



# IBIX Micro Abrasion Cleaning with the Toronto Transit Commission Perfect collaboration



## TTC Statistics:

- Service over 1.8 million customers everyday
- Over 3 million square feet of terrazzo
- Over 80 miles of base cove
- Carbon deposits up to 35 years old
- Single largest employer in Ontario

## Objective:

- To clean and restore cementitious terrazzo base coves and stairs in all 69 stations
- Contaminants include laquer-like carbon deposit from brake dust, adhesives, gum, salts, beverage spills, blood, urine, waxes, detergent stains, grime and dirt from extreme foot traffic.

## Previous Methods:

- Dry Ice Blasting
- Crush Glass Blasting
- Steam Cleaning
- Hand Grinding



## Challenges:

- Short work windows (2am-5am) and inconsistent maintenance schedules
- Scale of operation and production deadlines
- Worker fatigue
- High worker turnover
- Accessibility & portability; some stations descend 3 stories
- Noise and air restrictions in place
- High level safety mandate
- Internal governing body to approve new products and systems
- Must meet economical and eco friendly guidelines

## Suggested Equipment:

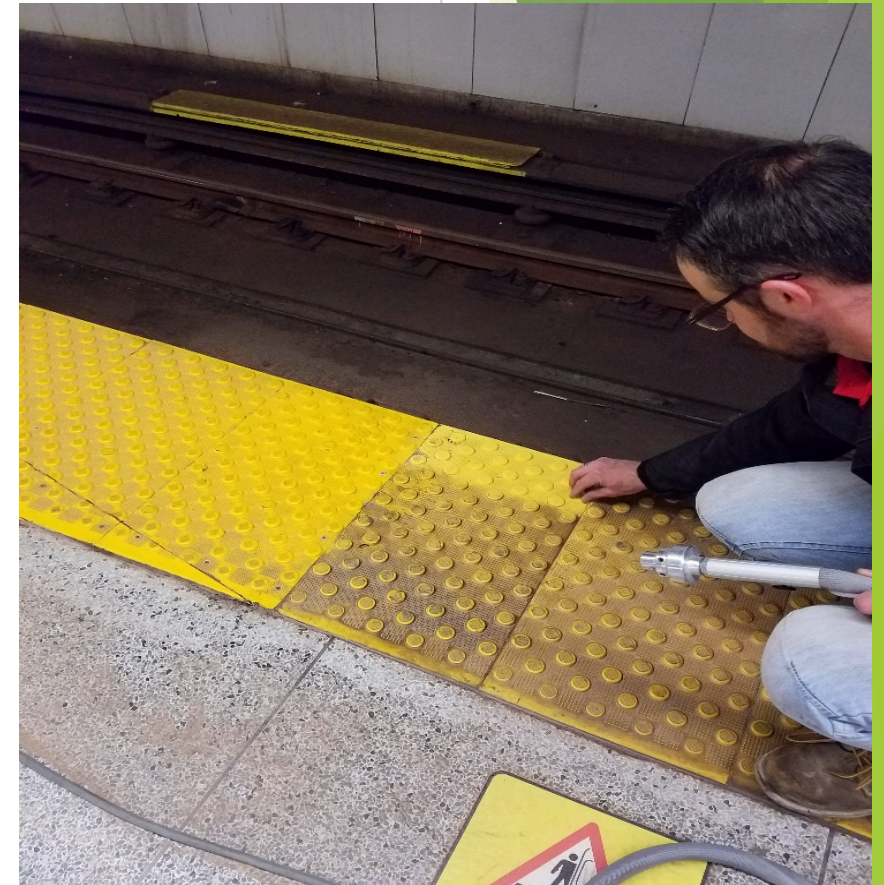
- IBIX VRK 220 Screw Compressor
- IBIX PRO 9 with Shroud
- IBIX PRO 9 Lance with angled nozzle head
- RUWAC WNS2220 Direct Bag
- IBIX Baking Soda
- IBIX GA fine Garnet
- IBIX IB-3 Electric Compressor



