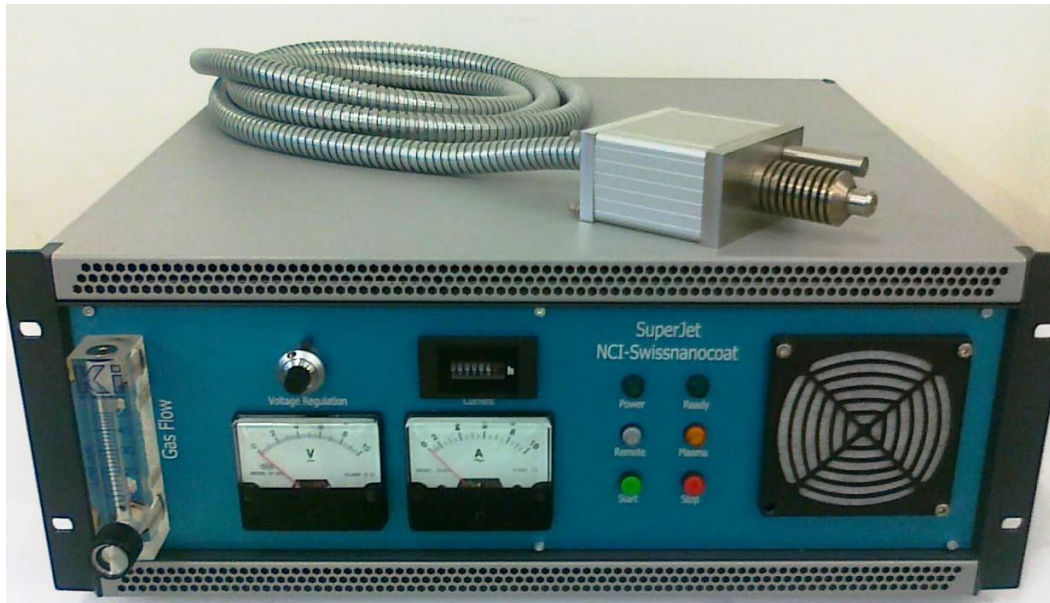


“SuperJet”- Bonding Improver

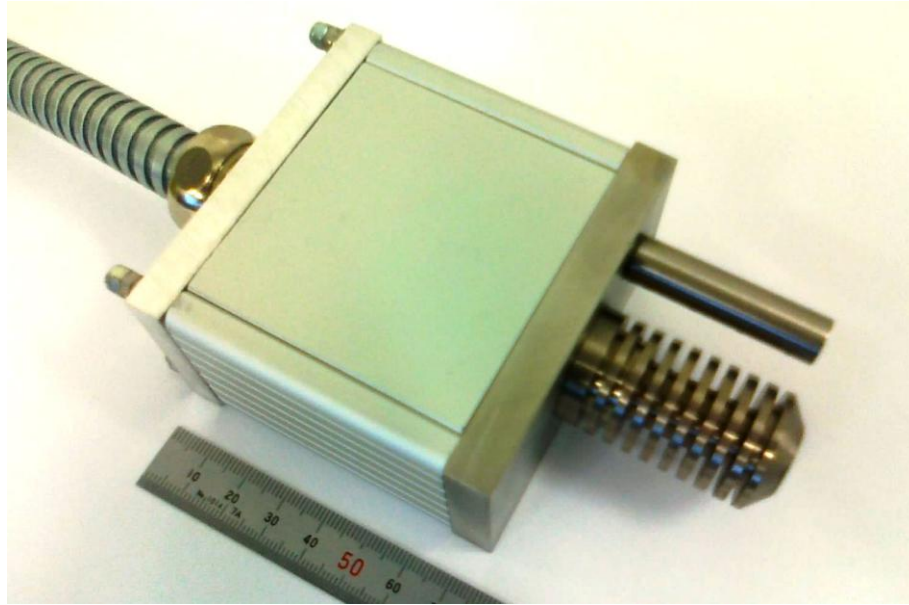
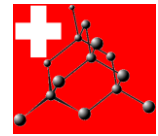
Atmospheric Pressure Plasma Device

**Ideal Solution for In-Line Fine Surface Cleaning,
Highest Activation and Coating**



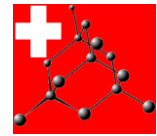
The wide range of applications **SuperJet**- Plasma technology is almost unlimited in all sectors of industrial production. Materials such as plastic, metal, glass or textiles are efficiently and effectively cleaned, activated or coated with the aid of **NCI-Swissnanocoat**'s atmospheric-pressure plasma. Plasma replaces chemistry cleaner, primer and mechanical brushing processes. **Super Jet**-Technology is easy to integrate in production lines, highly efficient and cost effective for 3D parts as well as for extruded profiles and films. As a result of the use of **SuperJet** plasma technology the surface energies of plastics, metals or glass are multiplied by a significant factor. In this way the surfaces become receptive to process steps such as coating, applying print or adhesive bonding.

