



SPAL BRUSHLESS FAN TECHNOLOGY

THE ULTIMATE IN PERFORMANCE COOLING

SPAL proudly offers the highest-performing brushless electric fans in the aftermarket, featuring advanced brushless technology engineered to deliver unmatched performance and reliability. Designed, engineered, and tested to the highest OEM standards, this same proven technology is now available directly to the performance aftermarket.

SPAL Sealed Brushless (SBL) fans are trusted by leading race teams worldwide and have been race-proven for decades in some of the most demanding motorsports environments.



The brushless motor design reduces the number of wear components versus standard brushed technology to deliver extremely long-lasting life. All SPAL SBL motors are rated to operate in high-temperature conditions, higher than typical DC motors on the market today, and are the ideal fit for almost any and every application requiring extreme cooling.

SPAL USA

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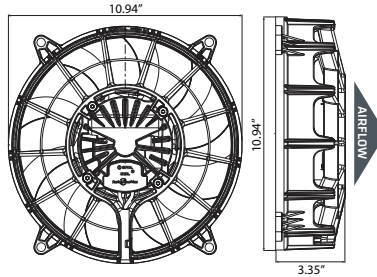
Web: spalusa.com



30107089-PKG

VA109-ABL321P/R/A/N-109A/SH // PULLER - FLUSH MOUNT

10"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	2256	21.3	1331	0
5	2155	22.4	1271	0.2
10	2064	23.6	1218	0.4
15	1964	24.9	1159	0.6
20	1860	25.9	1098	0.8
25	1749	26.8	1032	1
30	1608	27.4	949	1.2

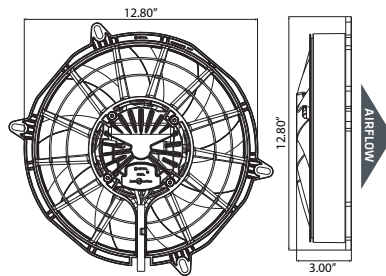
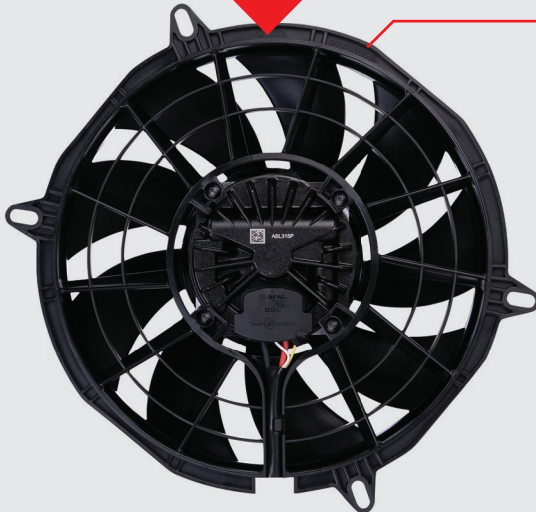
HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
10.94" 278MM	10.94" 278MM	3.35" 85MM	40 AMP MAXI FUSE	4.41 LBS	300W	1331 CFM

*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

30107059-PKG

VA99-ABL315P/R/A/N-101A/SH // PULLER - DROP-IN MOUNT

11"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	2451	18.1	1446	0
5	2287	18.7	1349	0.2
10	2155	19.9	1271	0.4
15	2014	20.8	1188	0.6
20	1819	21.7	1073	0.8
25	1608	22.7	949	1

*Minimum of 1/2" blade to radiator clearance.

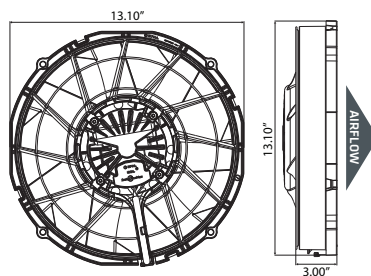
HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
12.80" 325MM	12.80" 325MM	3.00" 76MM	40 AMP MAXI FUSE	4.85 LBS	300W	1446 CFM

*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

30107087-PKG

VA89-ABL320P/R/A/N-94A // PULLER - DROP-IN MOUNT

12"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	3123	23.7	1842	0
5	2915	24.4	1720	0.2
10	2726	25.1	1608	0.4
15	2530	26.0	1493	0.6
20	2268	26.1	1338	0.8
25	1985	26.2	1171	1

*Minimum of 1/2" blade to radiator clearance.

