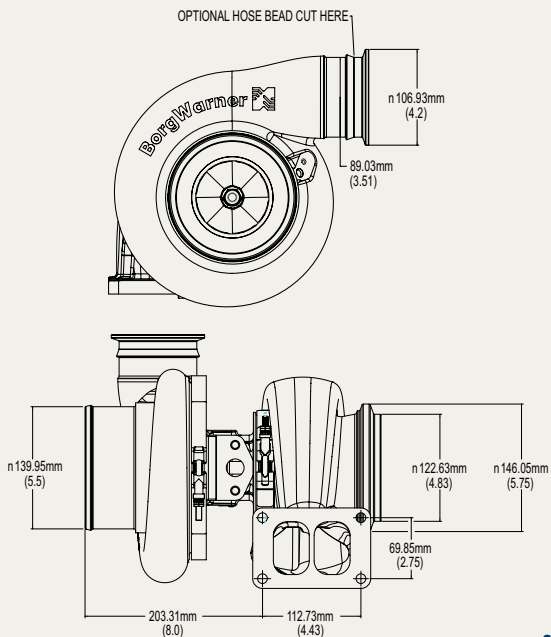
TURBO FRAME DIMENSIONS



S410SX

600-750 (HP Turbo-15L Diesel)

TURBO FRAME DIMENSIONS



See page 55 for speed sensor details

S410SX - BIG BORE UPGRADE

Turbo	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Super Core	Service Kit (360° thrust bearing)
14969880000	4.14	105.12	3.08	78.28	3.77	95.70	3.47	88.05	1.32	14007100002	14007110003
14969880001	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	1.58	14007100003	14007110003
14969880002	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	1.65 WG	14007100003	14007110003
14969880003	4.32	109.73	3.24	82.20	3.77	95.70	3.47	88.05	1.65 WG	14007100004	14007110003

Super Core	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Cartridge Assembly	Service Kit (360° thrust bearing)
14007100002	4.14	105.12	3.08	78.28	3.77	95.70	3.47	88.05	14009097002	14007110003
14007100003	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	14009097003	14007110003
14007100004	4.32	109.73	3.24	82.20	3.77	95.70	3.47	88.05	14009097004	14007110003

S410SX - BIG BORE UPGRADE

Turbo	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Housing A/R	Super Core	Service Kit (360° thrust bearing)
14969880004	4.14	105.12	3.08	78.28	3.77	95.70	3.47	88.05	1.32	14007100005	14007110003
14969880005	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	1.58	14007100006	14007110003

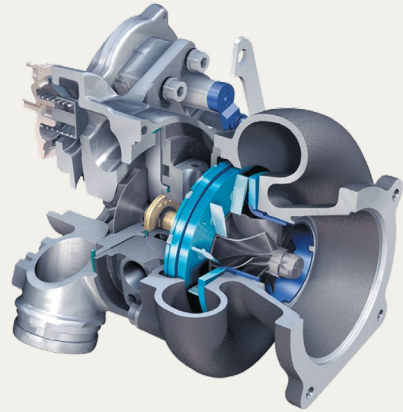
Super Core	Comp. Wheel O.D. (in)	Comp Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Cartridge Assembly	Service Kit (360° thrust bearing)
14007100005	4.14	105.12	3.08	78.28	3.77	95.70	3.47	88.05	14009097002	14007110003
14007100006	4.32	109.73	3.16	80.30	3.77	95.70	3.47	88.05	14009097003	14007110003

TURBINE HOUSING

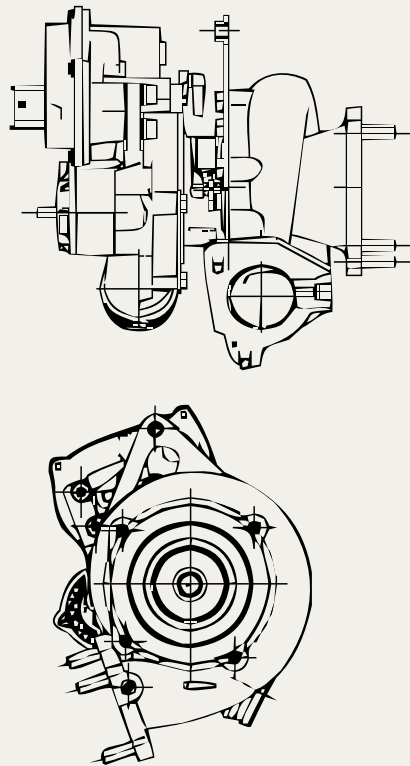
Part #	A/R	Inlet Configuration	Notes
14961019007	1.15	Volute, Twin Flow T6 Inlet	96mm Turbine Wheel
171698	1.32		
14961016101	1.45		
14961016100	1.58		