## Achievements:

- **Extremely fast set up time.** The IBIX-PRO 9 proved to be extremely portable. It's compact and light weight. The crew had no problems quickly **loading and unloading the I-PRO9** and **traversing up and down stairs**. With the I-PRO9 only requiring a **3/8" air hose**, workers could quickly unravel the hose and power the system in minutes. Being able to unpack and pack in the IBIX system in less than **20 minutes was a huge benefit** to the TTC short work window of maintenance.
- Use of the IBIX VRK220 screw compressor allowed the TTC to use **3 I-PRO9's simultaneously, greatly increasing production** rates. The Honda 25HP compressor with 70 cfm air was able to power machines 100's of feet away allowing the VRK to stay curbside and still **reach 3 storeys below ground** without loss of performance.
- With the NEW IBIX **angled lance modification** TTC workers were able to effortlessly clean base covers and stair without straining their backs and knees. Once we engineer the new lance head we saw an increase production rates and worker enjoyment. (improving safety to Union Worker)
- Working in tandem with both gas and electric compressors there was no place the IBIX could not go. **Every part of the station could be serviced and cleaned (multiple surfaces)**. All equipment could be transported via elevators or stairs.
- Because the I-PRO9 could effectively clean at **low PSI it reduced noise levels**. Although operators must still wear ear protection surrounding and supporting staff could still carry conversations. Operating the I-PRO9 with available dust shroud and specifically approved IBIX fine IBIX GA200 plus Garnet meant there was no dangers of airborne silica (GM-A). The **IBIX system successfully passed allowable airborne silica levels**, which must be less than trace amounts. Having the dust containment system and IBIX fine Restoration grade Garnet **ensures workers were not exposed to the potential threat of silicosis**.
- *Due to low levels of operator fatigue, airborne contaminants, and ease of use the IBIX passed the TTC's superior safety regulations Sept. 2017.*
- When the TTC proposes any new products and systems it **presented to a panel of engineers, occupational hygienists, and station managers**. Based on it's results, *economics, ergonomics, ease of use and green technology it was quickly specified and made part of their maintenance protocol.*
- Station Services is regularly **audited on the cleanliness** of their stations. Since the introduction of the IBIX system their scores have been going from a 1-2 (low) to **5's (Best)**. Because of this success IBIX Micro abrasion systems
- will be *expanded into new cleaning objectives and other departments of the TTC.*

Sub-Way underground cleaning, removal of Soot build up of Break line silica soot on stairs and designated SAFETY signal areas. Project Coordinator: Mark B. Safety Express Toronto. July 2017



TTC IMPROVED  
CLEANING SCORE  
From 1 to 5 MAX. BEST SCORE  
STATION using IBIX micro abrasion  
system over  
ICE Blasting and others...

