



COMPANY PROFILE 2023

COMPANY GENERAL OVERVIEW

- Overview – vision and mission
- Key facts
- Global footprint
- Main Customers
- SPAL Strengths



We contribute to improve the world environment by providing efficient and performing fans and blowers for heat management in mobile applications.

We embrace change and challenges, encourage initiative and disruptive innovation in a highly engaging, unconventional and respectful atmosphere for all our associates.

We are an active member and support communities where we have a presence.

Our goal is to be the supplier of choice for technological advance, quality of products, reliability and speed of execution.



PRODUCT FAMILIES



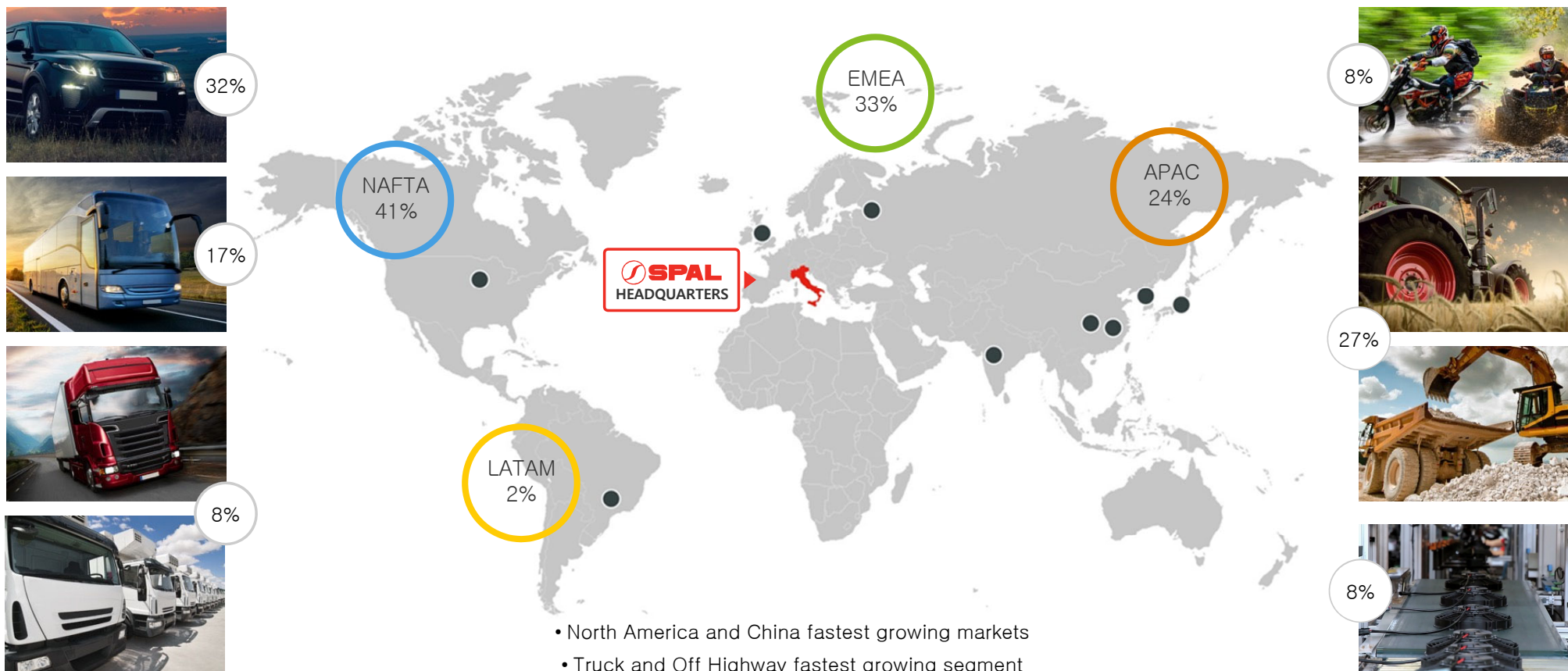
MARKETS



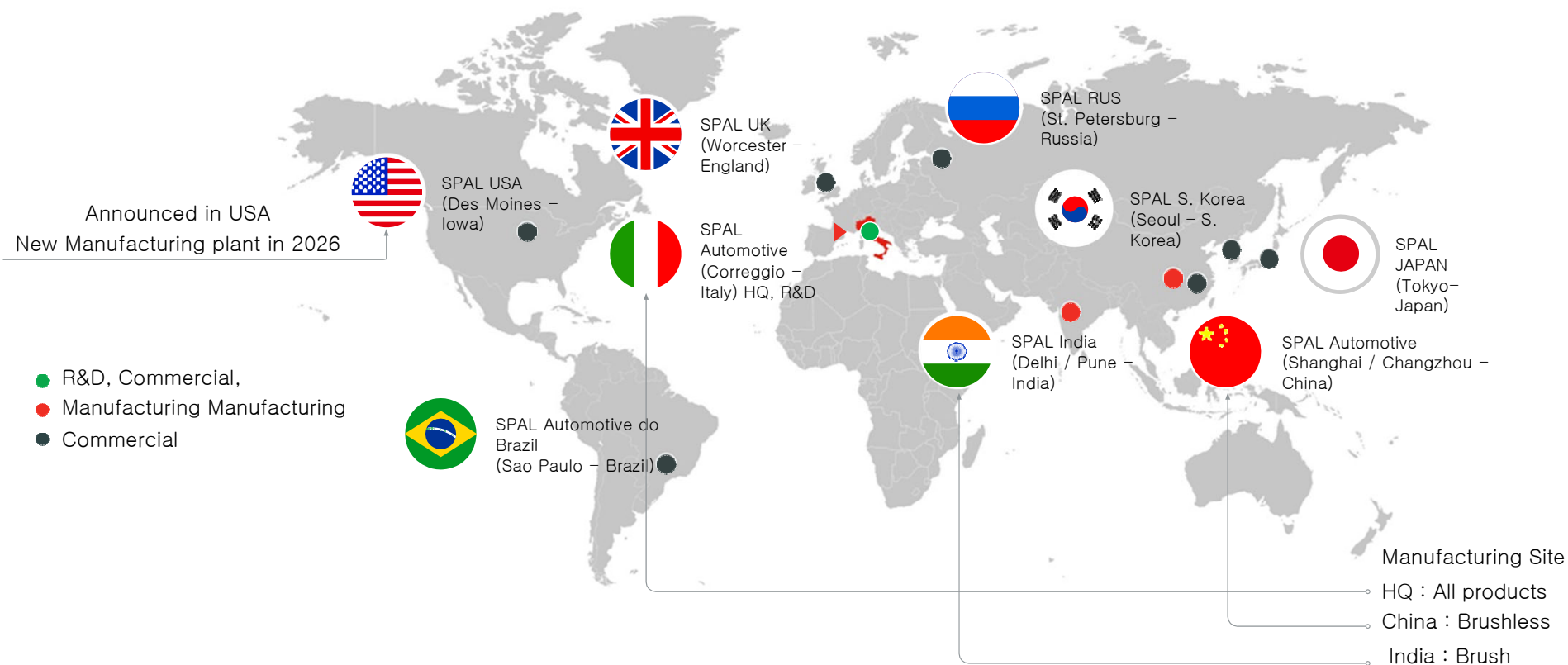
LOCATION

- Founded in 1959
- Private Company
- Total Area 180.000 sqm (Covered) 80.000 sq m
- HQ located at Correggio (North of Italy)
- €285M Sales (2022)
- Avg Yearly Growth Rate: +11% (2013–22)
- Yearly Sales 2021: +19% vs. 2021 (+25% vs 2019)
- ~1400 Associates Worldwide
- IATF 16949 certified
- €200M+ Investments (2012–22)
- 7.7M Total Available Capacity ('22):
- Fully integrated manufacturing process
(The “Make” philosophy)
- Wide application experience on all mobile markets
- Internal labs for complete in-house validations
- Further manufacturing expansion ready by mid 2023



