IBIX®
INDUSTRIAL
More and more committed to the Oil&Gas Industry

SPARTACUS
OIL&GAS

The Perfect Flame Spray Coating System For Pipe Contractors
High Performance and Versatility in a Compact System

NEW!
SPARTACUS
SEMI-AUTOMATIC

High performance Flame Spray Technology for PP & PE Coatings for the Oil & Gas Industry

Field-applied Flame Sprayed PP & PE coatings using selected PP & PE powder grades (e.g. Plascoat PP10 and Plascoat FSPE) are virtually the same as the factory-applied protective layers on the pipe and will form a perfect homogenous bond with the pipe body coating.
The result is a fully melted coating fused with the existing polyolefin on the pipe body forming a homogeneous coating that will provide unsurpassed, cost-effective protection of your field joints.
In addition, factory applied Spartacus flame sprayed coatings lead to a faster process and the system is also ideal for 3LPP (3 Layer Polypropylene), 3LPE (3 Layer Polyethylene), coating of bends, buckle arrestors and custom fittings.

MAIN FEATURES AND TECHNICAL DATA

Overall Dimensions:

WIDTH:	**700 mm (27.56 inch.)**
LENGTH:	**650 mm (25.59 inch.)**
HEIGHT:	**1050 mm (41.34 inch.)**
WEIGHT:	**80 Kg (176.4 lb)**

- Compact, portable and light-weight;
- Easy to use, reliable and robust, minimal maintenance requirements;
- Very high powder flow feeding system;
- Large wheels for easier transport on rough terrain;
- Only requires Dry compressed air and LPG:
  - Minimum **AIR** requirement: 1000 l per minute (40 cfm); dried, cool air; 6 bar constant pressure;
  - **LPG** - minimum propane content: 50%-60%; minimum pressure: 3 bars constant.
- Quick connect, colour coded hoses to machine;
- Powder volume controls on the machine (a guideline to recommended settings is available upon request).

New: Gas Flow-meter for easier and consistent gas flow rate setting of the various guns

Powder Volume Control Unit

VARIOUS GUN SIZES for all operations

- Large gun - suitable for larger diameter pipe joints, bends,buckle arrestors;
- Medium gun - suitable for smaller diameter pipe joints;
- Small gun - suitable for small diameter pipe joints and for repairs and touch ups;

Large gun with handle

Controls on the machine

Benefits offered by our Spartacus specially designed guns:

- Short, strong flame, hence shorter time for the powder through the flame;
- Powder is propelled quickly through the flame;
- Powder carrier air flow protecting the powder from degradation which results into higher OIT (Oxidation Induction Time)*.

*OIT results depend on the powder grade used. PLASCOAT PP10 with our Spartacus can offer >40 mins OIT

SPECIAL GUN VERSIONS

New Guns with "vents" on the gun tip optimizing air ventilation in the gun which helps keeping the gun cooler.

NEW EXTRA-COOLING SYSTEM with heat exchanger for prolonged flame spraying specially useful in automatic coating equipment.

New Gun Cooling System

NEW "CENTURION GUN" THE MOST POWERFUL GUN OF ITS TIME POWERED BY IBIX® SRL

NEW!!! PATENTED

EXCEPTIONALLY WIDE SPRAY PATTERN AVAILABLE ON THE LARGE SPARTACUS GUNS AND MEDIUM GUNS

WIDER SPRAY PATTERN (over 10 cm. with the Large CENTURION gun) offering:

- Faster spraying and more uniform layers (bigger powder flow spread over a much larger area);
- High volume in elliptical pattern;
- Easier overlapping of passes and better powder flowing out;
- No powder "lines" or "stripes";
- Minimizes the risk of un-molten powder with air trapped in the coating.

Small Gun for Repairs and Touch-Ups

The Spartacus Small Gun is successfully used to do repairs of existing 3LPP / 3LPE coatings thanks to the controlled flame and accurate powder flow.

