



**FINISHING
EDUCATION**
UNIVERSITY

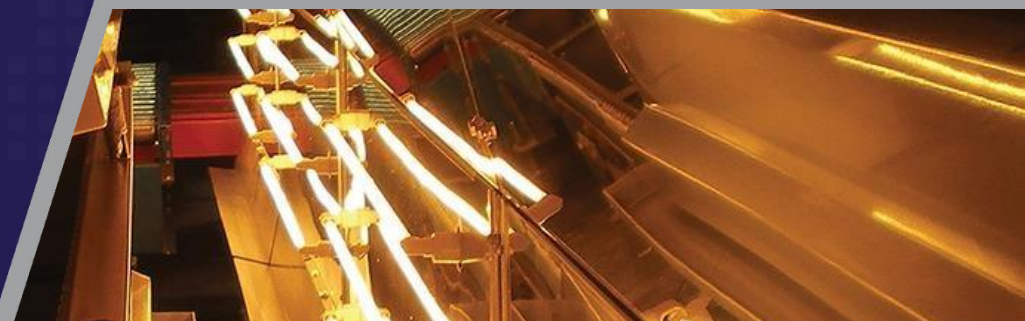


*Knowledge
is Power*



RansFlex AA85 Introduction

Distributor Training
May 3rd, 2022



Contents

▪ General Product Information

- Specifications, Weight, & Dimensions
- Ergonomics & Product Design
- User Operational Interface & Controls
- Compensation Valve Impact Data
- New Replaceable Electrode
- Major Gun Component Breakdown
- Updated Standard & Fine Finish Tip Offerings

▪ Competitive Analysis & Technical Information

- Physical Attributes
- Cascade Charging Method
- Cascade Durability Testing
- Additional Competitive Comments

▪ Ordering Information & Pricing

- Standard Top Assemblies
- Pricing of Introduced Major AA85 Components
- Additional Component Pricing
- Introduced Selling Tools