BV50 Porsche 997 Upgrade



TURBO FRAME DIMENSIONS



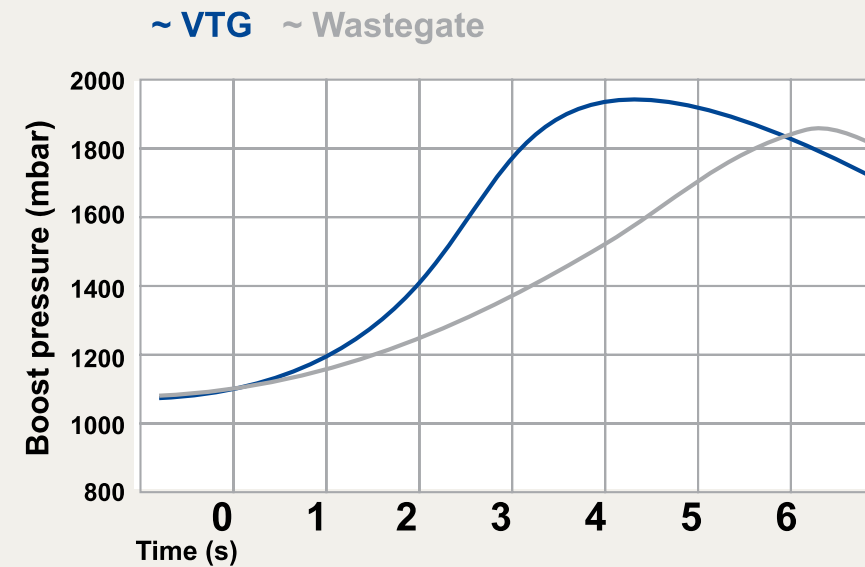
New PN	Old PN	HP	OE #	Year	Make	Model	Sub-Model	Engine	Position
53049980333	53049980217	580	9A112301770	2017-2019	Porsche	911	Turbo S	3.8	Left
53049980334	53049980218	580	9A112301870	2017-2019	Porsche	911	Turbo S	3.8	Right
53049980335	53049980255, 53049980277	520	9A112301571, -3, -4, -5	2014-2019	Porsche	911	Turbo	3.8	Left
53049980336	53049980256, 53049980278	520	9A112301671, -3, -4, -5	2014-2019	Porsche	911	Turbo	3.8	Right
53049980337	53049980301	480	99712301372	2007-2009	Porsche	911	Turbo	3.6	Left
53049980338	53049980302	480	99712301472	2007-2009	Porsche	911	Turbo	3.6	Right
53049980339	53049980303	530	99712307771 -1, -2, -3, -4	2008-2011	Porsche	911	Turbo	3.6	Left
53049980340	53049980304	530	99712307871, -1, -2, -3, -4	2008-2011	Porsche	911	Turbo	3.6	Right
53049980341	53049980305	500	9A112301374, -5	2010-2013	Porsche	911	Turbo	3.8	Left
53049980342	53049980306	500	9A112301473, -4	2010-2014	Porsche	911	Turbo	3.8	Right

All numbers, names and descriptions herein are used for reference purpose only and do not imply that they are the product of the original manufacturer.

FEATURES

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 COMPARISON



PORSCHE 911 GT2 (997)

TSG-1 Turbo Speed Gauge

What is the TSG-1?

The Turbo Speed Gauge TSG-1 is a compact, 2 1/16" circular gauge that can be easily attached to the dashboard, A-pillar, instrument cluster or a variety of other locations. The gauge is designed for use with the turbo speed sensor integrated into all BorgWarner EFR and many Airwerks series turbos.

Using a speed sensor attached to the turbocharger, the gauge accurately displays turbo speed in both numeric and graphical formats. Whenever turbo speed exceeds the safe limit and the turbo begins to overspeed, the TSG-1's screen flashes, instantly notifying the driver.