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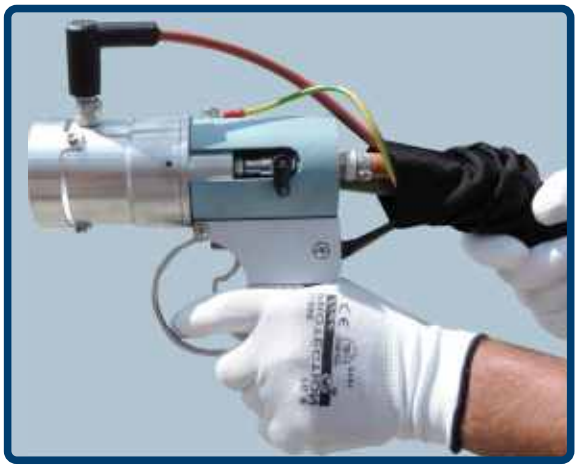
SPARTACUS
SEMI-AUTOMATIC

NEW!
INCORPORATING A NEW IBIX PATENT

AVAILABLE NOW



MAIN FEATURES AND TECHNICAL DATA:

- WIDTH: 700 mm (27.56 inch.)
- LENGTH: 560 mm (22 inch.)
- HEIGHT: 1050 mm (41.34 inch.)
- WEIGHT: 100 kg approx. (220 lb)

OBJECTIVES:

- Switching on the flame by pressing a button (no manual igniting device)
- Auto adjustment of air flow for starting flame
- Auto adjustment of air flow for running flame
- Auto adjustment of gas flow

BENEFITS:

- Improved safety
- Faster set up of flame
- More consistent air/gas flow independent of operator's skills
- More stable flame

Power supply required: 220 V Single Phase

SEMI-AUTOMATIC VERSION AVAILABLE FOR ALL GUN SIZES

Specific devices:
- Spark plug for flame ignition
- Gas valve

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FLAME SPRAY APPLICATIONS
SPARTACUS FOR 3LPP AND 3LPE FLAME SPRAYING OF FIELD JOINTS

The keys for a good field joint coating are:

- **Adhesion**: adhesion of the PP or PE top coat to the fusion bonded epoxy and the factory applied PP or PE top layer;
- **Integrity**: the Polyolefin film needs to be free from voids, and from layering;
- **Flexibility**: integrity is a prerequisite, but flexibility is also extremely important to ensure high impact resistance.

FLAME SPRAYING A PIPE JOINT - THE PROCESS:

1. Manual/Automatic Grit-Blasting

2. Induction heating

3. Manual/Automatic Fusion Bonded Epoxy* Spraying

4. Tie layer (simultaneous spraying FBE+PP/PE)

5. PP/PE Top Coat Flame Spray

6. Water Quench

*Note: **Selected liquid epoxy primers** can be used instead of FBE's with lower heating requirements thus reducing overall energy costs.

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FLAME SPRAY COATING OF HDD PIPE FIELD JOINTS

PP Flame Spray offers great benefits when coating field joints for Horizontal Directional Drilling projects.

HDD projects require thick and very tough coatings for field joints, because the pipes and in particular the welded joints will be submitted to extremely high stress and abrasion, especially in rocky and hard soils.
Additionally, the field joint coating should form a perfect homogenous bond with the pipe body coating on the shoulders to prevent any disbondment in case that specific area is hit by any obstacle when pulled through. Plascoat PP 10 Flame Sprayed coatings of 5 to12 mm and more have been easily achieved and they have been qualified in a number of HDD projects.

CUSTOM COATING

Bends, Buckle Arrestors and Fittings.

PP Flame Sprayed Bend

FSPE or FSPP technologies are particularly useful when coating fittings, bends, buckle arrestors etc., i.e. items whose shapes are difficult to coat by polyolefin granule extrusion or using HSS or other systems.
Our **Spartacus Oil & Gas** Flame Spray equipment is successfully used to efficiently apply the PE or PP top coat onto fittings, bends, buckle arrestors, etc. in 3 Layer systems at the specified thicknesses, perfectly matching the pipe coating, thus allowing the pipeline owner to have an end to end homogenous system.

Factory applied Spartacus Flame Sprayed Coatings

- Faster;
- Ideal for 3LPP or 3LPE;
- Allows the coater to apply a 2 to 12 * mm thick coating (or even thicker) in one coating operation;
- Quicker coating process than multiple electrostatic spray or sintering passes;
- Energy saving (no need for repeated heating in the oven).