**Terrazzo cleaned using I-PRO 9 +  
I-VRK220 and I-GA fine Garnet,  
SODA combo formula,**

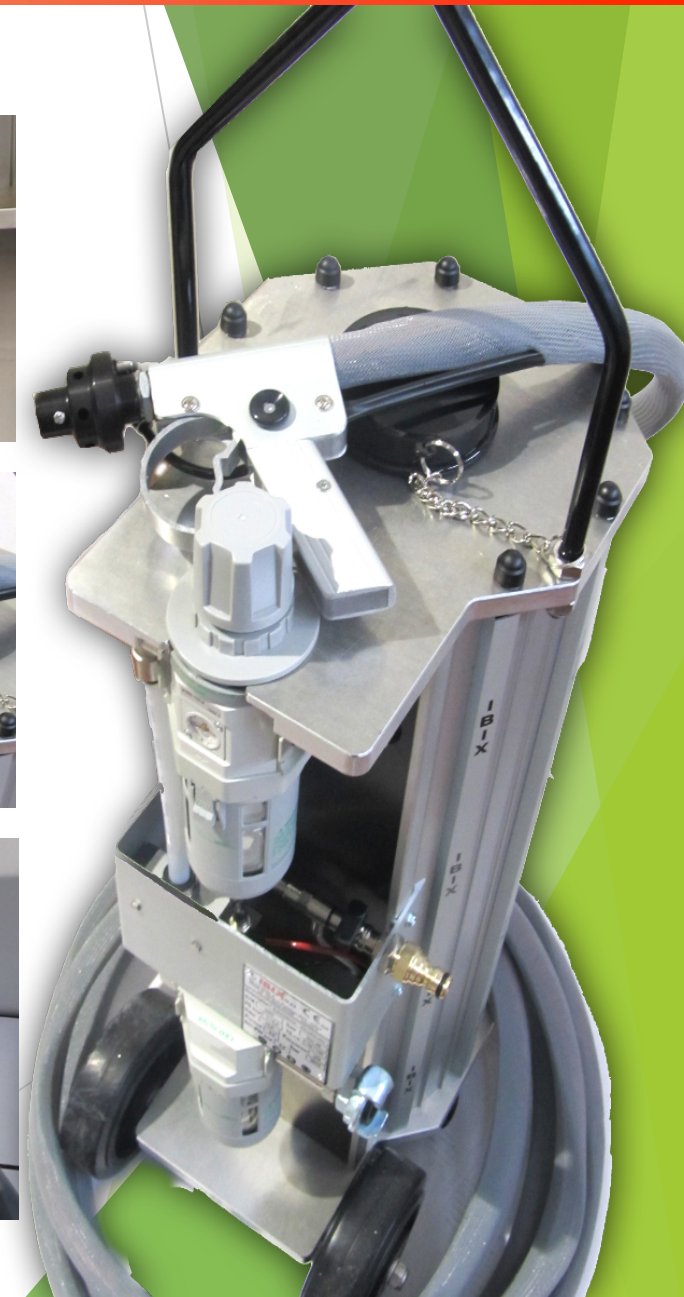
IBIX  
NON  
DESTRUCTIVE  
MICRO  
ABRASION  
CLEANING  
SYSTEMS



The IBIX machines come in a **range of sizes** and are the lightest and most portable blast machines available.

### Key Design Features

- Compressed Air operated
- Light weight (fully made of aluminum)
- Quick-connect Fittings
- Can be supplied in the H2O version for wet blasting to eliminate dust during blasting and to prevent sparks
- Gun with dead-man trigger;
- Designed to operate with minimal air supply (subject to nozzle size)
- Supplied with media filling funnel
- Supplied with CE PED or ASME certification
- Can be used with a wide variety of media
- Can be fitted with a back-pack mount, for ultra portability
- Suitable for hard to reach areas due to the its extremely compact size factor and the very ergonomic gun



### Recommended: VRK 220 Portable 70 cfm screw compressor (ROTAIR)

- HONDA petrol engine: 18 Kw/ **24+ HP**
- COMPRESSED air volume: 1950 ltr/ min 70 **cfm** @ 7 bar pressure
- OUTPUT max pressure: 8 bar/**130 psi**
- SIZE: Length 1200 mm; width 780 mm; height 1000 mm,  
Weight: 600 lbs
- Custom designed for **IBIX 9 and 25 systems** for **even air flow**
- C 220 is equipped with a **patented cooling system** using a cooling electrical fan operated by the motor compressor electrical system. It has a **water separator fitted with an automatic electrically-operated water drainage system.**



## GARNET



**GMA Garnet** is a cost-effective, high-performance, environmentally friendly abrasive. The perfect symbiosis of grain size, density and hardness/durability creates the optimum abrasive efficiency and lowest abrasive consumption. It can be recycled 5 times without losing its superior ability. Low dusting improves health and safety for the operator and the environment.

