

Spray Gun Equipment and Settings Recommendations for STEEL-IT Brand Coatings

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Stainless Steel Coatings, Inc.
Spray Gun Equipment and Settings Recommendations* For
STEEL-IT® Brand Coatings

OVERVIEW

This document provides settings recommendation for eight (8) types of spray gun equipment for use with three (3) STEEL-IT Brand Coatings Systems (i.e., primer and topcoat).

Spray Gun Equipment Types Evaluated

1. Conventional Gravity Feed Air Spray Guns
2. Conventional Pressure Feed Air Spray Guns
3. HVLP Guns
4. Heated HVLP Guns
5. Airmix (“AAA”, or “Air Assisted Airless”) Guns
6. Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns
7. Airless Guns
8. Conventional Siphon Feed Air Spray Guns**

** *Please note: Conventional Siphon Feed Air Spray Guns are not recommended for use with any of the three STEEL-IT Coating Systems considered.*

STEEL-IT Coating Systems Evaluated Using Each Equipment Type

STEEL-IT SYSTEM	COMPRISED OF
Polyurethane	STEEL-IT 2203 Alkyd Primer
	STEEL-IT 1002 Polyurethane Topcoat
Epoxy	STEEL-IT 4210 Epoxy Primer
	STEEL-IT 4907 Epoxy Topcoat
High Solids Epoxy	STEEL-IT 4220 High Solids Epoxy Primer
	STEEL-IT 4908 High Solids Epoxy Topcoat

*Actual settings may differ due to equipment manufacturer, altitude, or weather conditions. However, these recommendations should provide a solid starting point.

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STEEL-IT Polyurethane System

- **STEEL-IT 2203 Alkyd Primer**

Conventional Gravity Feed Air Spray Guns

- Transfer Efficiency (est.) 20%
 - Fluid nozzle: 2.2 mm
 - Flow rate:
 - Without atomizing air: 2 oz./min.
 - With atomizing air: 4 oz./min.
 - Air pressure: 70 psi (high, but not uncommon for viscous coatings)

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 20%
 - Fluid nozzle: 1.8 mm (with ¼" fluid hose)
 - Flow rate: 4 oz./min.
 - Fluid nozzle: 2.2 mm (with 3/8" fluid hose)
 - Flow rate: 6 oz./min.
 - Air pressure: 70 psi (high, but not uncommon for viscous coatings)
 - Fluid pressure on pot 70 psi

Heated HVLP Guns

- Transfer Efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate 4 oz./min.
 - Fluid pressure on pot: 40psi
 - Inline heater temp: 110° F

Airmix ("AAA", or "Air Assisted Airless") Guns

- Transfer efficiency (est.) 75%
 - Tip: .015
 - Flow rate: 10 oz./min.
 - Fluid pressure: 1000 psi.
 - Air pressure when triggered: 10 psi.

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- **STEEL-IT 2203 Alkyd Primer (cont.)**

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Transfer Efficiency (est.) 85%
 - Tip: .015”
 - Flow rate: 10 oz./min.
 - Fluid pressure: 800 psi
 - Air pressure when triggered: 10 psi
 - Inline heater temperature: 110° F

Airless Guns

- Transfer Efficiency (est.) 45%
 - Tip: .016 airless
 - Flow rate: 20 oz./min.
 - Fluid pressure when triggered: 2000 psi

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns

- With either a 1.8 mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

HVLP Guns

- At the EPA recommended limit of 10 psi at the air cap, atomization is unacceptable, even at rates as low as 4 oz./min.

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- **STEEL-IT 1002 Polyurethane Topcoat**

Conventional Gravity Feed Air Spray Guns

- Transfer efficiency (est.) 25%
 - Fluid nozzle: 2.2-2.7 mm
 - Flow rate:
 - Without atomizing air: 3 oz./min.
 - With atomizing air: 6 oz./min.
 - Air pressure: 60 psi (high, but not uncommon for viscous coatings)

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 30%
 - Fluid nozzle: 1.8 mm with ¼" fluid hose
 - Flow rate 6 oz./min.
 - Air pressure 40 psi
 - Fluid pressure on pot: 50 psi

Heated HVLP Guns

- Transfer efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate: 8 oz./min.
 - Fluid pressure on pot: 40 psi
 - Inline heater temp: 110°F

Airmix ("AAA", or "Air Assisted Airless") Guns:

- Transfer efficiency (est.) 80%
 - Tip: .015
 - Flow rate: 14 oz./min.
 - Fluid pressure: 1000 psi.
 - Air pressure when triggered: 10 psi.