Buying a high-quality turbocharger isn't cheap. But you know what can make it even more expensive? Allowing your turbocharger to get damaged by overspeeding for an extended period of time. Fortunately, the TSG-1 Turbo Speed Gauge monitors turbo speed to protect your investment in your turbocharger.



Input & Output Capabilities

The TSG-1 analog input can capture and display data from auxiliary sensors such as MAP/Boost sensor, oil or fuel pressure and more.

The TSG-1 generates a 12-bit 0-5 volt analog turbo speed signal that can be connected to an engine control system or datalogger. The TSG-1 also generates a warning output signal during overspeed events that can illuminate a warning light or trigger a relay or other device.

TSG-1 Specifications

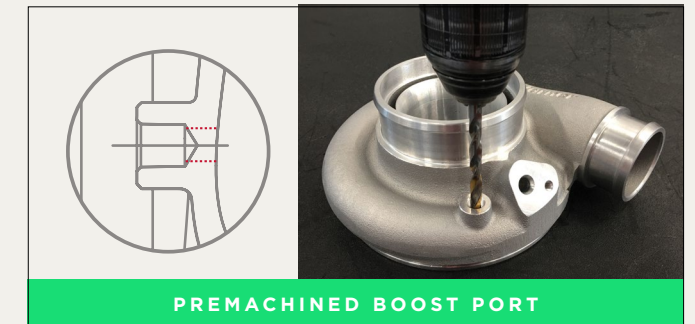
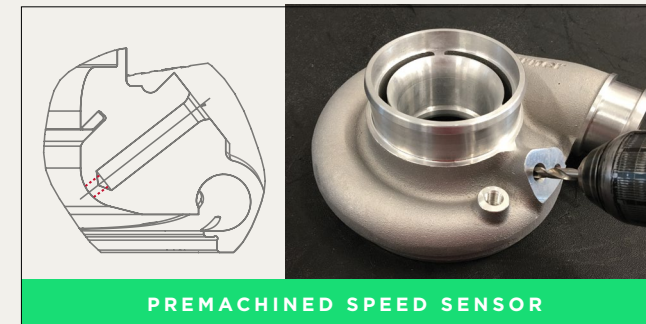
- Compact 2 1/16" circular gauge
- 128 x 64 pixel graphical display
- Pairs with turbo speed sensor
- 12-bit 0-5 volt analog input for MAP / pressure sensors
- 12-bit 0-5 volt analog output for ECU and/or datalogging

Speed Sensor Installation Boost Port Machining & Compressor Outlet Machining Instructions

Select BorgWarner turbochargers offer convenient pre-machined options to help users get the most out of their turbocharger in terms of customization and installation needs. These additional features require the user to perform some basic drilling, cutting and de-burring. Please seek help if you are uncomfortable with these operations.

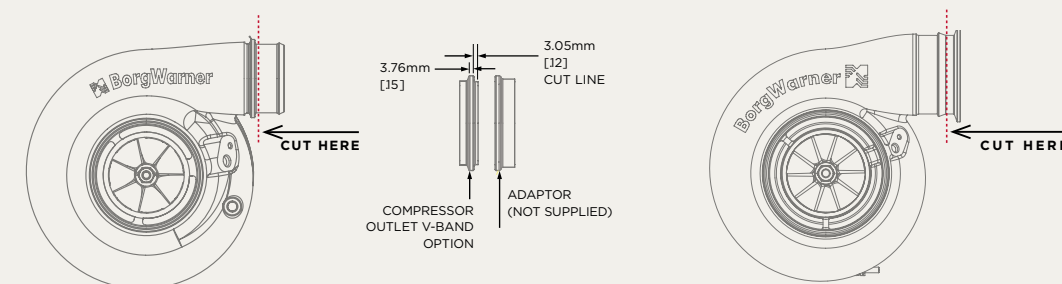
Speed Sensor & Boost Port

1. Carefully remove the compressor cover from turbo.
2. Place cover on a table, with some kind of backing so that it is secure while being drilled.
3. Using a hand drill with a ¼” drill bit, drill through bottom of speed sensor or boost port hole while being careful not to damage the pre-machined speed sensor O-ring sealing surface or the boost port threads.
4. De-burr the inside edge of the hole in the compressor cover.
5. Speed Sensor: Lubricate O-ring and install speed sensor while checking for a good fit. Ensure that the sensor tip is nearly flush with the edge of the hole (within .5mm/.020”) and install speed sensor bolt. Boost Port: Install 1/8 - 27 NPT boost fitting with thread sealant or Teflon tape and ensure assembly does not leak.
6. Carefully re-install compressor cover on turbo and verify that the compressor wheel spins freely.