RansFlex Manual Gun Platform



RX 45kV
Solvent-based Materials



RFX 65kV
Solvent-based Materials

RAINS
FLEX



RXQ 45kV Quick-Fan
Solvent-based Materials



RFXQ 65kV Quick-Fan
Solvent-based Materials



RFXW 65kV Direct Charge
Water-based Materials



RFXi 65kV In-direct Charge
Water-based Materials



AA 85kV
Solvent-based Materials

Innovation *Applied*

RansFlex AA85 Introduction



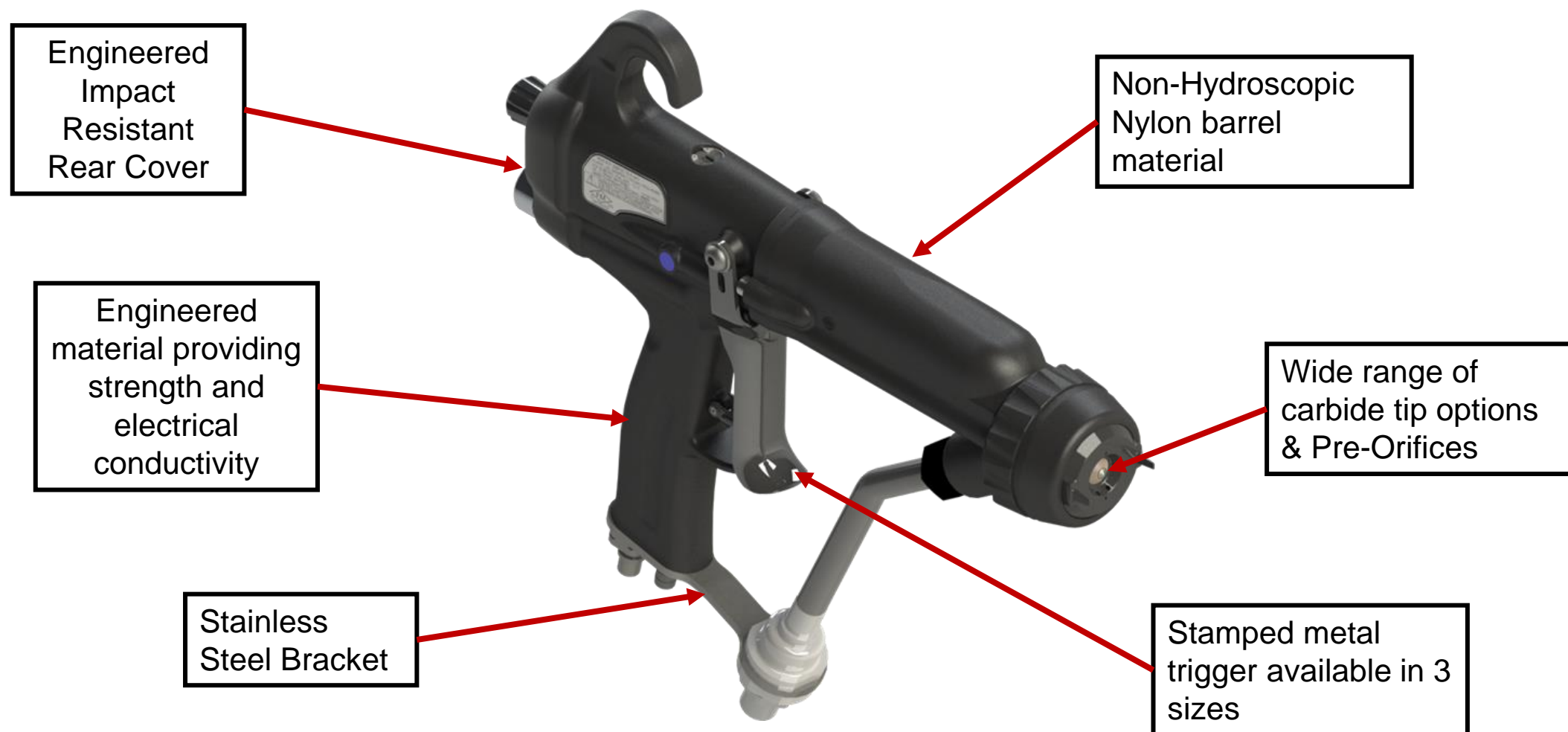
General Product Information

General Product Information

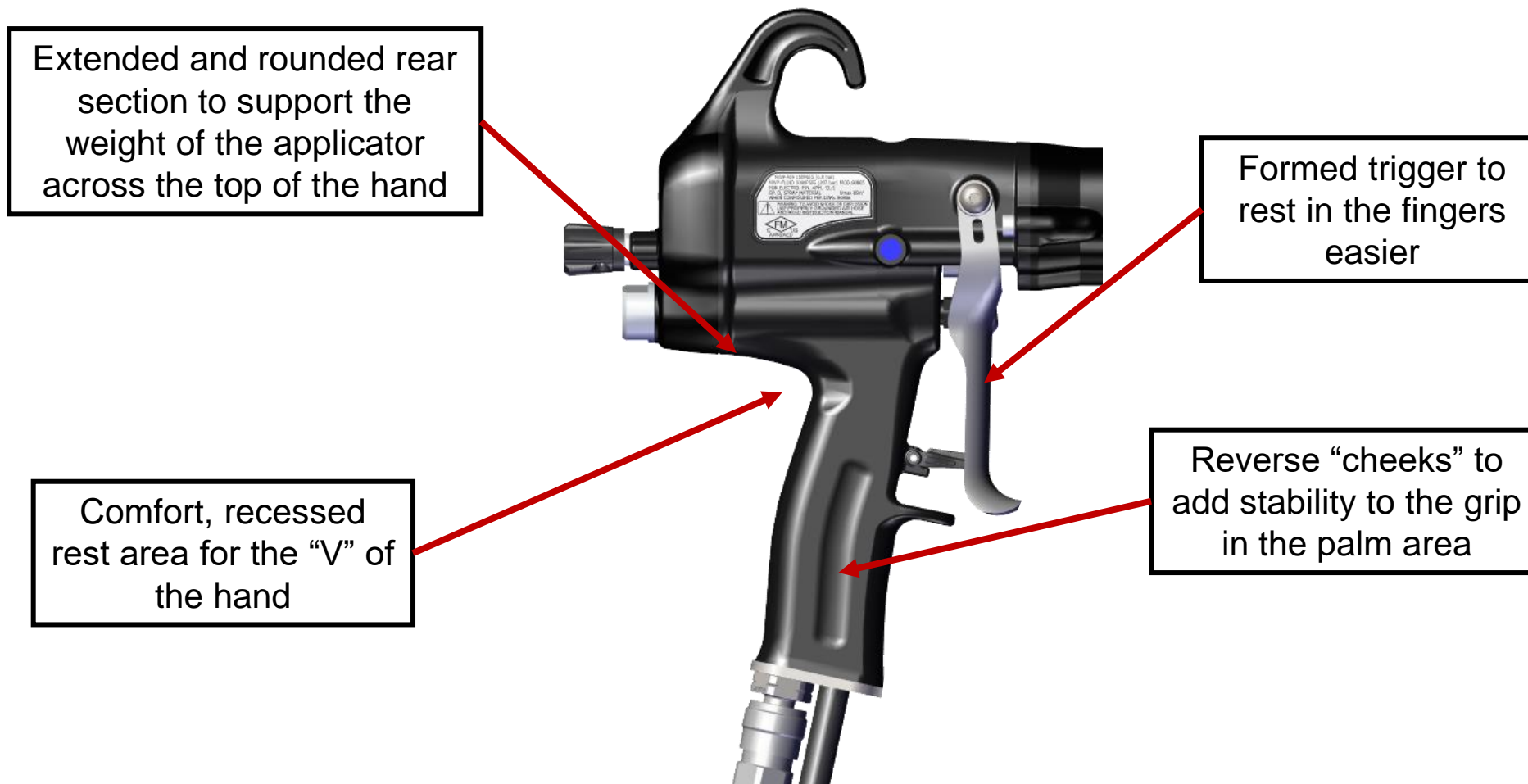
Product Attribute	Product Measure	
Cascade Type	85kV Max Potential @ No Load	
Electrode	Externally Charged @ Air Cap	
Approved Coating Materials	Solvent-Based Materials	
Operating Fluid Pressure	0 - 3,000 psi	0 - 207 Bar
Max Air Pressure	100 psi	6.8 Bar
Minimum Inlet Air Pressure to Run Turbine @ Handle	45 psi	3 Bar
Product Weight	25.2oz	715g
Approvals	Factory Mutual (US & C) ATEX, UKCA	
Applicable Paint Resistivity Range	0.1MΩ - ∞MΩ	