Typical fields of application of **NCI-Swissnanocoat**'s atmospheric-pressure plasma in processing include adhesive bonding, printing, painting and two-component extrusion. In all fields of industrial application materials such as plastics, metals, glass, textiles or films are adhesively bonded, printed upon or painted. The joining of two different materials to achieve novel and unique properties in a product presents particular challenges that **NCI-Swissnanocoat**'s technology is uniquely equipped to solve. **NCI-Swissnanocoat**'s plasma technology can be used in all sectors of industry ranging from packaging, printing and household appliances through medical technology, electronics, textiles, and to the automotive, shipbuilding and aviation industries.



SuperJet versus Competitors

| | <i>SuperJet</i> | OpenAir | PlasmaBeam |
|----------------------------|------------------------|----------------|-------------------|
| Power per Jet, W | 500, 1500, 3000 | 1000 | 300 |
| Power Regulation | Yes | Yes | No |
| Cable Length, m | up to 15 | 3 | 3 |
| Plasma Head Dimensions, mm | 115x75x40 | Ø 45 x 280 | Ø 32 x 270 |
| Plasma Head Weight, kg | 0.55 | 1.5 | 0.6 |
| Cable OD, mm | 17 | 30 | 12 |
| Gas Flow | variable | fixed | fixed |
| Dynamic Pressure | variable, 0.5-6 bar | low | low |
| Dusty Surface Treatment | Yes | No | No |
| Oil Removing | Yes | No | No |
| Heating if needed | Yes | No | No |
| Jet Temperature | variable | fixed | fixed |
| Jet Length, mm | up to 70 | up to 40 | up to 20 |
| Activation, mN/m | up to 105 | up to 72 | up to 72 |
| Cooling | Air | Air | Air |
| Different Nozzles Set | Yes | Yes | No |



NCI-Swissnanocoat's atmospheric-pressure plasma technology is commercialized during the last year:

| Application | Prior to | Short Description |
|-------------|------------------|---|
| Automotive | Gluing | Electrical Motors and other Parts Assembling |
| Automotive | Coating | SiOx anticorrosive coating, up to 1000 nm, Al- and Steel Coolers |
| Watch | Coating | Steel Bands, 20 mm width, up to 400 mm/s |
| Medical | Gluing | Packaging, Plastic/Carton, up to 600 m/min |
| Electronics | Compound Filling | Adhesive Improvement, Compound Filling for Electronics High Voltage Modules, Encapsulating and Sealants |
| Electronics | Deposition | Multilayer's PCB, Epoxy and silicon coating |
| Electronics | Deposition | High power and high voltage chips, Insulation coating |
| Electronics | Painting | Cables and pipes markers, up to 1 m/min |

Highlights and Advantages:

- ✓ Instance surface cleaning, activation and coating
- ✓ Very high effective bonding improvement
- ✓ Potential-free and current-free pretreatment without damaging surfaces
- ✓ No electromagnetic and no UV radiations
- ✓ « In-Line » surface treatment
- ✓ Easy integration in to existing industrial lines
- ✓ 3-D Robotic Surface Treatment
- ✓ Wide range of power and gas flow regulation
- ✓ High flexibility of process and the equipment
- ✓ Simultaneous cleaning, activation and removal of an electrostatic charge
- ✓ Highest surface energy > 100 mN/m
- ✓ Highest processing speed, up to 1000 m/min
- ✓ Cleaning plus surface heating if needed
- ✓ Dusty surface can be treated
- ✓ Small dimensions plasma generator design
- ✓ Long plasma jet
- ✓ Low costs level and the low price

With the plasma systems developed by **NCI-Swissnanocoat** the most varied tasks in the surface pretreatment of materials can be carried out. The **NCI-Swissnanocoat** process is a particularly environmentally friendly process since when it is used no forms of environmental pollution or risks to health due to noxious substances and chemicals arise. Expensive enclosed chamber systems are not necessary. Simple in-line integration of **NCI-Swissnanocoat** plasma is possible by means of robot systems.