Optional v-band or hose bead

1. Carefully remove the compressor cover from turbo.
2. Secure compressor cover and remove connection feature with a straight, clean cut. Reference the drawings below. Be sure to remove all sharp edges when complete.
3. Carefully re-install the compressor cover on turbo and verify that the compressor wheel spins freely.



BorgWarner Turbos

for Upgraded Passenger Car Engines

OEM	Vehicle	Build Date	Engine	Stock Turbo(s)	Original Rating	Stock Turbo Limit	Upgrade Turbo	Plug & Play	Upgrade Turbo Limit	Max. T3 continuously	Max. T3 temporarily
Audi	various vehicles with longitudinal engine	up to 1999	1.8T 20V	K03-005, K03-013	150 hp	195 hp	5304 988 7500	yes	225 hp	930°C	950°C
Audi	various vehicles with transverse engine	up to 2000	1.8T 20V	K03-011, K03-026, K03-035, K03-044, K03-045	150-180 hp	200 hp	5304 988 7501	yes	230 hp	930°C	950°C
Audi	various vehicles with longitudinal engine	from 2000	1.8T 20V	K03-025, K03-029	150-180 hp	200 hp	5304 988 7500	yes	225 hp	930°C	950°C
Audi	various vehicles with transverse engine	from 2004	2.0 TFSI	K03-086, K03-105 (integrated manifold)	185-200 hp	245 hp	5304 988 0064	yes**	305 hp	1025°C	1050°C
Audi	A4	from 2007	1.8 TFSI	K03-119, K03-141 (integrated manifold)	120-160 hp	220 hp	5303 988 0106	yes	245 hp	930°C	950°C
Audi	various		1.8T 20V	various K03, K04	150-225 hp	-	5316 988 6717	NO	250 hp	950°C	980°C
Audi	various		1.8T 20V	various K03, K04	150-225 hp	-	5324 988 7200	NO***	340 hp	950°C	980°C
Audi	S4, A6, allroad		2.7T 30V biturbo	K03-016 + K03-017	230-265 hp	315 hp	5304 988 0025 + 5304 988 0026	yes	475 hp	930°C	950°C
Ford	Focus ST/XR5, Kuga, Mondeo, S-Max	from 2003	HUBA, HUWA, HYDA, B5254	K04-033, K04-130 (integrated manifold)	200-230 hp	305 hp	5316 998 0010	yes*****	375 hp	950°C	980°C
Mini	Cooper S	from 2006	EP6 DTS/ CDTs	K03-118, K03-181 (twin-scroll turb/hsg)	163-184 hp	220 hp	5303 988 0146	yes****	245 hp	950°C	980°C
Mini	Cooper S	from 2009	EP6 DTS/ CDTs	K03-163 (twin-scroll turb/hsg)	163-200 hp	220 hp	5303 988 0298	yes	245 hp	950°C	980°C
Opel	Astra, Zafira	from 2000	Z20LET	K04-024	190-200 hp	240 hp	5304 998 0049	yes*****	290 hp	930°C	950°C
Opel	Astra, Zafira	from 2005	Z20LER, Z20LEL	K04-048	170-200 hp	240 hp	5304 998 0049	yes	290 hp	930°C	950°C
Peugeot, Citroen	207, 208, DS3	from 2006	EP6 DT/ CDT	K03-104, K03-120, K03-121 (twin-scroll turb/hsg)	140-156 hp	180 hp	5303 988 0117	yes	220 hp	950°C	980°C