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- **STEEL-IT 1002 Polyurethane Topcoat (cont.)**

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Transfer efficiency (est.) 80%
 - Tip: .015
 - Flow rate: 16 oz./min.
 - Fluid pressure: 1000 psi.
 - Air pressure when triggered: 10 psi
 - Inline heater temperature: 110° F

Airless Guns

- Transfer efficiency (est.) 50%
 - Tip: .016 airless
 - Flow rate: 18 oz./min.
 - Fluid pressure when triggered: 1000 psi

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns:

- With either a 1.8mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

HVLP Guns

- At the EPA recommended limit of 10 psi at the air cap, atomization is unacceptable, even at rates as low as 4 oz./min.

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STEEL-IT Epoxy System

- **STEEL-IT 4210 Epoxy Primer**

Conventional Gravity Feed Spray Guns

- Transfer Efficiency (est.) 30%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 2 oz./min.
 - With atomizing air: 4 oz./min.
 - Air pressure: 40 psi

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 30%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 4 oz./min.
 - With atomizing air: 6 oz./min.
 - Air pressure 40 psi

Heated HVLP Guns

- Transfer efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate: 6 oz./min.
 - Air pressure
 - When triggered: 10 psi
 - On pot: 40 psi
 - Inline heater temp: 110° F

Airmix (“AAA”, or “Air Assisted Airless”) Guns

- Transfer efficiency (est.) 60%
 - Tip: .015
 - Flow rate: 18 oz./min.
 - Fluid pressure: 1800 psi
 - Air pressure when triggered: 15 psi

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- **STEEL-IT 4210 Epoxy Primer (cont.)**

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Transfer efficiency (est.) 70%
 - Tip: .015
 - Flow rate: 16 oz./min.
 - Fluid pressure: 1500 psi
 - Air pressure when triggered: 12 psi
 - Inline heater temperature: 110° F

Airless Guns

- Transfer efficiency (est.) 40%
 - Tip: .016 airless
 - Flow rate: 21 oz./min.
 - Fluid pressure when triggered: 2400 psi

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns:

- With either a 1.8 mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

HVLP Guns

- At the EPA recommended limit of 10 psi at the air cap, atomization is unacceptable, even at rates as low as 4 oz./min.

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- **STEEL-IT 4907 Epoxy Topcoat**

Conventional Gravity Feed Spray Guns

- Transfer Efficiency (est.) 20%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 2 oz./min.
 - With atomizing air: 4 oz./min.
 - Air pressure: 40 psi (high, but not uncommon for viscous coatings)

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 20%
 - Fluid nozzle: 1.8 mm with ¼" fluid hose
 - Flow rate: 4 oz./min.
 - Fluid nozzle: 2.2 mm with 3/8" fluid hose
 - Flow rate: 6 oz./min.
 - Air pressure: 40 psi
 - Fluid pressure on pot: 40 psi

HVLP Guns

- Transfer efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate: 4 oz./min.
 - Atomizing air pressure when triggered: 10 psi
 - Fluid pressure on pot: 50 psi

Airmix ("AAA", or "Air Assisted Airless") Guns

- Transfer efficiency (est.) 70%
 - Tip: .015
 - Flow rate: 15 oz./min.
 - Fluid pressure: 1000 psi
 - Air pressure when triggered: 15 psi

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- **STEEL-IT 4907 Epoxy Topcoat (cont.)**

Airless Guns

- Transfer efficiency (est.) 40%
 - Tip: .016 airless
 - Flow rate: 28 oz./min.
 - Fluid pressure when triggered: 2000 psi

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns:

