Blender Products INC.®

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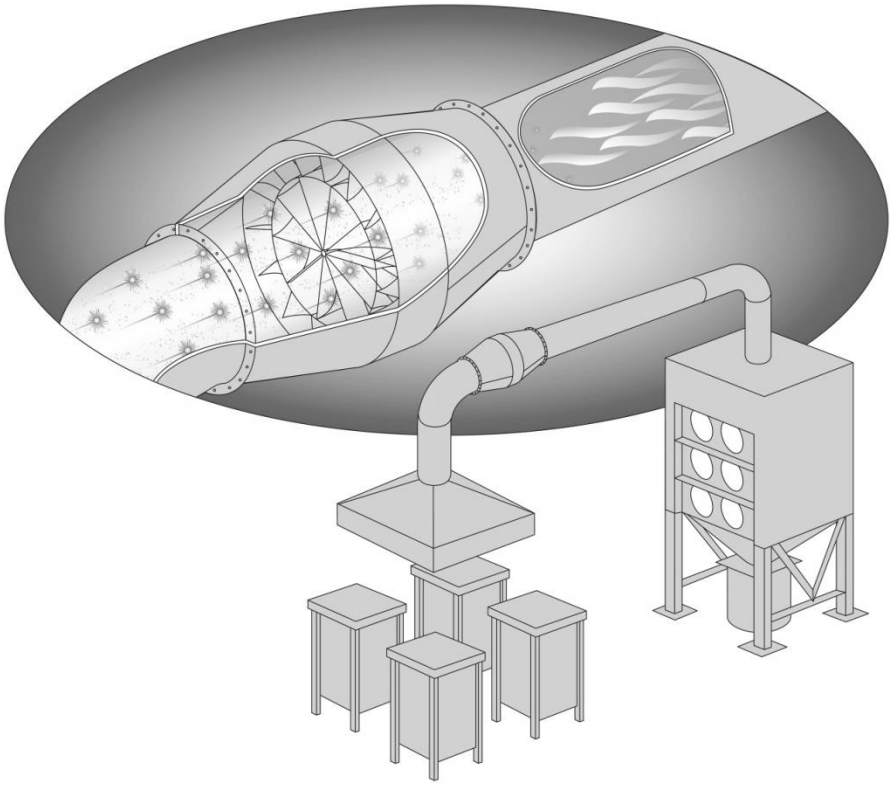
JUNE 2021

SPARK COOLER®



OWNER'S MANUAL

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Blender Products INC.

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OWNER'S MANUAL

Blender Products INC.®

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Terms & Conditions, Limited Warranty

BLENDER PRODUCTS, INC., TERMS & CONDITIONS

Terms and Conditions of Sale. The SPARK COOLER® is sold to Customer and Customer accepts delivery of the equipment on the following terms, conditions and subject to the following agreements.

Limited Warranty Blender Products, Inc. ("Blender") warrants that the SPARK COOLER® will perform in accordance with published specifications for a period of one (1) year from the date of delivery and that the equipment will be free from defects in material and workmanship under normal use for one (1) year from the date of delivery. This limited warranty is valid only if the equipment is installed on approved applications and maintained and serviced in accordance with the Owner's Manual (the "Manual") and any other product information included with the equipment. This limited warranty shall be void if the SPARK COOLER® is not installed, maintained and serviced in accordance with the Manual. Blender's sole obligation and Customer's sole remedy under this limited warranty is the replacement and repair, at Blender Products' option, of the defective component at Blender's Denver, Colorado facilities. Such obligation and remedy are expressly conditioned upon (i) installation and operation of the equipment in strict conformity with the Manual; and (ii) the equipment not having been altered, mishandled, misused, damaged or repaired (except for repairs performed by Blender). Defective components shall be shipped freight prepaid to Blender's Denver, Colorado facility. Customer shall pay inbound and outbound freight and insurance on all components returned to Blender for repair or replacement. This limited warranty is the exclusive warranty of the product. **BLENDER MAKES NO OTHER WARRANTY OF ANY KIND OR DESCRIPTION, WRITTEN OR ORAL, EXPRESSED OR IMPLIED, INCLUDING, WITHOUT LIMITATION, ANY WARRANTY OF MERCHANTABILITY, WARRANTY OF FITNESS FOR A PARTICULAR PURPOSE OR WARRANTY ARISING OUT OF ANY COURSE OF PERFORMANCE, COURSE OF DEALING USAGE OF TRADE.**

BLENDER PRODUCTS, INC., TERMS & CONDITIONS (CONTD.)