* depending on the powder grade used (thickness to slump may vary)

Custom Coating in PE

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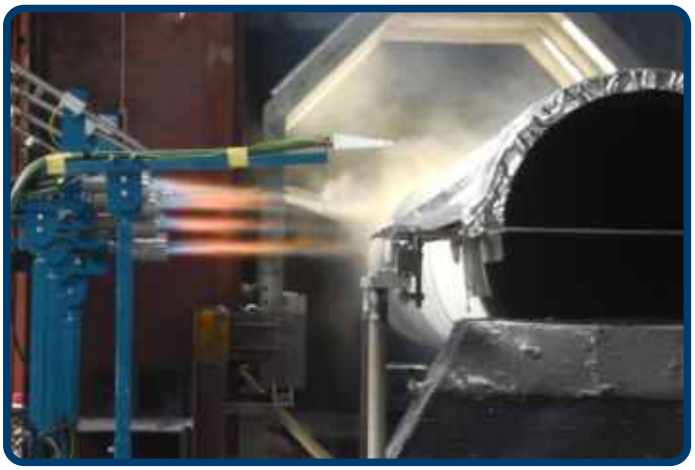
AUTOMATION

IBIX® is the first manufacturer that designed automated flame spraying systems. Indeed, the flame spray coating process can be automated, for example for buckle arrestors, field joints and bends.

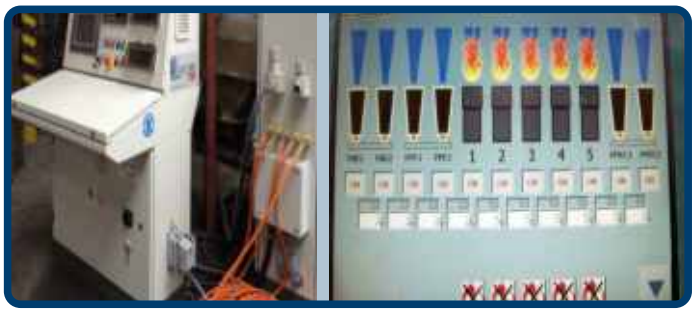
Automation in flame spraying for the Oil & Gas Industry

- Eliminates the «human» factor
- Consistency and repeatability
- Safety
- Homogeneous coating
- Speed

3LPP Buckle Arrestors Full System



PLC & Electric Cabinet



Some of the functions allowed by our PLC and electric controls:

- Automatic Flame ON-OFF switching;
- Automatic Powder ON-OFF switching;
- Automatic flame setting to the
- operational mode;
- Flame Out safeties featuring flame
- present photocells;
- Low powder alarm system;
- A no. of coating programs can be stored.

Automatic 3LPE coating

Automatically PP Flame Sprayed Buckle Arrestors

Perfectly smooth even coverage on any size pipes and fittings perfectly molten thick PP layer

Automatic Field Joint Coating Flame Spray Equipment

3L FULL SYSTEM – ALL IN ONE

Technical Features:

- Extension of the Flame Spray Ring to « house » the FBE/Adhesive flock spray ring
- Some shared controls (control panel) and gears
- Quick shift of the Flame Spray ring sidewise onto the joint area previously occupied by the FBE/Adhesive spray ring

NEW IBIX® POCKET FLAME COATER

The only Pocket backpack flame spray system for easy on-site coating jobs and repairs.

Ideal for small jobs, requiring more mobility and ease of application by the operator (e.g. confined or elevated areas). IBIX® Pocket flame coater is lightweight and completely portable and only requires compressed dry air (300 l/min flow rate) and LPG gas (gas working pressure at minimum 2.2 bars).

SYSTEM DESCRIPTION

QUICK CONNECT FITTINGS

MEDIUM APPLICATOR GUN

AIR REGULATORS ON THE BELT

TECHNICAL DATA

- Machine weight: 9.7 kg
- Gun weight: 2.7 kg
- Powder tank weight (empty): 1.85 kg
- Powder tank weight (full): 5 kg
- Powder quantity: 3.15 kg (-> surface coverage approx. 6 sq m at 500 microns thickness)

TRAINING & CONSULTING SERVICES

TRAINING

IBIX® is committed to offer its customers training at the customer's site or even in the field. Training courses will cover both the use of the coating equipment and the flame spraying technique, with classroom training sessions and practical training.
IBIX® technicians are also available to support pipe coaters during demonstrations and PQT's.

CONSULTING

IBIX® also provides consulting services at the project design and engineering stage, supporting pipe coaters and pipe companies in their project qualification.

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