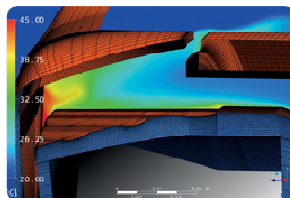


To date, manufacturing facilities are located in Italy, India and China





ELECTROMAGNETICS



THERMO
DYNAMICS

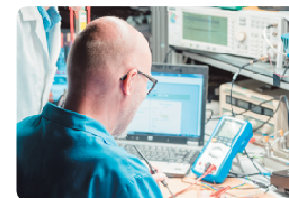
Deep technical know-how in all areas related to all the products we manufacture, including electro-magnetics, mechanics and plastics, thermal and fluid dynamics, electronics, software and testing

In-house labs with possibility to perform complete validation based on Customer's standards.

Fully integrated manufacturing processes including:

- tool shop
- plastic injection molding
- electronics assembly
- motor and product assembly.

Wide application experience and knowledge transferred to the products from each application served



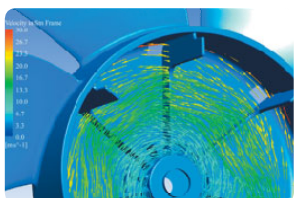
EMC



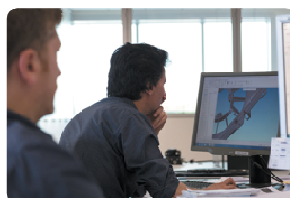
ELECTRONICS (HW-SW)



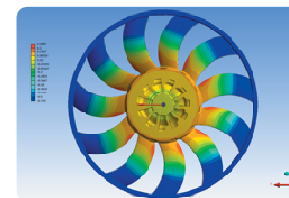
PROCESS
MANUFACTUR



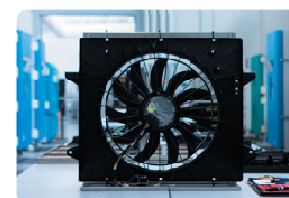
FLUID
DYNAMICS



SYSTEM
DESIGN



MECHANICS



TESTING
VALIDATION



ACOUSTICS

PRODUCT PORTFOLIO

- Product portfolio overview
- SEALED Brushless Drives Line up
- SPAL Customization: main options



SPAL today can offer a wide range of axial fans and centrifugal blowers equipped with both brush and brushless motors;

BRUSH (DC) PRODUCTS:

a wide range of 12V and 24V brush axial fans and centrifugal blowers; all axial fans with DC motor are fully sealed.

BRUSHLESS (BL) PRODUCTS:

All markets we serve showed in the last years a consolidated trend: the switch to brushless products.

For this reason, in the 2009 SPAL started to manufacture brushless fans with the goal to become a global supplier of BL fans.

PUMPS:

Latest development in our portfolio Range with our BL motors
First production SOPed in 2022, line-up in expansion