Peugeot, Citroen	308, RCZ, DS4	from 2009	EP6 DTS/ CDTs	K03-163 (twin-scroll turb/hsg)	163-200 hp	220 hp	5303 988 0298	yes	245 hp	950°C	980°C
Peugeot, Citroen	207, 208, DS3	from 2009	EP6 DT/ CDT	K03-179, K03-217, K03-243 (twin-scroll turb/hsg)	140-156 hp	180 hp	5303 988 0426	yes	220 hp	950°C	980°C
Porsche	911 turbo (model 993)	1994 to '97	3.6 biturbo	K16-6735 + K16-6736	408 hp	500 hp	5324 988 7003 + 5324 988 7004	yes	555 hp	950°C	980°C
Porsche	911 turbo (model 996)	2000 to '05	3.6 biturbo	K16-6726 + K16-6727	420 hp	500 hp	5324 988 7005 + 5324 988 7006	yes	555 hp	950°C	980°C
Porsche	911 turbo (model 997)	from 2005	3.6 biturbo	K04-0060 + K04-0061 (VTG)	480 hp	575 hp	5304 998 0340 5304 998 0339	yes	610 hp	950°C	980°C
Seat	Alhambra	up to 2000	1.8T 20V	K03-022	150 hp	195 hp	5304 988 7500	NO*	225 hp	930°C	950°C
Seat	Alhambra	from 2000	1.8T 20V	K03-049	150 hp	200 hp	5304 988 7500	NO*	225 hp	930°C	950°C
Seat/Skoda	various		1.8T 20V	various K03, K04	150-225 hp	-	5316 988 6717	NO	250 hp	950°C	980°C
Seat/Skoda	various		1.8T 20V	various K03, K04	150-225 hp	-	5324 988 7200	NO***	340 hp	950°C	980°C
VW	various vehicles with longitudinal engine	up to 1999	1.8T 20V	K03-005, K03-013	150 hp	195 hp	5304 988 7500	yes	225 hp	930°C	950°C
VW	Sharan	up to 2000	1.8T 20V	K03-022	150 hp	195 hp	5304 988 7500	NO*	225 hp	930°C	950°C
VW	Sharan	from 2000	1.8T 20V	K03-049	150 hp	200 hp	5304 988 7500	NO*	225 hp	930°C	950°C
VW	various vehicles with transverse engine	up to 2000	1.8T 20V	K03-011, K03-026, K03-035, K03-044, K03-045	150-180 hp	200 hp	5304 988 7501	yes	230 hp	930°C	950°C
VW	various vehicles with transverse engine	up to 2000	1.8T 20V	K03-011, K03-026, K03-035, K03-044, K03-045	150-180 hp	200 hp	5304 988 7501	yes	230 hp	930°C	950°C
VW	various vehicles with longitudinal engine	from 2000	1.8T 20V	K03-025, K03-029	150-180 hp	200 hp	5304 988 7500	yes	225 hp	930°C	950°C
VW	various		1.8T 20V	various K03, K04	150-225 hp	-	5316 988 6717	NO	250 hp	950°C	980°C
VW	various		1.8T 20V	various K03, K04	150-225 hp	-	5324 988 7200	NO***	340 hp	950°C	980°C
VW	various vehicles with transverse engine	from 2004	2.0 TFSI	K03-086, K03-105 (integrated manifold)	185-200 hp	245 hp	5304 988 0064	yes**	305 hp	1025°C	1050°C
Volvo	C30, S40, V50, XC60, C70	from 2003	T3 / T6 / T7 / T8	K04-033, K04-130 (integrated manifold)	200-230 hp	305 hp	5316 998 0010	yes*****	375 hp	950°C	980°C