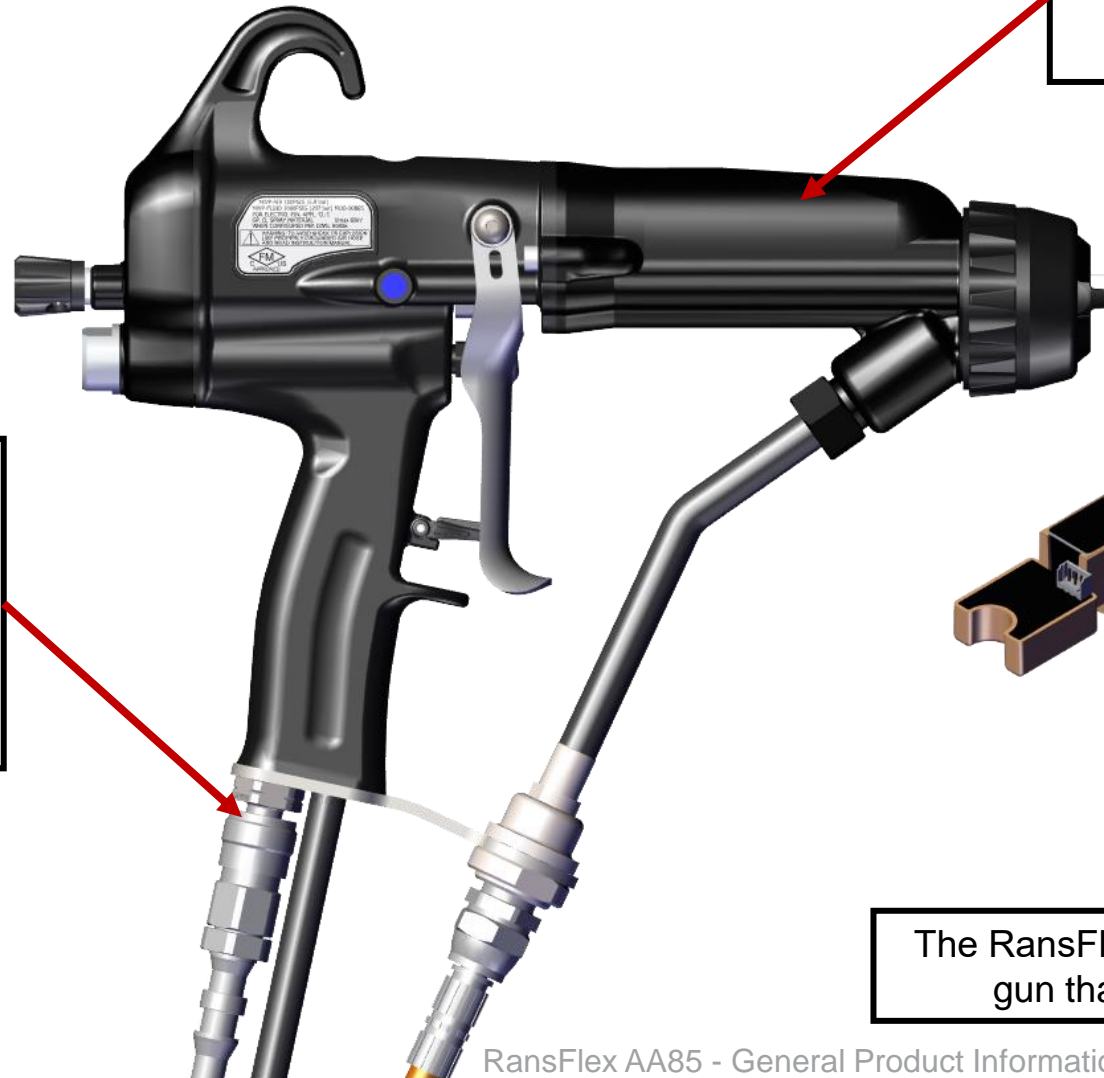
Lightweight & Robust Construction



Ergonomic Fit, Feel & Balance



Ergonomic Fit, Feel & Balance



Air inlet fitting brought up close to bracket, no special fitting for QD models to reduce the torque to manipulate the applicator.

Redesigned the cascade to make best use of potting and increased voltage potential to 85kV

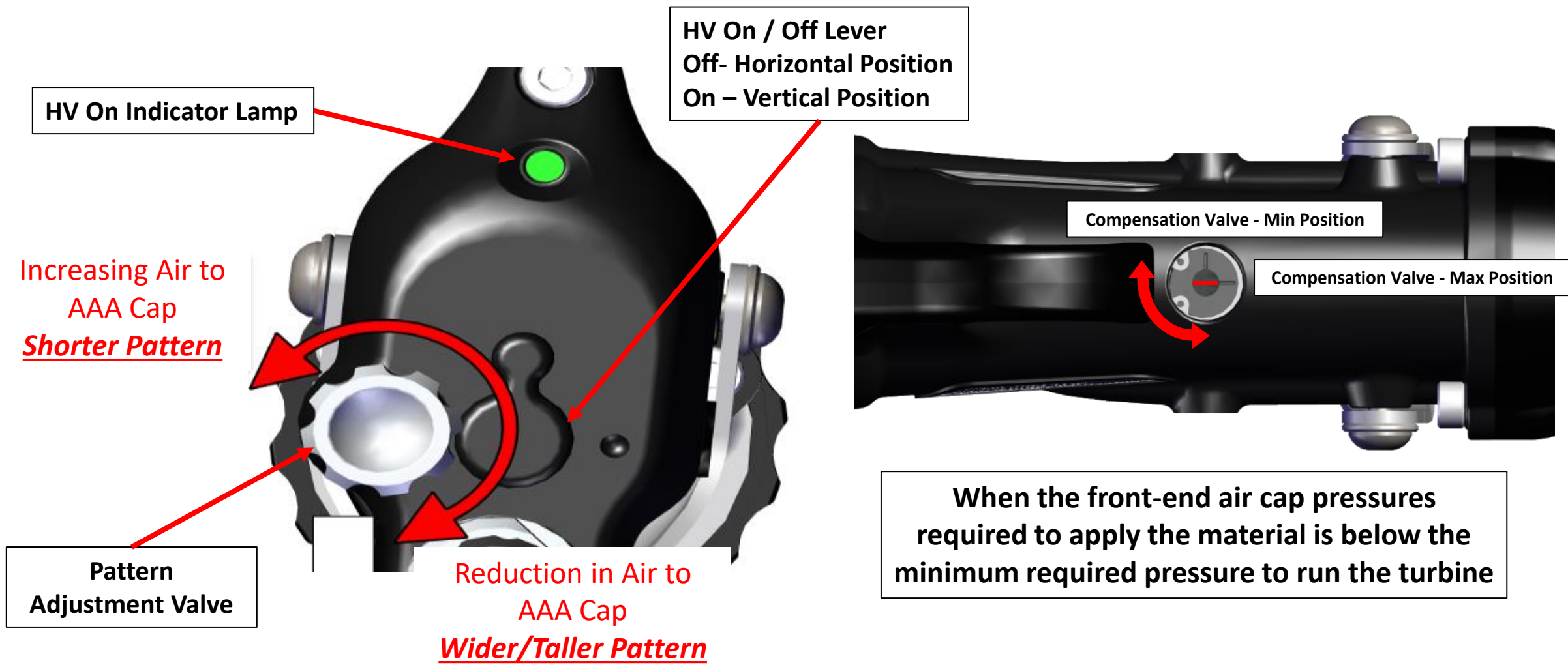
45kV Cascade

65kV Cascade

New 85kV Cascade

The RansFlex AA85 is Ransburg's first AAA electrostatic gun that allows for replacement of the cascade