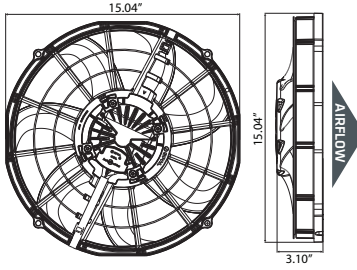
HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
13.10" 333MM	13.10" 333MM	3.00" 76MM	40 AMP MAXI FUSE	4.96 LBS	300W	1842 CFM

*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

30107102-PKG

14" VA116-ABL505P/R/A-105A // PULLER - DROP-IN MOUNT

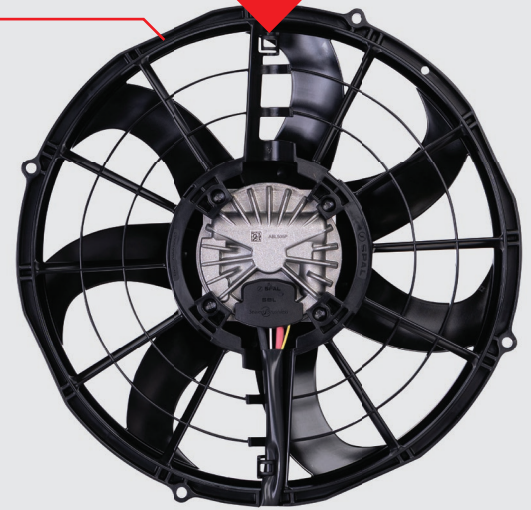
Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	4073	35.9	2403	0
5	3754	37.6	2215	0.2
10	3516	39.3	2074	0.4
15	3281	40.9	1936	0.6
20	3041	41.2	1794	0.8
26	2788	41.1	1645	1
30	2442	39.5	1441	1.2
35	2099	38.7	1238	1.4



*Minimum of 1/2" blade to radiator clearance.

HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
15.04" 382MM	15.04" 382MM	3.10" 78MM	50 AMP MAXI FUSE	5.95 LBS	500W	2403 CFM

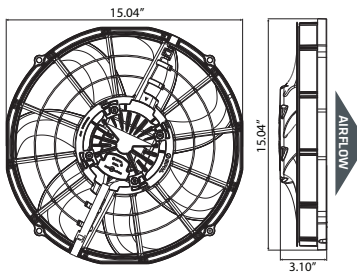
*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.



30107103-PKG

14" VA116-ABL324P/R/A-105A // PULLER - DROP-IN MOUNT

Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	3396	21.7	2004	0
5	3057	22.9	1804	0.2
10	2765	24.1	1631	0.4
15	2468	24.7	1456	0.6
20	2179	24.6	1286	0.8
25	1726	23.1	1018	1



*Minimum of 1/2" blade to radiator clearance.

HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
15.04" 382MM	15.04" 382MM	3.10" 78MM	40 AMP MAXI FUSE	5.29 LBS	300W	2004 CFM

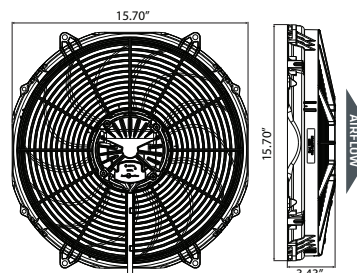
*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.



30107328-PKG

15.2" VA207-ABL523P/R/A/N-65A // PULLER - FLUSH MOUNT

Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	4121	38.5	2432	0
5	3933	39.5	2320	0.2
10	3716	40.9	2192	0.4
15	3498	41.9	2064	0.6
20	3224	42.3	1902	0.8
25	2821	41.4	1664	1



HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
15.70" 399MM	15.70" 399MM	3.43" 87MM	50 AMP MAXI FUSE	6.20 LBS	500W	2432 CFM