Cautionary Statement Customer expressly acknowledges and understands that the SPARK COOLER® system does not preclude the possibility of fire or explosion. The purpose of the system is to minimize the frequency of spark ignition by creating turbulence in the airflow. Additional fire and explosion suppression systems, flame barriers or explosion venting may be necessary or advisable to reduce fire and explosion risks. . Customer acknowledges that the technology is of such complexity and that each application is unique and distinct from all others so that performance and effectiveness will vary widely., and that, in addition, machine and operator variables will influence performance of the equipment. Blender Products cannot and does not warrant the complete detection or elimination of sparks. THE SPARK COOLER(R) SHOULD NEVER BE USED AS A STANDALONE DEVICE IN APPLICATIONS IN WHICH ABSOLUTE SPARK SUPPRESSION IS REQUIRED TO AVOID EXPLOSION OR CATASTROPHE.

Limitation of Liability The SPARK COOLER® is sold to Customer and Customer accepts delivery of the equipment upon the express understanding and conditions that Customer has read and understands the Cautionary Statement set forth above and Customer shall and does for itself, its affiliates officers, directors, employees, contractors and agents, release Blender Products, Inc., its affiliates, officers, directors, employees and agents from and against any and all liability or claim for any direct, indirect, special, incidental or consequential damages, including lost profits, death, or personal injury, or loss of use or other economic loss ("Damages"), arising in tort, contract or otherwise in connection with the purchase, installation, use, operation and maintenance of the SPARK COOLER® equipment. Customer acknowledges that its sole remedy is the limited warranty set forth above and that in no event shall Blender be responsible for Damages to Customer, its contractors, employees, invitees or agents. Customer shall indemnify and save harmless Blender from and against any claim(s) for such Damages.

Protection of Proprietary Information The SPARK COOLER® , related equipment and the Manual include patented and unpatented technology, trade secrets and copyrighted material (collectively, "Proprietary Information"). Customer shall not make or permit to be made Proprietary Information available in any form to any person other than Customer's employees and contractors whose job performance requires access. Customer shall not attempt to reverse-engineer or otherwise copy or use any Proprietary Information except in strict compliance with the Manual. Customer agrees to honor all copyright, trademark, and other legends affixed to the equipment and manual.

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Applications and Performance Criteria

APPLICATIONS AND PERFORMANCE CRITERIA

Applications and Performance Criteria The SPARK COOLER® is designed and applied as a preventive measure, to reduce the life and frequency of hazardous sparks within an industrial exhaust system. The SPARK COOLER® is *not* designed to extinguish actual fires. *Installation of the SPARK COOLER® does not assure elimination of all sparks and does not preclude the possibility of fire and explosion.* Please see the "Cautionary Statement" above.

The following are application guidelines to help improve product performance and safety. ***Please review this entire Manual for complete instructions and installation information.***

- **Location:** Install the SPARK COOLER® to allow a minimum of one duct diameter between the spark source and the inlet of the SPARK COOLER® . Leave a minimum of 10 duct diameters between the outlet of the SPARK COOLER® and the air-material-separator.

- **Flow:** Performance of the SPARK COOLER® is best operated at duct velocities greater than 1000 fpm, but not exceeding 5,000 fpm.

- **Temperature**: Performance of the SPARK COOLER® is dependent on the conveying air being at a lower temperature than the spark ember itself. Therefore, the SPARK COOLER® typically operates in air streams with temperatures well below the ignition point of the suspended particulates, but in no case greater than 500°F.