*Compressor housing orientation different.

**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.

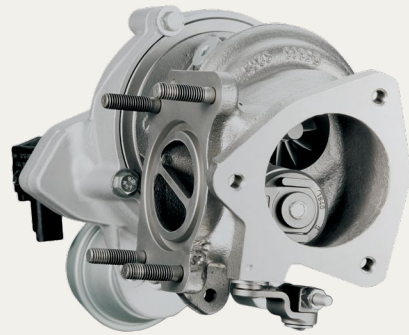
*** Upgrade turbo without wastegate, external wastegate required.

**** Turbine housing outlet gasket with BMW OE part no. 7 589 503 required.

***** Piece of coolant pipe already fitted, may require adaptation of coolant piping.

***** Slightly different position and size of compressor discharge.

KO3-2080
mini upgrade



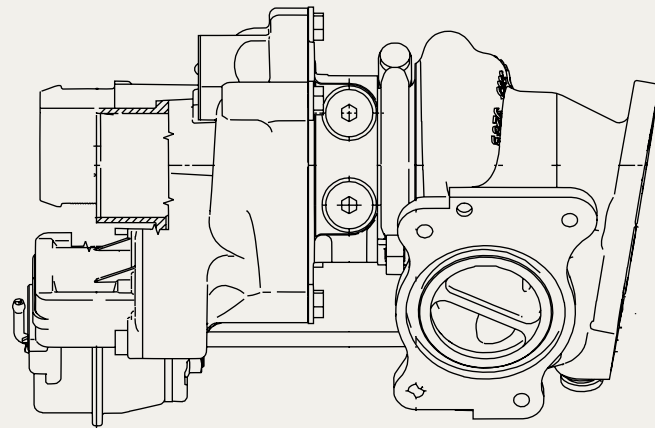
Turbo Part #	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbo Area	Cartridge Assembly	Service Kit
5303 988 0146	51.00	1.61	41	1.77	45	1.58	40.3	4 cm ²	-	-

Manufacturer	Year	Engine	Stock Turbo	Stock Turbo	Upgrade HP	Upgrade Turbo Part #	Model Spec	Remarks
Mini	From 2006	EP6 DTS	5303 988 0163	215	255	5303 988 0146	KO3-2080	Twin Scroll Turbine Housing

FEATURES

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

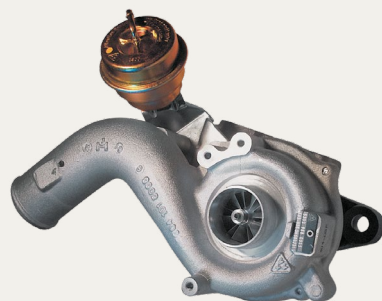
TURBO FRAME DIMENSIONS



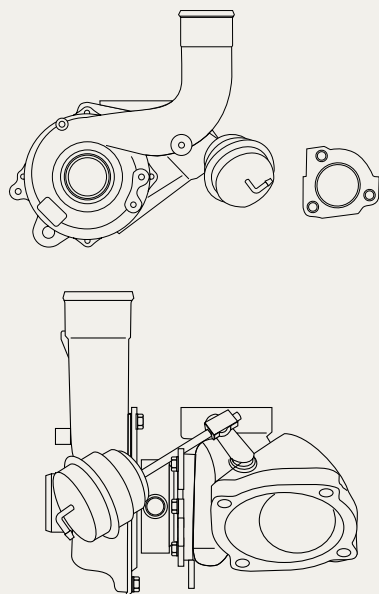
MINI COOPER

KO4-2075

220 HP Turbo



TURBO FRAME DIMENSIONS

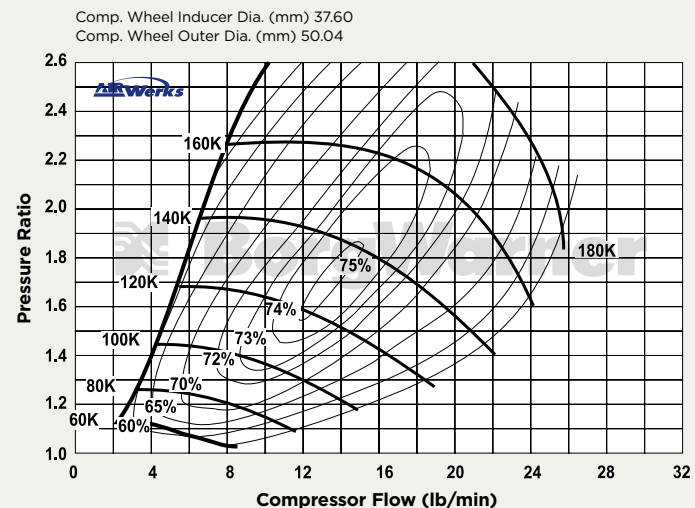


Turbo Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Area	Cartridge Assembly	Service Kit
5304 988 7501	1.97	50.04	1.48	37.60	1.81	46	1.65	42	5 cm ²	N/A	5303 711 0000

FEATURES

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.