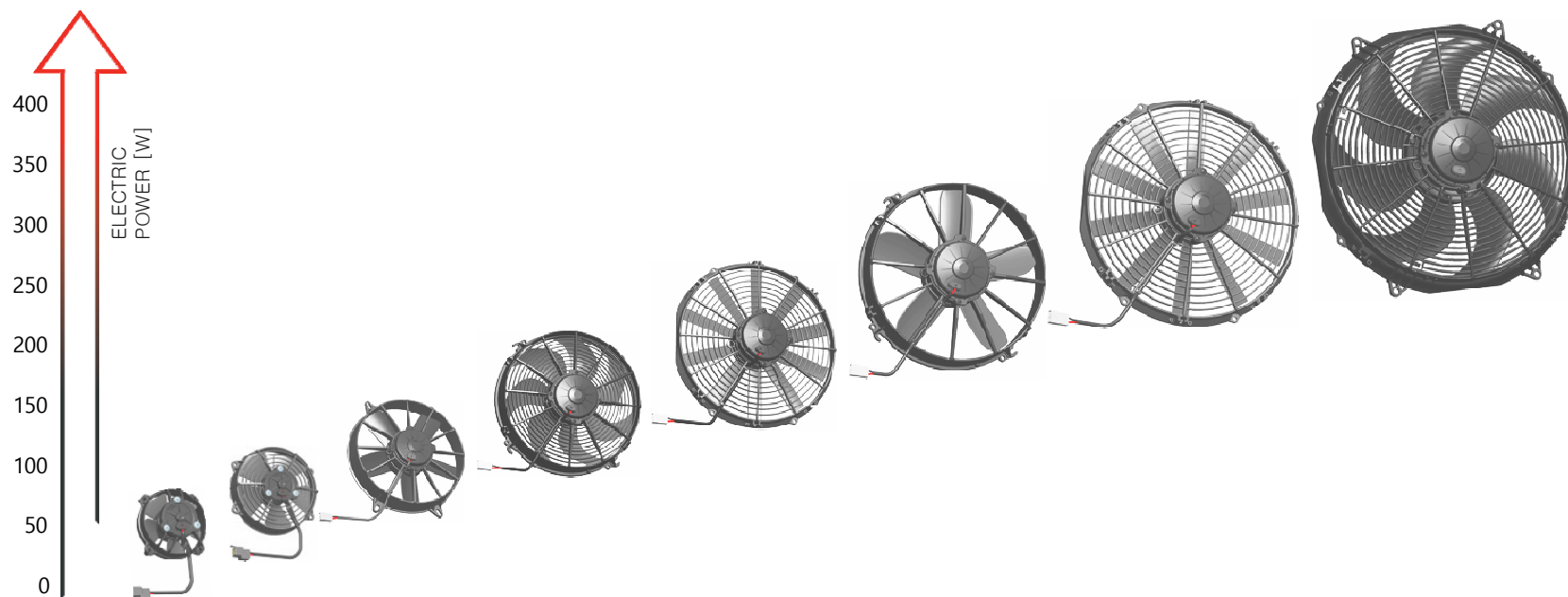


Electrical Power

Range:

~25 W ... ~400 W

- IP68
- 12V and 24V available
- Several blades and shrouds available for each diameter



| FAN DIAMETER [MM] | 96 | 115 | 130 | 140 | 155 | 167 | 182 | 190 | 225 | 255 | 280 | 305 | 330 | 340 | 350 | 385 |
|---------------------|----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|-----|------|-----|-----|
| FAN DIAMETER [INCH] | 4 | 4,5 | 5,2 | 5,5 | 6 | 6,5 | 7,3 | 7,5 | 9 | 10 | 11 | 12 | 13 | 13,5 | 14 | 16 |