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APPLICATIONS AND PERFORMANCE CRITERIA (CONTD.)

Flow Rate, Pressure Drop, Distance Requirements

SIZING		FLOW RATE					OPTIMAL DISTANCE (inches)*			
Spark Cooler Model #	Duct Diameter (inches)	CFM					Upstream Distance	Downstream Distance – GOOD	Downstream Distance – BETTER	Downstream Distance – BEST
SC6_ _ _	6	490	590	690	790	880	6	30	45	60
SC8_ _ _	8	870	1050	1220	1400	1570	8	40	60	80
SC10_ _ _	10	1360	1640	1910	2180	2450	10	50	75	100
SC12_ _ _	12	1960	2360	2750	3140	3530	12	60	90	120
SC14_ _ _	14	2670	3210	3740	4280	4810	14	70	105	140
SC16_ _ _	16	3490	4190	4890	5590	6280	16	80	120	160
SC18_ _ _	18	4420	5300	6190	7070	7950	18	90	135	180
SC20_ _ _	20	5450	6540	7640	8730	9820	20	100	150	200
SC22_ _ _	22	6600	7920	9240	10560	11880	22	110	165	220
SC24_ _ _	24	7850	9420	11000	12570	14140	24	120	180	240
SC_ _ _ _ _**	30-66	12270-106910					–	–	–	–
Velocity (fpm)		2500	3000	3500	4000	4500				
Pressure Loss (w.g.)		0.32	0.46	0.63	0.82	1.04				

* Approx. 1 duct diameter required upstream from Spark Cooler inlet; Required downstream distances from Spark Cooler outlet: Good = 5 duct diameters, Better = 7 duct diameters, Best = 10 duct diameters

** Standard sizes available up to 100,000 CFM. Please contact the factory for specifications of larger or alternate sizes.

Applications: The SPARK COOLER® can function to mitigate sparks in metal dust and other carbonaceous dust applications, with low to moderate loading. Applications involving materials prone to accumulation on blades or interior duct surfaces, and applications producing moderate to heavy dust loads can compromise function.

	Ideal Applications
PROCESSES	• Metal Grinding • Resistance Welding • Plasma Cutting • Laser Cutting • Thermal Spray • Carburization • Metal Quenching

SPECIFIC APPLICATIONS	• All Metal Process Industries
	  • Fabrication facilities
	  • Automotive plants
	  • Foundries
	• Metal Recycling
	• Robotic weld cells
	• Battery Recycling
	• Ball Bearing Manufacturing
	• Charcoal manufacturing
	• Shoe grinding (rubber)
	• Coffee manufacturing

VELOCITY	Optimal: 1500-5000 fpm
TEMPERATURE	Optimal: up to 300°F primary air stream
PARTICLE SIZE	Small-to-medium sized embers
DUCT DISTANCE	Optimal: 10 diameters Effective: 5 diameters Functional: > 1 diameter