User Operational Interface & Controls



Compensation Valve Impact Data

Compensation Valve Impact on Air Cap Pressures

Compensation Valve Position		Open (No Restriction)				Closed (Max Restriction)				Compensation Valve Reduction			
High Voltage Switch Position		ON		OFF		ON		OFF		ON		OFF	
Air Cap Location		Horn	Center	Horn	Center	Horn	Center	Horn	Center	Horn	Center	Horn	Center
Pressure @ Gun Inlet	40	31.4	10.1	34.2	17.5	24.6	8.8	25.7	9.1	27.6%	14.8%	33.1%	92.3%
	50	39.7	13.7	43.0	23.1	31.7	12.0	33.0	12.5	25.2%	14.2%	30.3%	84.8%
	60	48.0	17.5	51.4	28.4	38.8	15.4	40.1	15.9	23.7%	13.6%	28.2%	78.6%
	70	56.2	21.4	60.0	33.8	45.8	19.0	47.5	19.7	22.7%	12.6%	26.3%	71.6%
	80	64.4	25.3	68.7	39.4	52.8	22.5	54.6	23.4	22.0%	12.4%	25.8%	68.4%
	90	71.8	29.0	77.1	45.0	60.2	26.4	61.9	27.3	19.3%	9.8%	24.6%	64.8%

Compensation Valve Impact on Total Air Consumption

Compensation Valve Position		Open (No Restriction)		Closed (Max Restriction)		Compensation Valve Reduction	
High Voltage Switch Position		ON	OFF	ON	OFF	ON	OFF
Pressure @ Gun Inlet	40	288	201	275	187	4.7%	7.5%
	50	340	239	328	222	3.7%	7.7%
	60	395	276	379	257	4.2%	7.4%
	70	447	315	429	291	4.2%	8.2%
	80	500	354	481	326	4.0%	8.6%
	90	569	395	532	360	7.0%	9.7%

Horn Cap Pressure

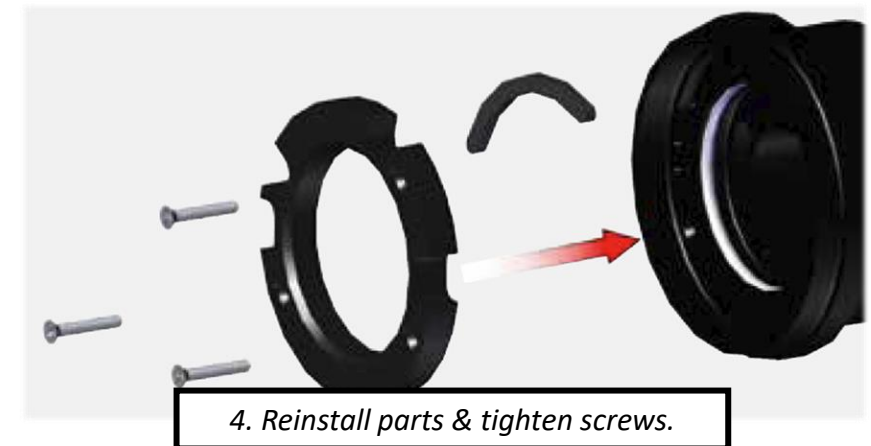
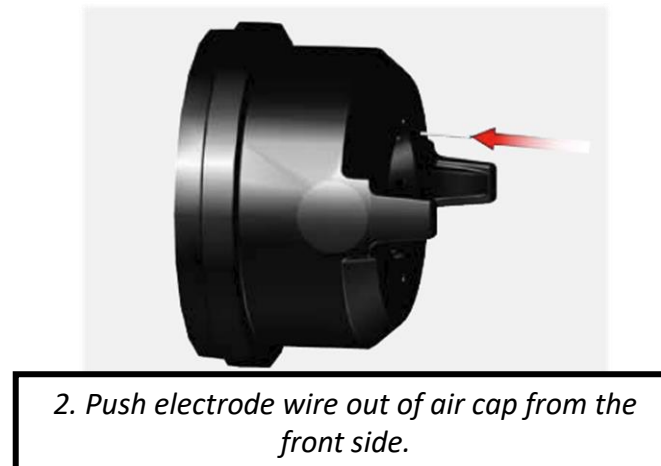
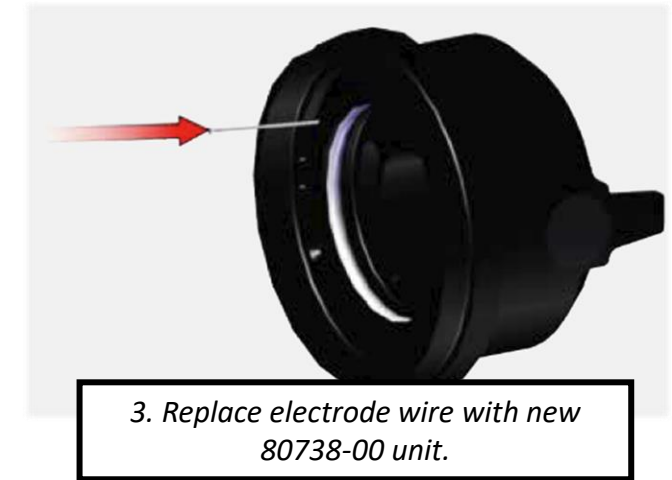