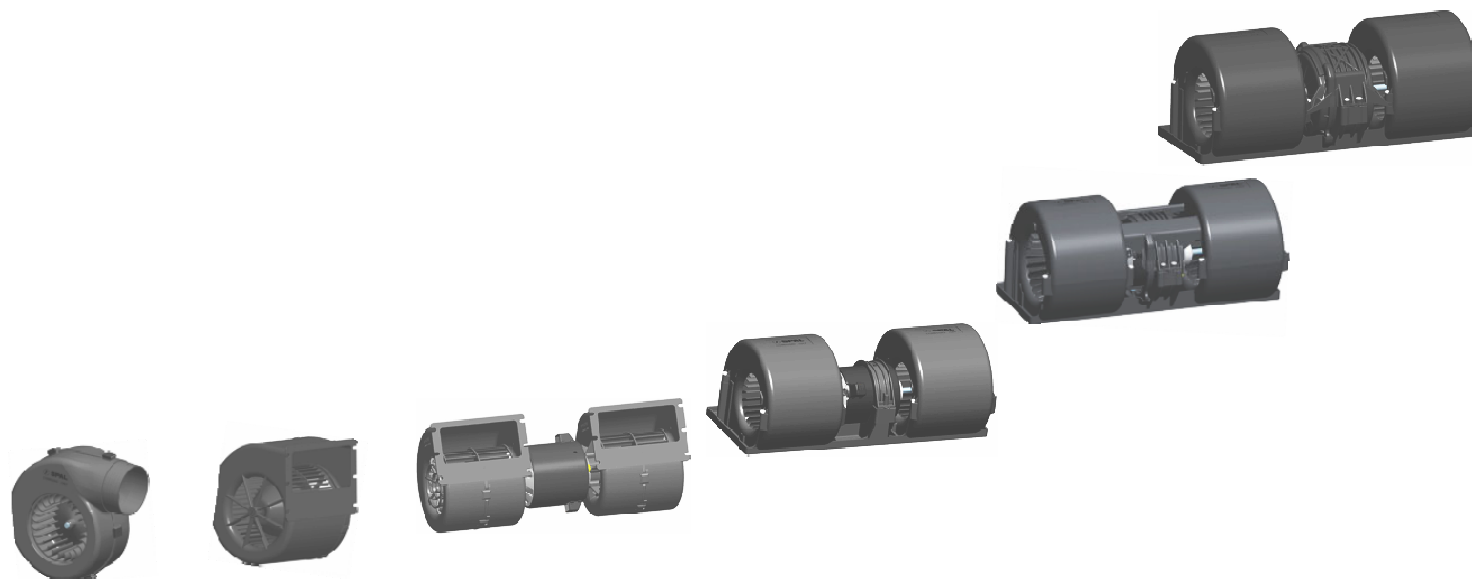
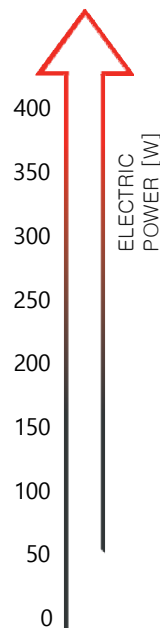


Electrical Power

Range:

~25 W ... ~400 W

- IP30 to IP68
- 12V and 24V available
- Single and dual wheels versions
- Several wheels and scrolls available



SINGLE BLOWERS

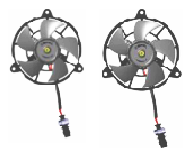
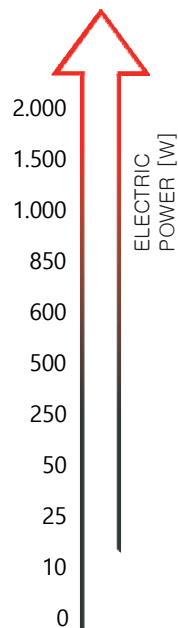
HOUSING TYPE: A47 - 001 - 007 - 008 - 009 - 010

DOUBLE BLOWERS

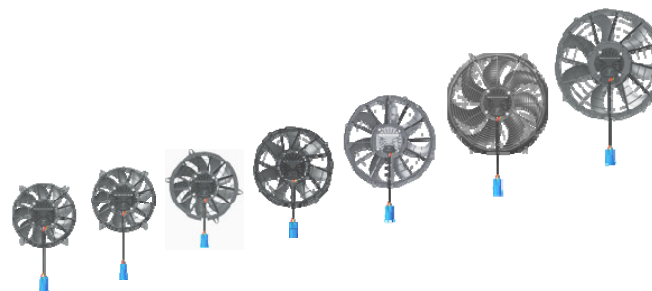
HOUSING TYPE: 002 - 005 - 006 - 008 - 009 - 011 - 012 - 014 - 015 - 017



- Electrical Power
Range:
~40 W ... ~2.000 W
- IP68 and IP6K9K
 - 12V, 24V and 48V available
 - PWM, LIN and CAN driving mode available



SBL 40



SBL PLUS



560 mm and 605 mm blades available,
Shroud upon request

SBL HT

| AXIAL SBL 40 | Ø 130 mm | Ø 155 |
|-----------------|----------|-------|
| | 5,2 inch | 6 |

| AXIAL SBL PLUS | Ø 225 mm | Ø 255 | Ø 280 | Ø 305 | Ø 355 | Ø 385 | Ø 405 |
|-------------------|----------|-------|-------|-------|-------|-------|-------|
| | 9 inch | 10 | 11 | 12 | 14 | 16 | 16 |

