



Application Instructions

STEEL-IT 1051 Polyurethane Topcoat – Light Gray

System

- 2 coats STEEL-IT 1050 Polyurethane Topcoat – Light Gray at 3 mils (0.003”; 75 microns) Dry Film Thickness (DFT) per coat, for a total of 6 mils (0.006”; 150 microns) DFT
- For harsh conditions, a 3rd coat is recommended for a total of 9 mils (0.009”; 225 microns) DFT
- A single coat is 8 mils (0.008”; 205 microns) Wet Film Thickness (WFT) and dries to 3 mils (0.003”; 75 microns) DFT.

Surface Preparation

STEEL-IT coatings adhere to metal surfaces through mechanical adhesion and require a rough profile on the bare metal – ideally achieved by grit-blasting or power-sanding. The surface once properly prepared should feel like the striking area on a matchbox.

- Surfaces should be clean and free of all rust, paint, greases, waxes, salts, dirt, etc.
- For best results, grit-blast to SSPC SP-6 (Commercial Blast).
- Anchor pattern should be cut and angular at 1.5 - 2.0 mils deep (0.0015” – 0.0020”; 38-50 microns).
- Power-sanding with a dual-action sander or random orbital sander using #36 grit sandpaper will achieve similar results on steel. After grit-blasting, blow any remaining grit material off using an air hose and/or solvent clean the surface with acetone or alcohol. Avoid using products that leave behind an oily residue (such as mineral spirits).

Ambient Conditions

- Apply when ambient and substrate surface temperatures are 50 °F -120 °F (10 °C - 49 °C)
- Relative humidity less than 85%
- Temperature of substrate surface and coating are at least 5 °F (2.75 °C) above the dew point.
- Climate conditions (e.g. high humidity or high aridity) will impact coating dry/cure time. Longer cure times may be necessary for higher humidity or colder climates. Spraying speed and technique may need to be adjusted.

Agitation

- Power agitate the can for 5 minutes with a mechanical paint shaker.
- This can also be accomplished using a mechanically driven paddle at the end of a drill, for example. Hand stirring using a wooden stick will not provide sufficient agitation to properly prepare STEEL-IT for application.

Thinning

- If agitated properly, STEEL-IT coatings should not require thinning with solvents before use. Adding thinner or reducer is highly discouraged because they increase the chance of trapping solvents and may negatively affect the coating’s proper drying and curing processes.
- A very limited amount of mineral spirits can be added if thinning is absolutely necessary - do not dilute the coating more than 5%.

Application Method

- Spray from a distance of 12-16” (30-40 cm) making multiple passes to achieve proper coating wet film build.
- Overlap the spray paint pattern by 50%
- Adjust the application speed according to climate conditions.

1st COAT

AMOUNT TO APPLY:	8 mils (0.008”; 205 microns) Wet Film Thickness (WFT)
AIR DRY TIME AFTER APPLICATION:	4 – 24 hours

2nd COAT

AMOUNT TO APPLY:	8 mils (0.008”; 205 microns) Wet Film Thickness (WFT)
AIR DRY TIME AFTER APPLICATION:	5-7 days



Additional Coats

If applying additional coats for enhanced durability:

- Allow 2nd Coat to cure for 4-24 hours
- Apply 3rd Coat as above
- Air Cure after final coat for 5-7 days

Wet/Dry Film Build

- For each coat, apply 8 mils (0.008"; 205 microns) Wet Film Thickness (WFT) to achieve 3 mils (0.003"; 75 microns) DFT per coat.
- Use a Wet Film Thickness Gauge when the coating is wet to measure film build per coat during application.
- For proper performance, the end total DFT of STEEL-IT coating applied should be 6 mils (0.006"; 150 microns) DFT.
- For parts exposed to harsher conditions, we recommend achieving 9 mils (0.009"; 225 microns) total DFT.
- We do not recommend using an electronic gauge to measure Dry Film Thickness. For an explanation, please refer to the FAQs on STEEL-IT.com

Recommended Spray Gun Equipment

This section provides settings recommendations for commonly used types of spray gun equipment for use with STEEL-IT 1050 Polyurethane Topcoat – Light Gray.

- Actual settings may differ due to equipment manufacturer, altitude, or weather conditions. In some cases, it may be necessary to use a slightly narrower fluid nozzle or tip. Please adjust spraying as necessary for the proper wet film build and even coats.
- **NOT RECOMMENDED:** Conventional Siphon Feed Air Spray Guns; HVLP Guns; or Heated HVLP Guns

Conventional Gravity Feed Air Spray Guns	Transfer Efficiency (est.):	Fluid Nozzle:	Air Pressure:
	25%	2.2 - 2.7 mm	60 psi
Notes From The Spray Gun Testers:	Fpro G Manual Airspray Gravity Spray Gun used with conventional air cap and a 2.2mm fluid nozzle with the cup strainer removed. The fluid nozzle and lack of strainer restriction resulted in enough fluid flow at the current viscosity to achieve a 2.5-3 inch-wide pattern using 60 psi (dynamic) of atomization air. Though restricted at this viscosity, the Fpro G could be a potential applicator choice as a low-cost option for touch-ups or small hobbyist projects.		