- With either a 1.8 mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

Heated HVLP Guns

- Even at 110° F, the raised temperature may lead to micro-popping/solvent-popping, with a noticeable loss of gloss

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Even at 110° F, the raised temperature may lead to micro-popping/solvent-popping, with a noticeable loss of gloss

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- **STEEL-IT 4220 High Solids Epoxy Primer**

Conventional Gravity Feed Spray Guns

- Transfer Efficiency (est.) 30%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 2 oz./min.
 - With atomizing air: 4 oz./min.
 - Air pressure: 40 psi

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 30%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 4 oz./min.
 - With atomizing air: 6 oz./min.
 - Air pressure: 40 psi
 - Fluid pressure on pot: 40 psi

Heated HVLP Guns

- Transfer efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate: 6 oz./min.
 - Air pressure
 - When triggered: 10 psi
 - On pot: 40 psi
 - Inline heater temp: 110° F

Airmix (“AAA”, or “Air Assisted Airless”) Guns

- Transfer efficiency (est.) 60%
 - Tip: .015
 - Flow rate: 18 oz./min.
 - Fluid pressure: 1800 psi
 - Air pressure when triggered: 15 psi

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- **STEEL-IT 4220 High Solids Epoxy Primer (cont.)**

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Transfer efficiency (est.) 70%
 - Tip: .015
 - Flow rate: 16 oz./min.
 - Fluid pressure: 1500 psi.
 - Air pressure when triggered: 12 psi
 - Inline heater temperature: 110° F

Airless Guns

- Transfer efficiency (est.) 40%
 - Tip: .016 airless
 - Flow rate: 21 oz./min.
 - Fluid pressure when triggered: 2400

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns:

- With either a 1.8 mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

HVLP Guns

- At the EPA recommended limit of 10 psi at the air cap, atomization is unacceptable, even at rates as low as 4 oz./min.

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- **STEEL-IT 4908 High Solids Epoxy Topcoat**

Conventional Gravity Feed Spray Guns

- Transfer Efficiency (est.) 20%
 - Fluid nozzle: 2.2 – 2.7 mm
 - Flow rate:
 - Without atomizing air: 2 oz./min.
 - With atomizing air: 4 oz./min.
 - Air pressure: 40 psi

Conventional Pressure Feed Air Spray Guns

- Transfer efficiency (est.) 20%
 - Fluid nozzle: 1.8 mm with ¼" fluid hose
 - Flow rate: 4 oz./min.
 - Fluid nozzle: 2.2 mm with 3/8" fluid hose
 - Flow rate: 6 oz./min.
 - Air pressure: 40 psi
 - Fluid pressure on pot: 40 psi

HVLP Guns

- Transfer efficiency (est.) 60%
 - Fluid nozzle: 1.8 mm
 - Flow rate: 4 oz./min.
 - Atomizing air pressure when triggered: 10 psi
 - Fluid pressure on pot: 50 psi

Airmix ("AAA", or "Air Assisted Airless") Guns

- Transfer efficiency (est.) 70%
 - Tip: .015
 - Flow rate: 15 oz./min.
 - Fluid pressure: 1000 psi
 - Air pressure when triggered: 15 psi

*Actual settings may differ due to equipment manufacturer, altitude, or weather conditions. However, these recommendations should provide a solid starting point.

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- **STEEL-IT 4908 High Solids Epoxy Topcoat (cont.)**

Airless Guns

- Transfer efficiency (est.) 40%
 - Tip: .016 airless
 - Flow rate: 28 oz./min.
 - Fluid pressure when triggered: 2000 psi

NOT RECOMMENDED

Conventional Siphon Feed Air Spray Guns:

- With either a 1.8 mm or 2.2 mm fluid nozzle, the product is too viscous to siphon smoothly, unless excessive pressures (90+ lbs) are used.

Heated HVLP Guns

- Even at 110° F, the raised temperature may lead to micro-popping/solvent-popping, with a noticeable loss of gloss

Heated Airmix (“Heated AAA”, or “Heated Air Assisted Airless”) Guns

- Even at 110° F, the raised temperature may lead to micro-popping/solvent-popping, with a noticeable loss of gloss

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