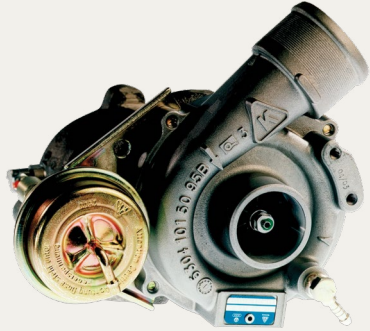
COMPRESSOR MAP



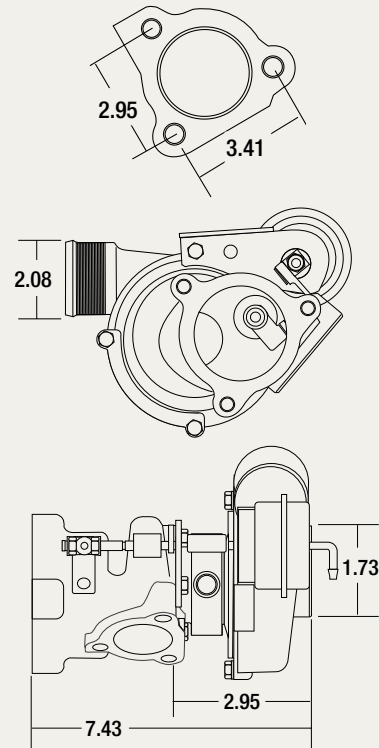
VEHICLE APPLICATION DATA

Application Model	Model Year	Engine Spec	Rated HP
Audi A3 1.8T, VW Beetle	96-01	1.8 Liter 5-Valve, Transverse	220
Golf	1996	1.8 Liter 5-Valve, Transverse	220

KO4-2075 220 HP Turbo



TURBO FRAME DIMENSIONS

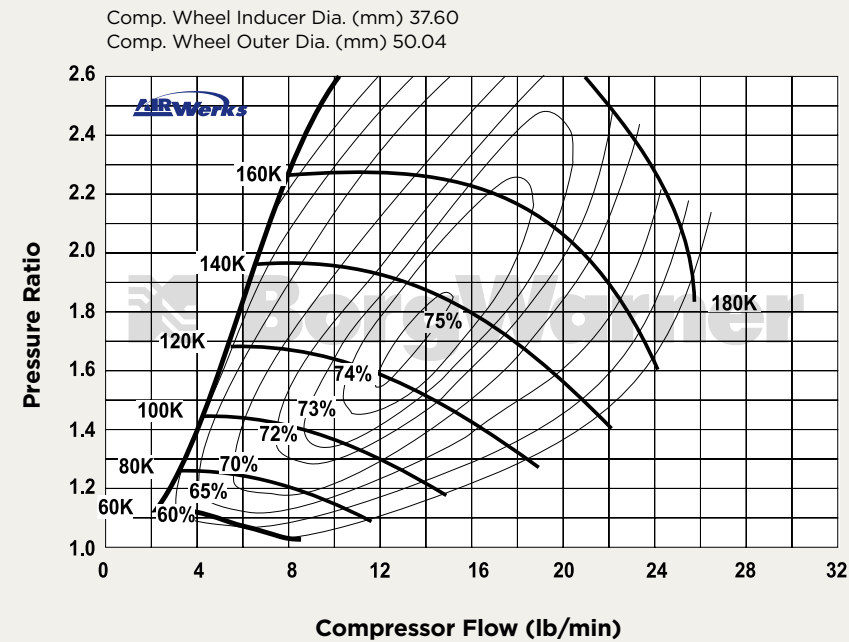


Turbo Part #	Comp. Wheel O.D. (in)	Comp. Wheel O.D. (mm)	Comp Wheel Inducer Dia. (in)	Comp Wheel Inducer Dia. (mm)	Turbine Wheel O.D. (in)	Turbine Wheel O.D. (mm)	Turbine Wheel Exducer (in)	Turbine Wheel Exducer (mm)	Turbine Area	Cartridge Assembly	Service Kit
5304 988 7500	1.97	50.04	1.48	37.60	1.81	46	1.65	42	4 cm ²	5304 710 0503	5303 711 0000