Center Cap Pressure

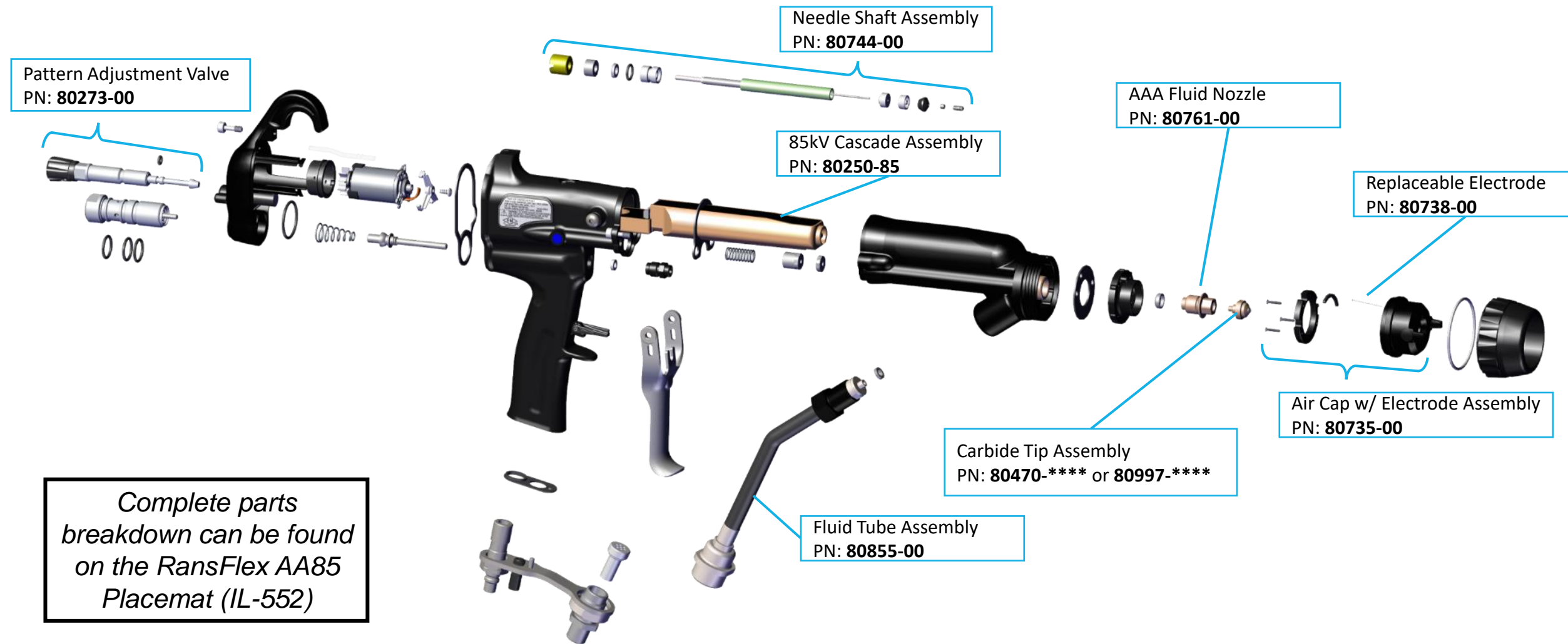
Note: All measurements shown were taken with fan valve fully open.

New Replaceable Electrode

- The prior Vector AAA models did not allow for just the electrode to be replaced
- This was a high maintenance cost to the customer as electrodes are common to break and need serviced in production environments
- This update to the RansFlex AA85 applicator helps keep maintenance costs down for customers
- Screws are removed and assembled using a #1 Phillips head screwdriver



Major Gun Component Breakdown



Carbide Tips & Pre-Orifice Options

Pattern Width Measured 10" from Part	Tip Orifice Size					
	0.23mm 0.009"	0.28mm 0.011"	0.33mm 0.013"	0.38mm 0.015"	0.46mm 0.018"	0.53mm 0.021"
130mm / 5"	*0509	0511	0513			
200mm / 8"		0811	0813			
250mm / 10"	1009	1011	1013	1015	1018	1021
330mm / 13"		1311	1313	1315	1318	
380mm / 15"		1511	1513	1515	1518	1521
430mm / 17"				1715		

Note that the table values for the offered tip sizes are used for both standard and pre-orifice tips. Their part number prefix is what separates their identity. The tips themselves will have differentiated markings to eliminate any confusion with customers.

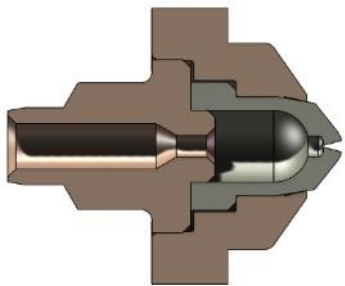
*Fan pattern sizes were measured at 10" target distance with water @ 69 bar (1,000 psi) fluid pressure

*The 0509 (5" pattern & 0.009" orifice) sized tip is only available in the standard tip model

Ordering Standard Tips

80740-XXXX

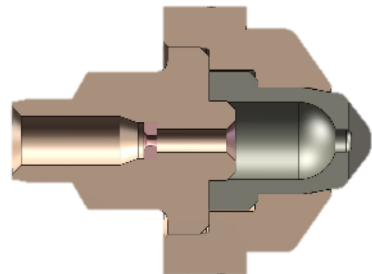
i.e. ordering a 0.013" orifice tip with a 10 inch fan pattern would be PN: **80740-1013**



Ordering Pre-Orifice Tips

80907-XXXX

i.e. ordering a 0.013" orifice tip with a 10 inch fan pattern would be PN: **80907-1013**



Competitive Analysis & Technical Information

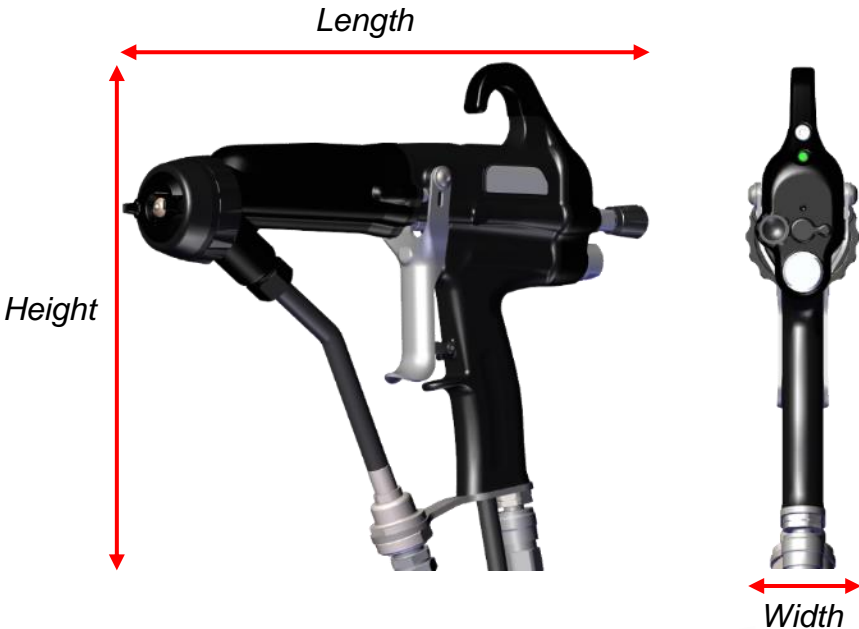
Physical Attributes

Size & Weight Information

Measure	RansFlex AA85	Competitive AAA Model
Applicator Weight	715g / 25.2oz	737g / 26.0oz
Applicator Length	279mm / 11.0in	272mm / 10.75in
Applicator Height	229mm / 9in	229mm / 9in
Applicator Width	51mm / 2in	67mm / 2.63in

Force to Open Air Valve

Inlet Air Pressure	RansFlex AA85	Competitive AAA Model
50psi	1.08 lbs.	1.33 lbs.
60psi	1.05 lbs.	1.61 lbs.
80psi	0.99 lbs.	2.03 lbs.