Mesh	Plant, Building, and Marine Maintenance Applications	Surfaces	Hardness, Mohs	Shape	Hazardous	Benefits
30/60	Rust and paint removal	Painted or rusted iron	Hard, 7-8	Angular	No	• Recyclable
80	Paint and coating removal, mill scale removal	Hardwood (walnut, cherry), exposed brick, steel				• Leaves no residue
120	Restoration and maintenance of buildings	Softwood, hard stones, exposed brick, aged wood				• Low dust factor
200	Graffiti removal, mold and soot removal, restoration and maintenance of antiques and furniture	Plastic, masonry, softwood, aged wood, satin glass				• High working speed
						• Chloride free
						• Eco-friendly

Surface	Mesh Size	Pressure Setting Bars (PSI)	Performance ft. <sup>2</sup> /hr.			
			I-9	I-25	I-40	HiPro 60
Rough Granite	20-40	8 (120)	5-10	15-30	30-45	60-85
Painted/Rusted Iron	30/60-80	7-8 (100-120)	20-55	100-125	200-225	400-425
Vegetation and Barnacles	80	7-8 (100-120)	40-65	125-150	250-275	500-525
Hardwood (walnut, cherry)	80	7-8 (100-120)	40-65	150-175	300-325	600-625
Mill Scale Removal	80	7-8 (100-120)	10-30	35-60	70-95	140-165
Exposed Brick	80-120	4-5 (60-70)	50-75	105-225	210-235	420-445
Satin Glass	80-200	2 max. (30)	5-10	15-30	30-45	60-85
Hard Stones	120	7-8 (100-120)	85-105	200-225	400-425	800-825
Softwood	120-200	4 (60)	15-30	85-105	170-195	340-365
Aged Wood	120-200	6-8 (90-120)	40-65	60-85	120-145	240-265
Plastic	200	4 (60)	30-45	90-115	180-205	360-385
Removal of weeds (chrome)	200	7-8 (100-120)	20-30	75-100	150-175	300-325
Graffiti on Masonry & Plastic	200-350	4 (60)	20-45	85-105	170-195	340-365



## SODIUM BICARBONATE



Sodium bicarbonate, also known as baking soda, is completely non-toxic and non-hazardous (per EPA and OSHA regulations). It is also approved by the USDA as an A-1 Cleaner for use in food processing or FDA regulated facilities. This Hydroflex product is environmentally safe and can be used on most surfaces without damaging them.

Mesh	Remediation Applications	Surfaces	Hardness, Mohs	Shape	Hazardous	Benefits
ASXL (270 microns)	Removal of graffiti, removing barnacles, cleaning, polishing, mold and soot removal, cleaning in the food processing industry	Glass, slate, mold cleaning, polished marble, copper, teak, chrome, boat hulls, pools, cars, tile	Soft, 2-3	Angular	No, but needs to be flushed	<ul style="list-style-type: none"> <li>Leaves no residue</li> <li>Eco-friendly</li> </ul>

Surface	Mesh Size	Pressure Setting Bars (PSI)	Performance ft. <sup>2</sup> /hr.			
			I-9	I-25	I-40	HiPro 60
Glass	270 microns	3 max. (44)	15-30	50-75	100-125	200-225
Slate	270 microns	4-6 (60-90)	20-45	50-75	100-125	200-225
Mold Cleaning	270 microns	3-4 (45-60)	55-80	150-175	300-325	600-625
Polished Marble	270 microns	5-6 (70-90)	30-55	100-125	200-225	400-425
Copper	270 microns	4-7 (60-100)	15-30	50-75	100-125	200-225
Teak	270 microns	5-7 (70-100)	20-45	100-125	200-225	400-425
Chrome Parts	270 microns	5 (70)	15-30	60-85	120-145	240-265
Boat Hulls	270 microns	3 max. (45)	15-30	60-85	120-145	240-265
Tubular Elements (dinghies, pontoons)	270 microns	4 (60)	10-20	30-45	60-85	120-145



**IBIX**<sup>®</sup>

NORTH AMERICA

Surface Technologies

**ANY QUESTIONS:**

**THANK YOU for Testimonial provided  
to us by**



**Mr. Mark Beenham  
Safety Express Toronto  
And  
Customer: TTC**

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