

Plasma Surface Activation System

Atmospheric Plasma Technologies (Cool Plasma)



PSA110/210/310/410

Configuration

1, 2, 3 or 4 heads

Operating
temp. range

22°C ~ 40°C

Working
distance

4 -20 mm

Promotes superior adhesion of inks and dyes, coatings, and adhesives

■ Features

● Fast production speed

- Modular design enables production lines to operate at high speeds while lowering operating costs. Line speeds of 80fpm for HDPE pipe treatment - 2x the incumbent plasma technology!
- Integrates seamlessly into automated lines with its robust, industrial design that features no moving parts, delivering consistent, hassle-free performance, shift after shift.

● Multiple head configuration options

- Option for a **one, two, three, or four** head configuration to accommodate manufacturing needs
- Each plasma head is independently controlled via a central control panel and can be switched on and off locally or remotely
- Treats widths up to 25mm and is suited for a variety of surfaces. We can span any width needed.

● Patented cool plasma technology: 40°C operating temperature

- Generates powerful chemical surface reactions that enhances the bond strength between challenging substrates and adhesives, resulting in improved integrity and durability of composites.
- Runs cool with no risk of harmful electric shock. Its low temperature prevents substrate damage.
- Improved operator safety: no arcs, burns or melting

● Robust equipment design

- Less required maintenance than competing systems, delivering consistent and hassle-free performance
- Tested and proven to be reliable in 24/7 commercial settings

● Scalable and customizable to products of varied shapes and widths

- Offers wide-width options and flexibility in design to fit customers' process



PSA Series surface treatment system improves the surface chemistry of difficult materials eliminating the need for heat or chemicals for substrate preparation prior to dyeing, printing, and application of coatings and adhesives.

The cool plasma process increases wettability and adhesion while reducing safety risks, reducing environmental impact and preventing degradation of the substrate material.



■ Specifications

Model	PSA SERIES	
Operating temperature	22°C - 40°C	
Treatment width	38 -152 mm	
Main power	208V, 3p, 60Hz, 20A 220V, 3p, 50Hz, 20A	
Output voltage / power	900 W per head	
Control interface	Manual local control Automatic remote control	
Control panel (WxDxH)	20 x 8 x 20 in	
Head dimensions (WxDxH)	4 x 6.5 x 2 in Each head covers 1.5 square inch of surface area	
Compressed air	60 psi, 30 slpm per head	
Model number / No. of heads	PSA110	1
	PSA210	2
	PSA310	3
	PSA410	4
External dimension (WxDxH)	32 x 20 x 42 in	
Weight (lbs.) Cabinet with casters for easy maneuverability	PSA110	160
	PSA210	195
	PSA310	230
	PSA410	265

Key Existing Markets

The market for plasma surface treatment systems is driven by expanding applications across diverse industries and accelerated technological progress.

Building Materials

Adhesive Bond Strength

Improvement: Building materials include a wide range of products from doors and windows to wallboard. Bond strength between adhesive and the many components of these products can be drastically improved with plasma.

Common materials include fiberglass, polyester, glass, polyethylene, and metal.

Automotive / Assembly

Adhesive Bond Strength:

The automotive and assembly industries have begun incorporating lighter weight plastics and these require plasma activation to improve adhesive bond strength to acceptable levels.

Common materials include polypropylene, polyethylene, and polyester.

Composites

Resin Adhesion:

The composites industry requires excellent adhesion between layered fibers/fabrics and resin.

Common materials benefitting from plasma treatment include fiberglass and carbon as well as specialty materials such as aramids, PEEK, and other plastics

HDPE Pipe

Improved Printability:

HDPE is a very inert material which requires plasma surface treatment to adhere to ink for proper identification, safety labeling.

HDPE pipe is used for ground water, cable, and other underground uses. PE is used in a variety of other industries including medical, packaging, electrical insulation, as well as nets, toys, garbage containers, and other small parts like pens.

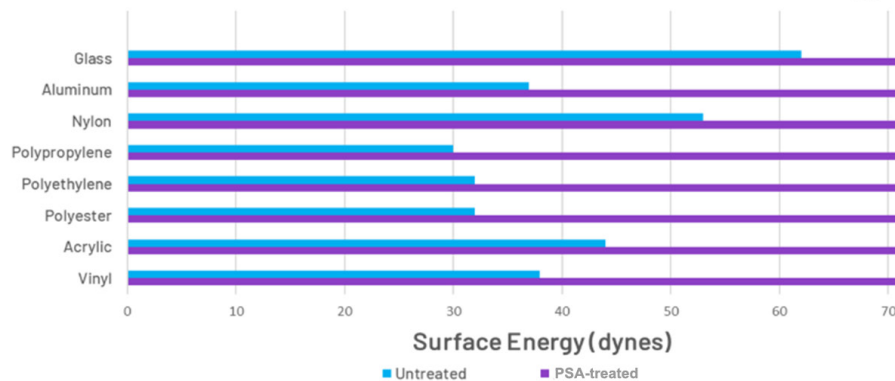
Performance Data

PSA Series plasma technology improves surface chemistry of difficult materials, allowing for better printability, better wetting, improved adhesion of coatings, and stronger bond strength of adhesives and glues.

Improved wettability and printability

Many substrates have low surface energy, meaning they are difficult to wet, resist printing, and do not adhere or bond well to adhesives or coatings. *Treatment with the PSA Series cool plasma solves these problems, increasing surface energy, creating a wettable, printable surface that adheres well to coatings.*

Yamato PSA Increased Surface Energy

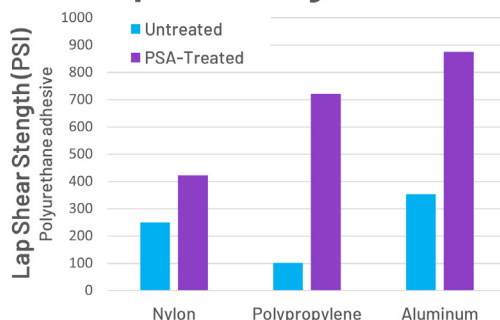


Increased adhesion and strength

In many applications, the increased bond strength allows solvent-based adhesives to be replaced with water-based adhesives, saving money and resulting in a more environmentally-friendly product.

PSA Series

Lap Shear Strength of Plastics



PSA Series

Lap Shear Strength of Fabrics