*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

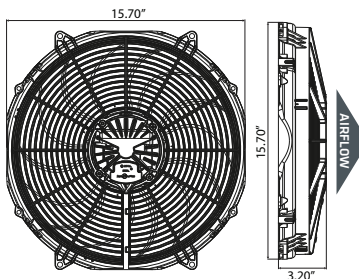


30107125-PKG



VA91-ABL326P/R/A/N-65A // PULLER - FLUSH MOUNT

15.2"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	3150	20.9	1859	0
5	2911	21.8	1717	0.2
10	2640	22.2	1557	0.4
15	2284	22.2	1347	0.6
20	1249	19.4	737	0.8
25	851	19.8	502	1

HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
15.70" 399MM	15.70" 399MM	3.20" 81MM	40 AMP MAXI FUSE	5.40 LBS	300W	1859 CFM

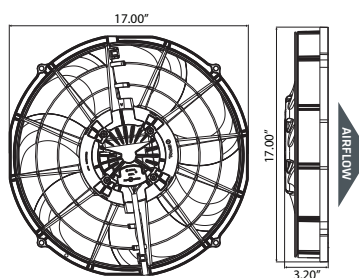
*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

30107101-PKG



VA117-ABL506P/R/A/N-103A // PULLER - DROP-IN MOUNT

16"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	4118	28.1	2429	0
5	3749	29.2	2212	0.2
10	3435	21.6	2027	0.4
15	3077	32.3	1816	0.6
20	2599	31.4	1533	0.8
25	2125	30.4	1254	1

*Minimum of 1/2" blade to radiator clearance.

HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
17.00" 432MM	17.00" 432MM	3.20" 80MM	50 AMP MAXI FUSE	6.83 LBS	500W	2429 CFM

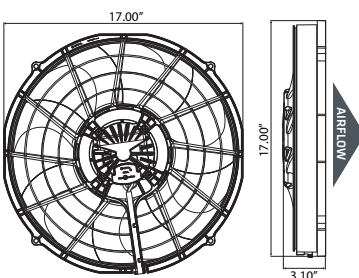
*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

30107090-PKG



V97-ABL322P/R/A/N-103A // PULLER - DROP-IN MOUNT

16"



Static Pressure MM H ₂ O	Airflow M ³ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	3481	16.8	2054	0
5	3056	18.6	1803	0.2
10	2627	19.8	1550	0.4
15	2130	19.6	1257	0.6
20	1566	18.8	924	0.8
25	1063	19.5	627	1

*Minimum of 1/2" blade to radiator clearance.

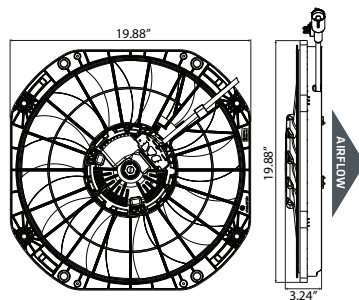
HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
17.00" 432MM	17.00" 432MM	3.10" 79MM	40 AMP MAXI FUSE	5.95 LBS	300W	2054 CFM

*Includes SBL-YAZ-PT10-PKG jumper harness featuring 10 gauge power wires.

19" VA164-ABL817HTE/R-124A // PULLER - DROP-IN MOUNT

Static Pressure MM H ₂ O	Airflow M ₃ /H	Current Input 13V	Airflow CFM	Static Pressure Inch H ₂ O
0	6419	42.1	3787	0
5	6038	45.2	3563	0.2
10	5675	49.2	3348	0.4
15	5295	53.2	3124	0.6
20	4913	57.3	2899	0.8
25	4535	60.4	2676	1
30	4149	63.1	2448	1.2
35	3741	65.9	2207	1.4

HEIGHT	WIDTH	DEPTH	FUSE 13V	WEIGHT	MOTOR	AIRFLOW
19.88" 505MM	19.88" 505MM	3.24" 82MM	100 AMP MIDI FUSE	10.58 LBS	850W	3787 CFM



*Minimum of 1/2" blade to radiator clearance.