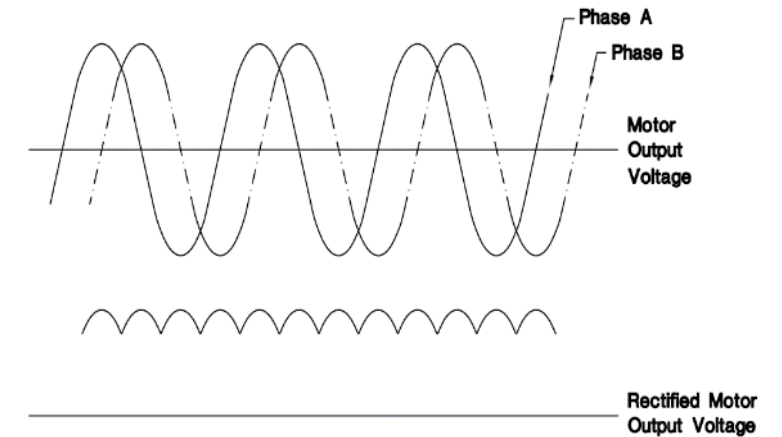


Competitive AAA Model

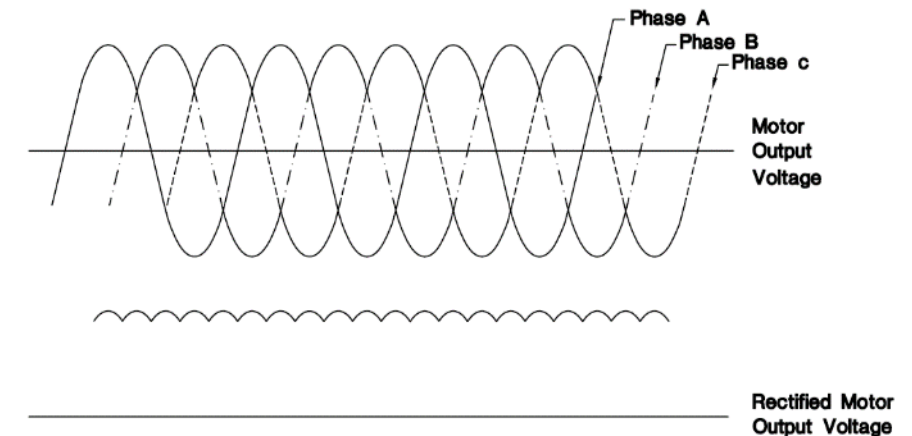
Cascade Charging Method

- Competitive models use a two-phase motor as its alternator
 - This means that the total amount of electrical energy needed to develop the electrostatic charging field must be produced by two windings
 - This requires higher turbine speeds which causes increased vibration and gyroscopic effect.
-
- The RansFlex AA85 uses a three-phase alternator
 - This allows the RansFlex alternator speed to be reduced because there are three windings to produce the electrical power
 - RansFlex has 30% more windings to develop and distribute its power load
 - Increases motor life & decreases vibration**

TWO PHASE MOTOR



THREE PHASE MOTOR



Cascade Durability Testing

- The best way to test cascade durability & life is to put the gun assemblies in a simulated production environment until failure (cascade no longer produces high voltage)
- To simulate this, 4 complete gun assemblies were tested
 - 2 RansFlex AA85 Guns
 - 2 Competitive AAA Guns
- Each gun was mounted to a triggering mechanism with loads of either 1.5 MΩ or 2.5 MΩ connected to each gun's electrode simulating a current draw of a production application spray
- The test was then set up as follows:
 - Guns were supplied with 90psi air inlet pressure
 - The triggering mechanism would cycle the guns on / off for 2 sec intervals exposing the cascade to a zero to max potential a total of 900 cycles/hour
- Twice a week, all 4 guns are tested and examined to understand each gun's cascade performance over time by conducting I.V. curve evaluations
- The following data represents performance degradation of all 4 cascades up to today (4,500 hours or 4M Cycles)