Conventional Pressure Feed Air Spray Guns	Transfer Efficiency (est.):	Fluid Nozzle:	Air Pressure:
	30%	1.8 mm	60 psi
Notes From The Spray Gun Testers:	Fpro P Airspray Manual Spray Gun used with conventional air cap and a 1.8mm fluid nozzle. 60psi (dynamic) of fluid pressure from the Prima 1:1 diaphragm pump allowed for maximum flow at viscosity of approximately 140cc/m. With 45 psi (dynamic) of atomization air, a 5-6.5 inch-wide pattern was achieved. Using the larger 2.3mm or 2.7mm fluid nozzles and a higher atomization air (to the higher side of conventional), you will be able to achieve a larger pattern with the same fluid pressure. With higher flowrates and longer continuous use, the Fpro P in the conventional configuration would be a step-up in cost, but also improved performance and efficiency compared to the Fpro G.		

Airmix ("AAA", or "Air Assisted Airless") Guns	Transfer Efficiency (est.):	Tip:	Fluid Pressure:	Air Pressure When Triggered:
	80%	0.015" and 24VX HVLP air cap	1000 psi (dynamic)	12.5 psi (dynamic)

Notes From The Spray Gun Testers:	Airmix Xcite+ manual paint spray gun used with a 12-094 (0.015") tip, a 24VX HVLV air cap, and a 100 mesh in gun filter. 1000 psi (dynamic) of fluid pressure from a 30c25 3:1 piston pump providing 440cc/m of fluid flow. With 10 psi (dynamic) of atomization air, achieved a 5-6 inch-wide pattern while staying within HVLV compliance at the air cap. The Xcite+ provides a wider range of usable spray patterns utilizing similar tip orifice size with different available tip spray angles. The tip size and pressure parameters tested worked well in the middle ground of Airmix fluid pressures, allowing flexibility with the application.
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Heated Airmix ("Heated AAA", or "Heated Air Assisted Airless") Guns	Transfer Efficiency (est.):	Tip:	Fluid Pressure:	Air Pressure When Triggered:
	80%	0.015"	1000 psi (dynamic)	10 psi
Notes From The Spray Gun Testers:	Xcite+ used with a 12-094 (0.015") tip, a 24VX HVLV air cap, and a 100 mesh in gun filter. 1000 psi (dynamic) of fluid pressure from a 30c25 3:1 piston pump providing 500cc/m of fluid flow. With 10 psi (dynamic) of atomization air, achieved a 5-6.5 inch-wide pattern while staying within HVLV compliance at the air cap. The Xcite+ with the lower viscosity (30 seconds EZ Zahn#4) of the heated material achieves even more flexibility with the application.			

Airless Spray Guns	Transfer Efficiency (est.):	Tip:	Fluid Pressure When Triggered:
	50%	0.015" Tip Top reversible tip	2000 psi (dynamic)
Notes From The Spray Gun Testers:	SFlow Airless Paint Sprayer used with a 12-13 (0.015") Tip Top reversible tip and a 100mesh in gun filter. 2000 psi (dynamic) of fluid pressure from a 40c100 40:1 piston pump providing 700cc/m of fluid flow. With the 12-13 tip, the pattern was 8-9.5 inches wide. The pattern size could easily be changed with larger or smaller tip orifice sizes and tip spray angles. The SFlow would be a good applicator choice for its ease of use, possible fluid flowrates, and the easy to clean reversible tip at a loss of transfer efficiency over the Airmix technology.		

Dry Time and Recoat Windows

- Dry to touch: 2 hours
- Tack-free to handle: 4 hours
- Dry to recoat window: 4-24 hours
- If more than 24 hours passes between coats, a light scuff-sanding using #400-600 grit sandpaper is required before applying an additional coat

Curing

- **Full cure in 5-7 days after final coat**
- Recommended cure time can vary based on ambient temperature and humidity.
- Air cure with ambient and substrate surface temperatures of 50 °F -120 °F (10 °C - 49 °C)
- Heating to expedite curing time is not recommended and may interfere with proper cure.
- Cure time required before part can be packaged or put into service depends on how the part will be used. Please refer to FAQs on STEEL-IT.com for details.
- Cure and corrosion resistance is accelerated initially and will continue to improve over 4-6 week period

Welding	<ul style="list-style-type: none">• Allow a full 7-days cure before welding• TIG or MIG welding• Seamless touch-up with STEEL-IT Polyurethane Aerosol
Safety	<ul style="list-style-type: none">• Wear a NIOSH-approved respirator with an organic vapor cartridge• Use nitrile gloves• Apply STEEL-IT in a well-ventilated area
Cleanup	<ul style="list-style-type: none">• Use mineral spirits for clean up

Properties

Property	STEEL-IT 1051 Liquid
Color	Light Gray, satin finish
Weight (calculated)	10.3 ± 0.3 lbs/gal (4.7 Kg/gal)
Coverage @ 3 mil (0.003"; 75 microns) DFT*	188 sq ft/gal (17.5 sq m/gal)

* Values assume 20% loss due to overspray.

Safety Data Sheets (SDS) and Technical Data Sheets (TDS) available online at: [STEEL-IT.com](https://steel-it.com)

Please contact us to discuss your specific application needs: contactus@steel-it.com

All users are responsible for conducting testing to determine the suitability of STEEL-IT Brand Coatings for the specific requirements of their applications.

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