30107521-PKG



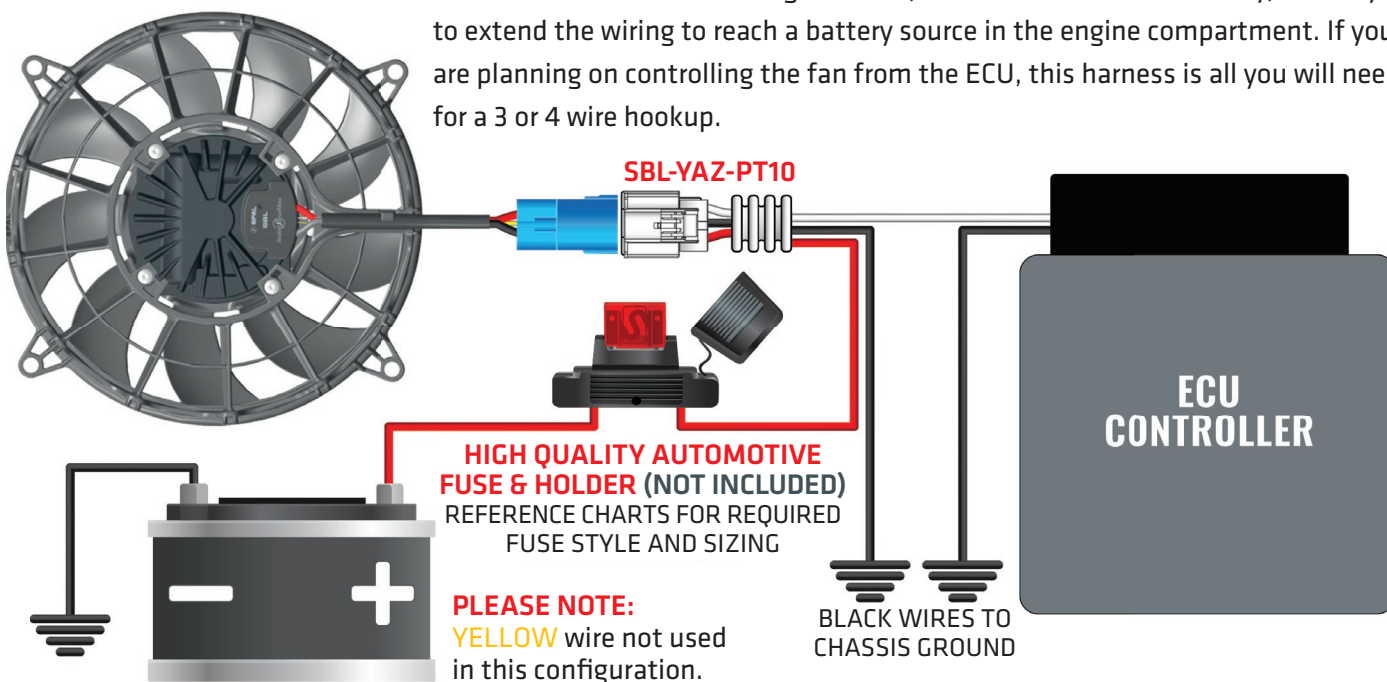
EXTENDED VOLTAGE RANGE, UP TO 18 VOLTS
*FOR USE ON 16V CHARGING SYSTEMS.

*2025 revision TSI sensor required for compatibility with the 30107521-PKG fan.

*Includes SBL-YAZ-PT6-PKG jumper harness featuring 6 gauge power wires.

BRUSHLESS FAN WIRING DIAGRAM // ECU CONTROLLER

The SPAL brushless fan wiring harness (included in "-PKG" items only) allows you to extend the wiring to reach a battery source in the engine compartment. If you are planning on controlling the fan from the ECU, this harness is all you will need for a 3 or 4 wire hookup.



ADDITIONAL INFORMATION FOR DIRECT TO ECU CONTROLLER

NOTE: The **RED** fan power wire must be connected directly to the positive (+) terminal of the vehicle's battery, **NOT** the starter or alternator.*

*Always use a quality fuse and fuse holder on the power supply wire that is sized appropriately per fan specifications.

The **BLACK** fan ground wire must be connected to the negative (-) terminal on the battery or a clean chassis ground.

The **WHITE** fan signal wire should be connected to a negative (-) PWM output on the ECU.

The **YELLOW** wire is not used in this configuration.