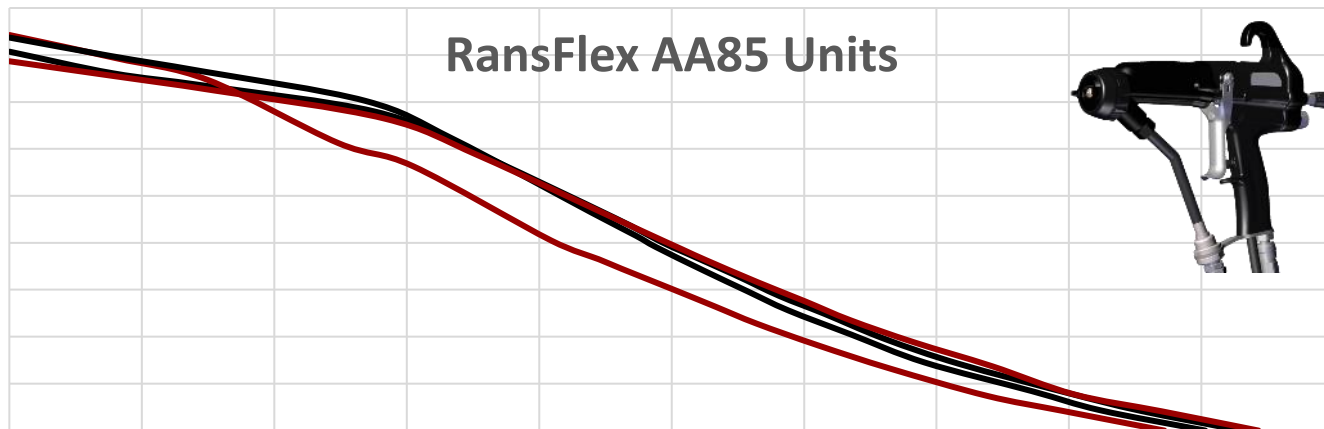
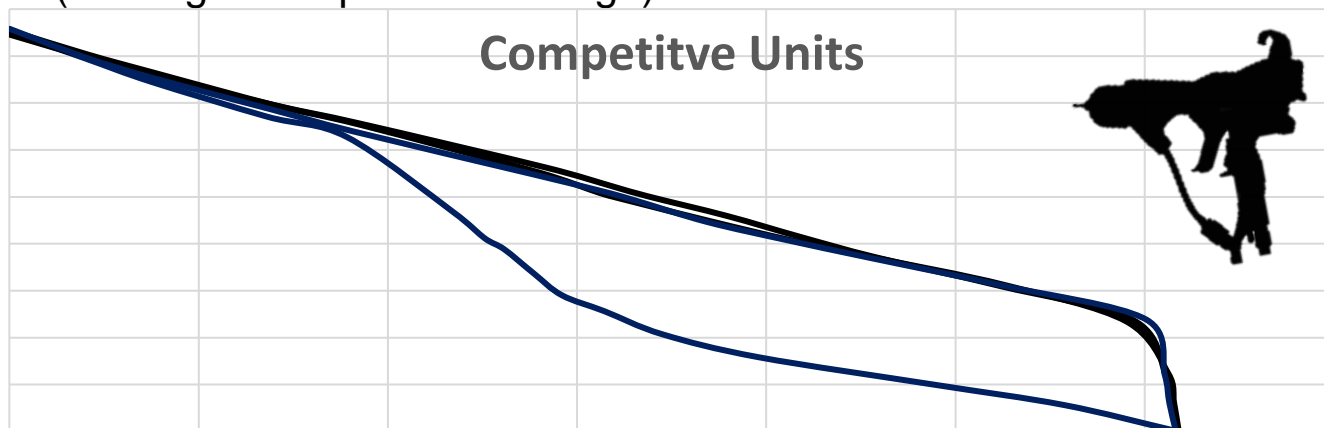


Competitive AAA Model

Cascade Durability Testing

- The goal of this durability test was to confirm the new 85kV cascade had equal-to, or better, cascade life when compared to the leading competitive product
- After 4 million cycles, the RansFlex cascade has proven to be as durable as the competition
- We are continuing to run this test until all 4 cascades fail (no longer can produce voltage)

All 4 Units Tested				
Material Load	Competitive Unit 1 Voltage Loss	Competitive Unit 2 Voltage Loss	RansFlex AA85 Unit 1 Voltage Loss	RansFlex AA85 Unit 2 Voltage Loss
No Load	0%	1%	0%	-6%
10.0 GΩ	-1%	0%	4%	-5%
5.0 GΩ	-2%	-1%	2%	-5%
2.5 GΩ	-3%	-1%	-10%	-5%
1.75 GΩ	-4%	-3%	-7%	-6%
1.0 GΩ	-16%	-2%	-11%	-6%
825 MΩ	-19%	-2%	-9%	-7%
750 MΩ	-21%	-2%	-9%	-7%
600 MΩ	-25%	-3%	-9%	-7%
500 MΩ	-29%	-2%	-8%	-7%
400 MΩ	-31%	0%	-8%	-8%
300 MΩ	-34%	0%	-7%	-8%
200 MΩ	-33%	1%	-7%	-6%
100 MΩ	-20%	0%	-8%	-8%
50 MΩ	-8%	0%	0%	-5%
1 MΩ	0%	0%	0%	0%



Additional Competitive Comments

- The carbide tip in the RansFlex unit is retained in the cap when disassembled preventing the tip from “falling out”
- There is an additional PTFE seal between the fluid nozzle and spray tip preventing leaks around the spray tip and out through the air cap during production
- The RansFlex unit includes an air baffle for better air distribution behind the air cap for more consistent patterns no matter what position the air cap is oriented
- The barrel assembly housing the cascade is rounded so there are reduced corners or creases where overspray becomes harder to clean off during maintenance
- Replacing the fluid filter can be done anytime the fluid supply hose is removed rather than having to loosen the fitting above the bracket
- The RansFlex unit has air adjustment on the rear side of the applicator rather than the profile of the gun for easier fan adjustment to remove cat-tails common with hydraulic atomization

Ordering Information & Pricing

Standard Top Assemblies

- 2 top assemblies will be set up as standard configurations
 - 80885-08105** - 85kV Complete Unit with QD Air Inlet
 - 80885-08100** - 85kV Complete Unit with LH Threaded Air Inlet

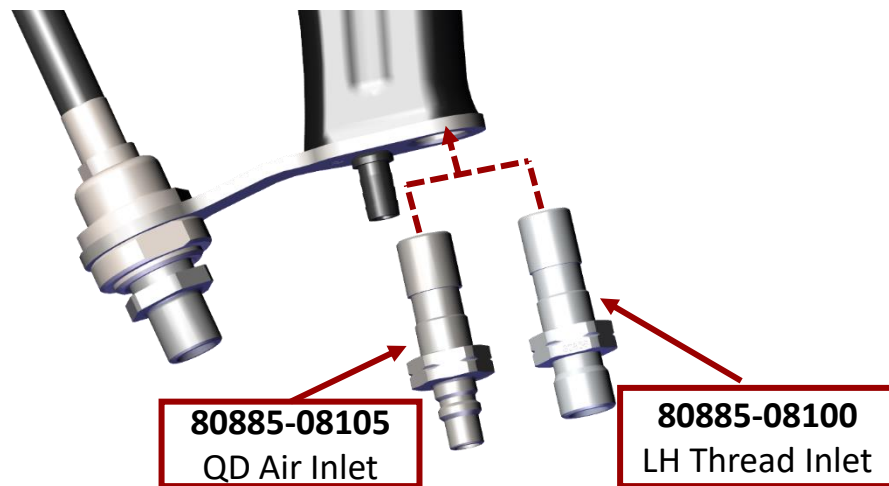
Note: All guns will be packaged with a 1013 carbide tip which is needed for product testing/validation after assembly. This is not included in the pricing of the applicator.