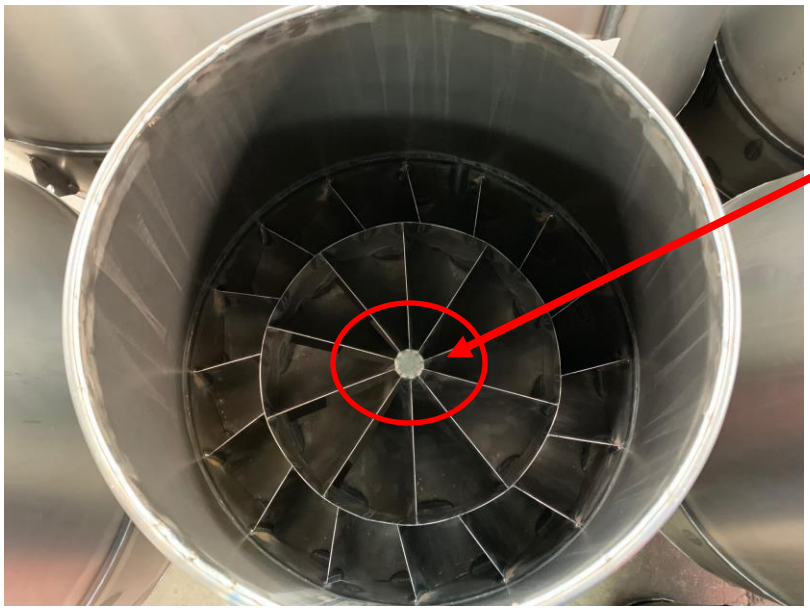
INSTALLATION, OPERATION, & MAINTENANCE

Installation: Install the SPARK COOLER(R) to allow a minimum of one duct diameter between the spark source and the inlet of the SPARK COOLER® . Leave a recommended minimum of 10 duct diameters between the outlet of the SPARK COOLER® and the air-material-separator. If ten duct diameters are not available, then install at a location along the duct that leaves the maximum distance possible between the outlet of the SPARK COOLER® and the air-material-separator.

No specialty tools are required for installation or operation. Provide adequate structural support when installing and operating the SPARK COOLER® On some units, a lifting lug may be included to facilitate installation. This lug is not designed nor intended to bear a long term weight load. Using the lug to support the installed Spark Cooler will void the warranty.

Observing the directional flow arrow on the SPARK COOLER® , install the SPARK COOLER® in line with the duct. For flange mounting, supply gasket material between mating flanges to assure an air-tight seal. For slip-fit mounting, make sure the mating duct connection or mating flex hose connection is air-tight.

If a directional flow arrow is not attached to the Spark Cooler the flow direction can be identified by looking at the internal center piece. The inlet side of the Spark Cooler center is “capped” while the outlet side is open. See picture below.



Operation: Turn on your system fan and draw process air through the SPARK COOLER®. In appropriate applications, the SPARK COOLER® can function to cool sparks that pass through the unit. The SPARK COOLER® is a static device with no moving parts, so it is off when the system fan is turned off and is on whenever the system fan is turned on.

Maintenance: There are no electronic controls and no water or chemical retardants, making the SPARK COOLER® virtually maintenance-free.

To avoid combustible dust accumulation, periodically check the inside of the SPARK COOLER® and observe whether or not solids accumulate within. In applications where solids arrest against the internal blades of the SPARK COOLER® and/or appreciably adhere to the inside surfaces, a regularly scheduled cleaning should be considered to prevent obstruction.

FOR SPARK COOLERS WITH THE INSPECTION DOOR OPTION:

Warning: If the SPARK COOLER® is provided with an access panel, never open the doors when the system is operating. Also, never open access doors when a duct fire is suspected. Inspect the hinges on the panel before opening to prevent the panel from falling.

Installation: locate the opening for the access panel so that it faces towards a side with easy access and not obstructed. Avoid having the opening face directly down.

FOR SPARK COOLERS WITH THE INTEGRATED SCREEN:

Warning: The intent of the integrated screen is to catch relatively large foreign material before it can travel to the dust collector. It is intended for dry metal dust applications and is not intended to be used on applications with sticky or particulate prone to adhere to surfaces.

All Spark Coolers with the integrated screen option also come with the access panel for easy inspection and cleaning access.

A regularly scheduled visual inspection and cleaning should be considered to prevent obstruction. Frequency of the inspection is determined by the user. It is recommended to inspect at least once per week when first operating with the screen in place, then adjust the frequency as necessary based on the initial inspections.

The screen can be removed by unbolting the flange around the screen section. Caution should be used when removing the screen to not allow the screen or other objects to fall.

The customer has the option to have Blender Products provide a port on the upstream cone to connect an extinguishing nozzle. Blender only provides the port and does not provide the detection or sprinkler nozzle. It is solely the customer's discretion if this option is selected and utilized.

Installation: locate the opening for the access panel so that it faces towards a side with easy access and not obstructed. Avoid having the opening face directly down.

CONTACT INFORMATION

Please contact the factory with any questions regarding application, or the contents of this owner's manual.

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