PWM OUTPUT PROGRAMMING VALUES

Suggested Frequency: 100hz - 128hz

300W & 500W Motor Fan Speed Set Points:

- Fan Minimum Speed: 85% Duty Cycle
- Fan Maximum Speed: 8% Duty Cycle

850W Motor & 30107328 Fan Speed Set Points:

- Fan Minimum Speed: 80% Duty Cycle
- Fan Maximum Speed: 8% Duty Cycle

SPAL BRUSHLES FAN TECHNOLOGY



To safeguard itself and prevent premature motor failure, SPAL SBL motors feature numerous protective features to detect problematic situations. To avoid damage to the motor it provides automatic power de-rating in severe over-temperature operating conditions that allow the fan to run at lower speeds rather than cause permanent motor failure.

• OEM TECHNOLOGY, UNRIVALED PERFORMANCE

Designed and engineered for the world's OEM demands, now that same technology is offered to the performance aftermarket.

• "SOFT-START" TECHNOLOGY

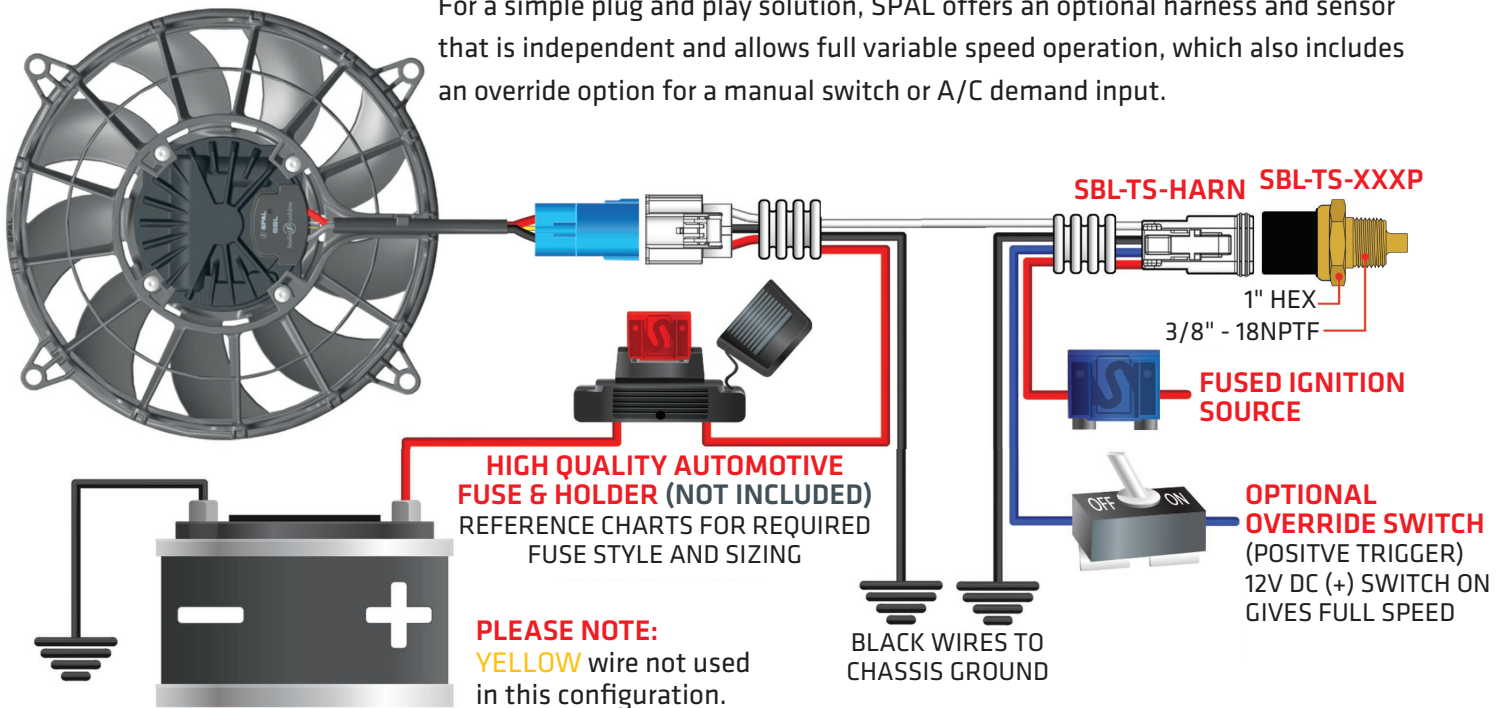
Soft-start technology eliminates the electrical in-rush spike at fan startup.