- All accessories including air hose assemblies, fluid hose assemblies, other trigger types, and carbide spray tips will be sold separately keeping overall costs down and easier to order for end user setups with varying setup needs
- 40% of the service components, including air hoses assemblies (80558-**), from the low pressure RansFlex units are shared with the RansFlex AA85 to reduce recommended service part inventories at end users utilizing both low- & high-pressure electrostatic applications

STANDARD GUN KITS AVAILABLE

PART NUMBER	DESCRIPTION	AIR HOSE LENGTH OPTIONS	*REQUIRED AIR HOSE PART NUMBERS
80885-08100	RansFlex AA85 Gun Kit - Standard Air Inlet	5m / 16'	80558-05
		10m / 32'	80558-10
		15m / 50'	80558-15
		20m / 65'	80558-20
80885-08105	RansFlex AA85 Gun Kit - QD Air Inlet	5m / 16'	80558-06
		10m / 32'	80558-11
		15m / 50'	80558-16
		20m / 65'	80558-21

Same air hose assemblies from low pressure RansFlex units



Pricing of Introduced Major AA85 Components

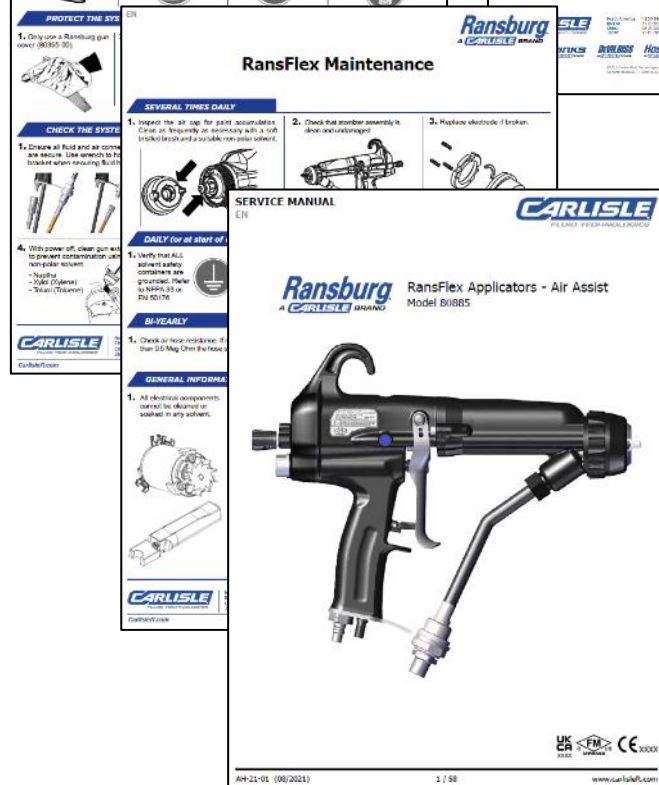
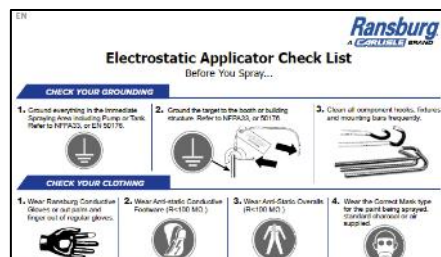
Part Number	Description	Part Type	2022 Americas List Pricing (USD)
80885-08100	Ransflex AA85 Gun Kit - Standard Air Inlet	Top Assembly	\$7,800.00
80885-08105	Ransflex AA85 Gun Kit - QD Air Inlet	Top Assembly	\$7,800.00
80250-85	Replaceable 85kV Cascade Assembly	Spare Part	\$950.00
80731-00	Barrel Assembly	Spare Part	\$1,000.00
80735-00	Complete Air Cap Assembly	Spare Part	\$160.00
80738-00	Replaceable Electrode	Spare Part	\$9.00
80740-****	AA Carbide Spray Tips	Spare Part	\$150.00
80907-****	Fine Finish Carbide Spray Tips	Spare Part	\$175.00
80744-00	Needle Shaft Assembly	Spare Part	\$305.00
80761-00	Fluid Nozzle	Spare Part	\$67.50
80762-00-K3	Nozzle Seal, Kit of 3	Spare Part	\$12.00
80855-00	Fluid Tube Assembly	Spare Part	\$225.00
80904-00	Complete Service Kit	Spare Part	\$175.00

Additional Component Pricing

Part Number	Description	Part Type	2022 Americas List Pricing (USD)
80558-05	5m/16ft. Air-Hose Assembly, LH Thread	Spare Part	\$372.21
80558-10	10m/32ft. Air-Hose Assembly, LH Thread	Spare Part	\$456.86
80558-15	15m/50ft. Air-Hose Assembly, LH Thread	Spare Part	\$540.11
80558-20	20m/65ft. Air-Hose Assembly, LH Thread	Spare Part	\$656.37
80558-06	5m/16ft. Air-Hose Assembly, QD	Spare Part	\$445.86
80558-11	10m/32ft. Air-Hose Assembly, QD	Spare Part	\$533.90
80558-16	15m/50ft. Air-Hose Assembly, QD	Spare Part	\$611.22
80558-21	20m/65ft. Air-Hose Assembly, QD	Spare Part	\$728.89
DSG-4003	Carbide Tip Cleaners (12 Pack)	Spare Part	\$56.72
4SN-4SW	SS Fluid Inlet Swivel (¼" M x ¼" M)	Spare Part	\$91.13
71-8360	3/16" ID x 30" Whip Hose	Spare Part	\$65.39
71-6844	1/8" ID x 36" Whip Hose	Spare Part	\$54.95
80395-00-K10	Disposable Gun Covers (10 Pack)	Spare Part	\$81.55 (\$8.16 ea.)
80395-00-K100	Disposable Gun Covers (100 Pack)	Spare Part	\$708.01 (\$7.08 ea.)

Introduced Selling Tools

- Sell Sheet (05-292-01)
- Maintenance Sheet (IL-554)
- Exploded View Placemat (IL-552)
- Service Kit Component Locations (IL-559)
- Service Manual (AH-21-01)
- Competitive Tip Cross Reference Tool
- Master Pricing Tool
- Top Assembly & Spare Part Images Available in Portal
- Declaration of Conformity EU (IL-557)
- Declaration of Conformity UK (IL-558)



Thank You!!

If you have any additional questions,
please reach out to your Carlisle FT
Representative!



FINISHING
EDUCATION
UNIVERSITY