FEATURES

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

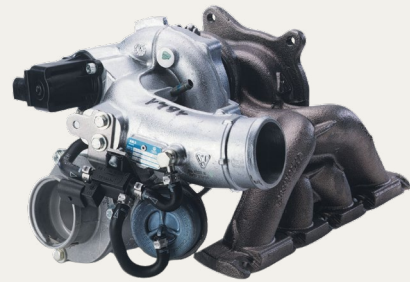


VEHICLE APPLICATION DATA

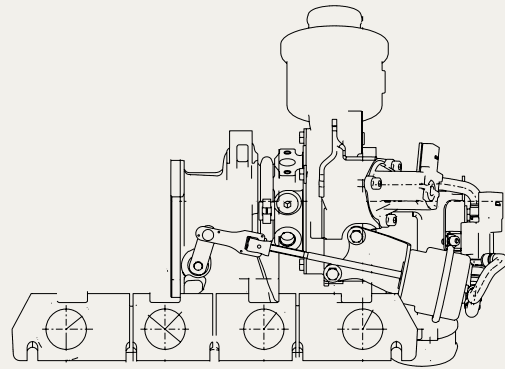
Application Model	Model Year	Engine Spec	Rated HP
Audi A4 A6 / 1.8T	95-99	1.8 liter 5-Valve, Inline	220
Passat	96-99	1.8 liter 5-Valve, Inline	220

KO4-2283

325 Peak Horsepower



TURBO FRAME DIMENSIONS



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 does not. External pop-off valve has to be fitted.** Moreover, KO4-064 has a larger compressor housing discharge.

Manufacturer	Vehicle	Year	Engine	Stock Turbo	Stock Turbo HP Limit	Upgrade HP	Upgrade Turbo Part #	Model Spec	Remarks
Audi	A3	From 2004	2.0 TFSI	5303 988 0105	255	325	5304 988 0064*	K04-2283D	Integrated Manifold
Audi	A3	From 2003	2.0 TFSI	5303 988 0086	255	325	5304 988 0064*	K04-2283D	Integrated Manifold

FEATURES

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

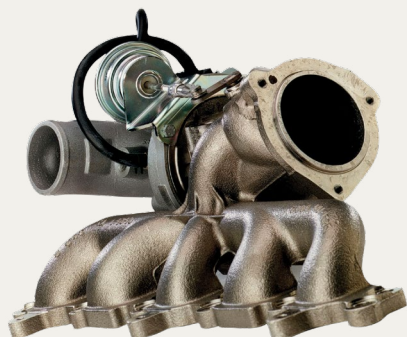


A U D I A 3

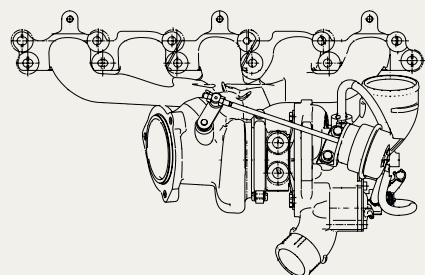
***Upgrade turbo does not come with a compressor recirculation valve or the mounting detail for one. An external valve will have to be used.**

K16-2480

370 Peak Horsepower



TURBO FRAME DIMENSIONS



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.

Manufacturer	Vehicle	Year	Engine	Stock Turbo	Stock Turbo HP Limit	Upgrade HP	Upgrade Turbo Part #	Model Spec	Remarks
Volvo	S40/V50/XC60/C70	From 2003	2.5L RNC-RS	5304 988 0033	300	370	5316 998 0010	K16-2480D	Integrated Manifold
Ford	Focus	From 2005	2.5L RNC-RS	5304 988 0033	300	370	5316 998 0010	K16-2480D	Integrated Manifold

FEATURES

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



V O L V O

Warranty Statement

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 mer-

chantability, 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.

 **WARNING:** Cancer and Reproductive Harm – <http://www.p65warnings.ca.gov>

BorgWarner Turbocharger



2022 Indy 500
Champion

Marcus Ericsson
Chip Ganassi Racing

Innovation starts here

“In our history, we have produced over 110 million turbochargers and are still learning new things every day. With our manufacturing footprint, we also secure proximity to our customers and offer specific expertise in the various market segments for which we produce.”

JOE FADOOL,
PRESIDENT OF BORGWARNER EMISSIONS,
THERMAL AND TURBO SYSTEMS



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Kirchheimbolanden, Germany

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- Ningbo, China
- Oroszlany, Hungary
- Pyongteak, South Korea
- Ramos-Arizpe, Mexico
- Rzeszow, Poland



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