• FULL, VARIABLE SPEED OPERATION

The brushless motor is always in complete control of the fan speed. In an optimized system, the design allows the fan to run only as fast as necessary to keep the engine cool.

BRUSHLESS FAN WIRING DIAGRAM // PLUG AND PLAY

For a simple plug and play solution, SPAL offers an optional harness and sensor that is independent and allows full variable speed operation, which also includes an override option for a manual switch or A/C demand input.



ADDITIONAL ITEMS REQUIRED FOR PLUG AND PLAY



SBL-TS-HARN

HARNESS SENSOR FOR BRUSHLESS (SBL) FANS



SBL-TSI-XXXXP // SPAL OFFERS 4 DIFFERENT TEMPERATURE SENSOR OPTIONS

SBL-TSI-165P

Minimum "ON" speed at 140°F, increasing to 100% "FULL" speed at 165°F.

SBL-TSI-185P

Minimum "ON" speed at 165°F, increasing to 100% "FULL" speed at 185°F.

SBL-TSI-195P

Minimum "ON" speed at 175°F, increasing to 100% "FULL" speed at 195°F.

SBL-TSI-215P

Minimum "ON" speed at 190°F, increasing to 100% "FULL" speed at 215°F.

• DIGITAL CONTROL FOR SMOOTH AND RELIABLE OPERATION

SPAL fans are fully capable of taking a digital signal from an ECU or PDM to completely control the fan functions.

• WATERPROOF/DUSTPROOF IP6K9K CERTIFIED

SPAL brushless fans are tested and certified for extreme water and dust conditions.

• PATENTED "SINE WAVE TECHNOLOGY"

SPAL patented sine wave technology reduces fan noise, vibration and harshness levels for optimal performance.



The motor also checks for over- and under-voltage and locked rotor conditions to prevent catastrophic failures to the fan motor. SPAL SBL technology is specifically designed for applications where airflow performance, low power consumption, automatic speed control, long motor life, and high efficiency are key requirements.

SEALED BRUSHLESS (SBL) FAN // SELLING POINTS

WHY CHOOSE A BRUSHLESS FAN OVER A TRADITIONAL BRUSHED FAN?

SPAL Brushless fans are designed with "SMART MOTORS", which means that they are programmed to function using the latest technology like,

• SOFT START TECHNOLOGY

- Soft-start technology eliminates the electrical in-rush spike at fan startup.
- Traditional brushed fans create large amperage spikes every time the fan starts up.

• FULL, VARIABLE SPEED OPERATION

- The brushless motor is always in complete control of the fan speed. In an optimized system, the design allows the fan to run only as fast as necessary to keep the engine cool.
- Traditional brushed fans run at full speed, constantly turning on and off as the temperature changes, this reaction-based temperature control causes constant amperage spikes, excessive noise and premature wear.

• DIGITAL CONTROL FROM AN ECU

- SPAL fans are fully capable of taking a PWM negative digital signal from an ECU or PDM to completely control all fan functions.
- SPAL also offers a Plug and Play Temp Sensor option that controls everything from soft start to variable speed, plus override functionality.
- Traditional brushed fans do not have any integrated digital control capabilities.

• LONGER LIFESPAN

- SPAL brushless fan lineup is designed to last minimum 40,000 hours.
- Traditional brushed fans on the market average 5,000 to 15,000 hours depending on the motor and brand.

• BLADE JAM DETECTION

- A SPAL designed feature, the "Parking Phase", is a self-protection feature of the fan that is checking to see if the blade is locked or unable to turn. At startup the fan jumps but doesn't start, the motor is testing to make sure there are no obstructions before turning the fan on.
- Traditional brushed fans do not have this capability.

WHY CHOOSE SPAL BRUSHLESS VS. OTHER BRUSHLESS FANS ON THE MARKET?

- SPAL Brushless Fans are designed and engineered for many OE applications around the world, therefore the technology is more advanced than other aftermarket brushless fans.
- SPAL brushless designs go through extreme testing to meet OEM requirements.
- SPAL provides CFM charts online with real wind tunnel data that allows buyers to analyze CFM data with static pressure ratings.
- SPAL brushless fans are IP6K9K certified, high-pressure waterproof, dustproof design.
- SPAL brushless fans come with an industry leading warranty.