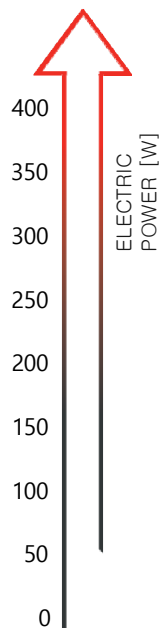
| AXIAL SBL HT | Ø 465 mm (STD) | Ø 465 mm (HD) |
|-----------------|----------------|---------------|
| | 18 inch | 18 |



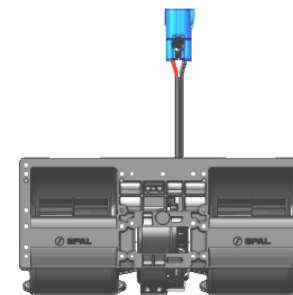
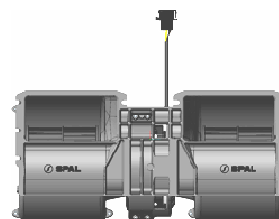
Electrical Power
Range:

~25 W ... ~400 W

- 12V and 24V available
- Single and dual wheels versions
- Several wheels and scrolls available



OPEN MOTOR
SEALED ELECTRONICS



SINGLE BLOWERS

HOUSING TYPE:
SINGLE WHEEL BLOWER WITHOUT HOUSING

DOUBLE BLOWERS

HOUSING TYPE: 019 - 020 - 024



Electrical Power
Range:
~25 W ... ~2.000 W

- IP68 and IP6K9K
- 12V, 24V and 48V available
- Inner rotor
- SEALED packaging
- Fan design
- Motor cooling technology



BL 10/25 –
12-24V



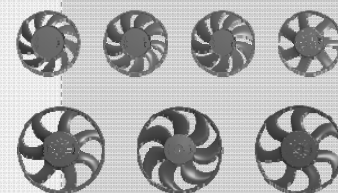
OPEN MOTOR
SEALED
ELECTRONICS



AXIAL FAN
Ø 130 mm – Ø 155
mm



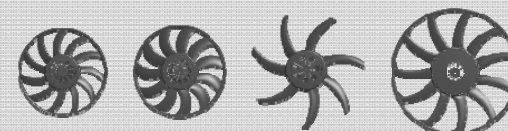
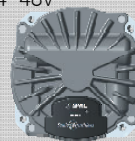
SBL 40 – 12-
24V



AXIAL FAN – Ø 225 mm >>> Ø
405 mm



SBL PLUS – 12-
24-48V

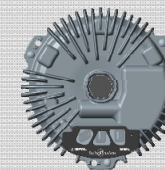
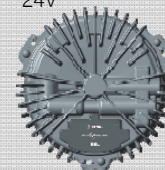


AXIAL FAN – Ø 430 mm >>> Ø
605 mm



SBL HT4 – 12-24-
48V

SBL HT3 – 12-
24V



| ELECTRIC POWER [W] | 10 | 25 | 40 | 50 | 250 | 500 | 600 | 850 | 1.000 | 1.500 | 2.000 |
|--------------------|----------------------------------|----|----------------------------|----|-----|-----|-----|-----|-------|-------|-------|
| | OPEN MOTOR SEALED ELECTRONICS | | SEALED MOTOR & ELECTRONICS | | | | | | | | |

PRODUCT FEATURES

- 650W available
- 300W & 900W coming soon
- Sealed 24V Brushless Motor (IP68/IP6K9K Drive)
- 12V available upon demand
- Extended working temperature range
- PWM controlled, CAN and LIN version available
- Diagnosis and self-protection functions
- Metal housing drive

300 W
SBL PLUS DRIVE
(SAMPLES AVAIL. FROM Q4 2023)

650 W
SBL PLUS DRIVE
(SERIAL PRODUCTION)

900 W
SBL PLUS DRIVE
(SAMPLES AVAIL. FROM Q2 2023)



| | ▲ | ▲ | ▲ |
|------------------|-----|-----|-----|
| POWER CLASS [W] | 300 | 650 | 900 |
| MAX FLOW [L/MIN] | 130 | 220 | 240 |