SEALED BRUSHLESS (SBL) FAN // FAQ

CAN A DROP-IN BRUSHLESS PULLER FAN BE USED IN A PUSHER CONFIGURATION? (SEE DIAGRAM A)

- Yes, the airflow remains flowing in the same direction, the fan will need to be supported correctly in front of the radiator to direct the air. A shroud is not recommended as it will block RAM airflow.
- All wiring remains the same.

CAN I HOOK UP MORE THAN TWO BRUSHLESS FANS TO THE WHITE ECU SIGNAL WIRE? (SEE DIAGRAM B)

- Yes, the white signal wire can control multiple SPAL brushless fans, all fans will be controlled with the same PWM signal.

WHAT IS THE DIFFERENCE BETWEEN FLUSH MOUNT AND DROP-IN MOUNT FANS? (SEE DIAGRAM C)

- A flush-mount fan is designed to mount flush onto the radiator or ultimately flush onto a fan shroud.
- A drop-in fan is specifically designed to drop into a metal, plastic or other style fan shroud, with this design most of the fans drop into the shroud creating a clean OE look.
- A fan shroud will increase the performance of any electric fan by pulling airflow from the entire radiator core.

CAN I CONTROL THE FAN WITHOUT A SENSOR, USING AN "ON/OFF" FUNCTION ONLY?

- Yes, you can run the fan on/off and it will still retain soft start. We recommend using variable control from an ECU or SPAL TSI sensor as the best control method.
- The WHITE wire: requires ground signal to activate the fan motors' electronics. This should not be grounded continuously as it would drain the vehicle's battery even when the car is off. You can use a grounding temperature switch or simple ECU ground output.
- The YELLOW wire: apply switched +12V DC to the YELLOW wire to trigger the fan to ramp up to full speed, typically coming from vehicle ignition.

CAN I USE AIR CONDITIONING TO TRIGGER THE FAN?

- Yes, the blue wire on the SBL-TS-HARN is a fan override wire. +12V DC applied to this wire will run the fan at full speed.
- For best functionality with your HVAC, use a trinary switch to provide the (+) signal based on system demand.
- If you only have a (-) signal to use as an override, wire that through a relay to switch (+) to the override.

WHERE CAN I GET MORE INFORMATION ON PROGRAMMING AN ECU?

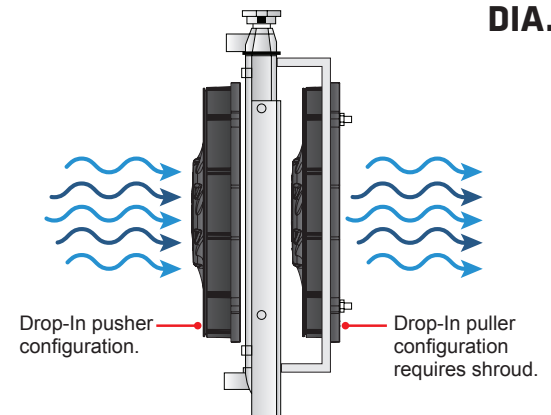
- SPAL provides wiring diagrams and programming notes on the back of the box, for more information, scan the QR code on this brochure to watch detailed videos for various ECU programming.

PLEASE NOTE:

- Detailed schematics available upon request.

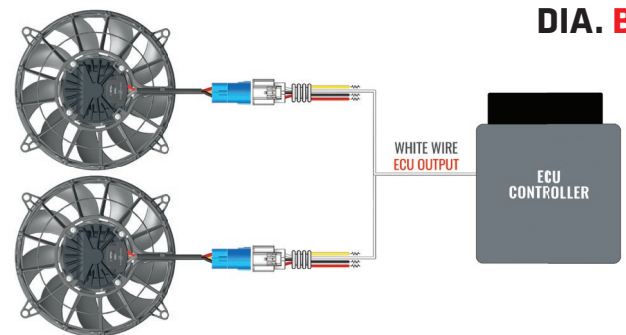
DROP-IN FAN MOUNTING // PUSHER/PULLER

DIA. A



WIRING // MULTIPLE FAN SETUP

DIA. B



MOUNTING STYLES // FLUSH VS DROP-IN

DIA. C