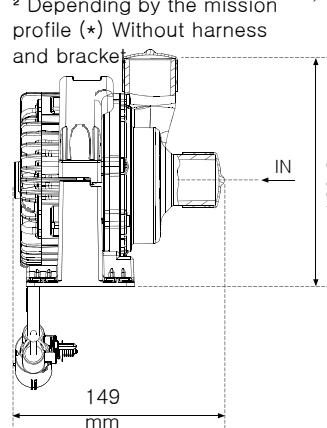
Power [W]650
 Operating Voltage [V]16 ÷ 32
 Protection classIP6K9K
 Storage Temperature-40°C ÷
 120°C Operating temperature-
 40°C ÷ 105°C ¹ Lifetime [h]
Up to 40000 ²

Control AvailablePWM / LIN –
 CAN BUS

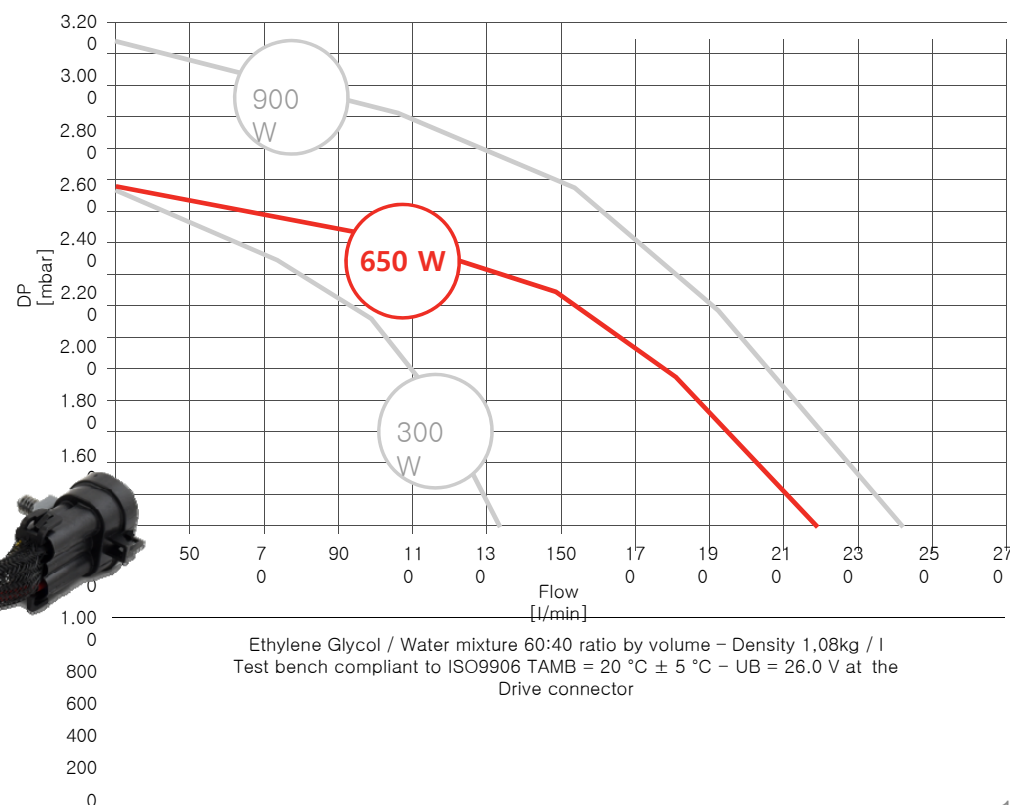
Motor technology

1. Depending by the mission point

2. Depending by the mission profile (*) Without harness and bracket

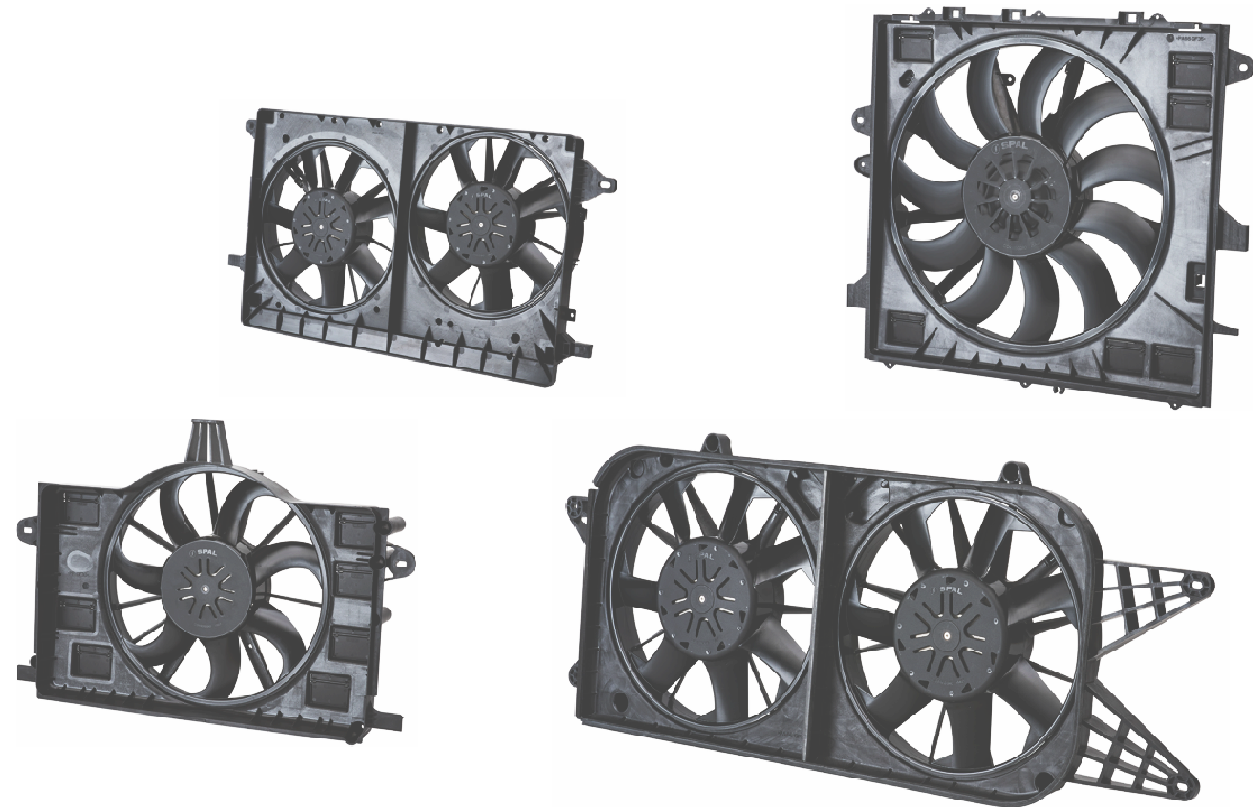


Serial production 12V variant to be available on demand
 (based on market request)



Besides standard solutions, SPAL, for special requirements and based on business case, is available to provide CUSTOMIZED

- Shrouds; some examples:
- Electrical interface (wiring harness and connectors)
- Electronics & Firmware (for brushless products)



BASED ON MARKETS INPUTS,
SPAL IS MAINLY INVOLVED IN FOUR
«NEW DEVELOPMENT» DIRECTIONS:

These main 4 paths are obviously in
addition to the continuous effort in
having improved products with a
particular attention to:

- Efficiency
- Noise
- Mechanical robustness (HD specific products)

SHORT TERMS:

Development of high
power
Brushless products (up
to 2kW ca. @24V)

MID TERMS:

Development of
48V
Brushless
products



SHORT TERMS:

Development of a
range of coolant
pumps:
(first one with SOP Q1
2022)

MID/LONG TERMS:

Development of HV
Brushless products (600V
– 800V)

For any further question, please contact:

SPAL Automotive srl

www.spalautomotive.com

