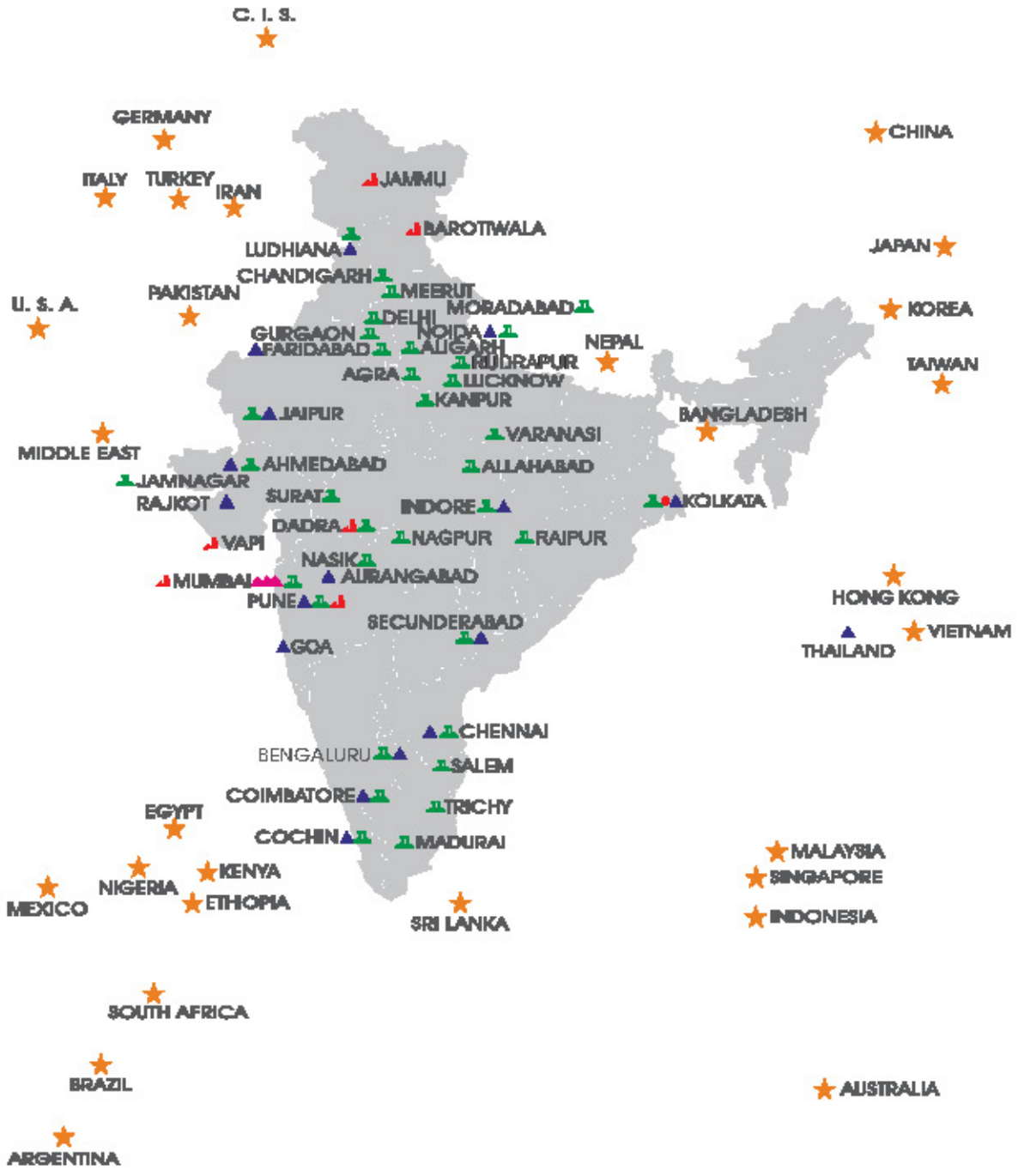




**Trust the leader
in surface finishing**



GROWEL NETWORK



- Factory
- Branch Office
- Technical Service
- Exports
- Corporate Head Office





Grauer & Weil (India) Limited

TRUST THE LEADER IN SURFACE FINISHING

Grauer & Weil (India) Limited or Growel has been a trail blazer in the Surface finishing field. With a solid experience of more than 60 years, Growel is the only company in India and one of the few in the world that offers complete corrosion protection solutions on all types of substrates across various industry segments. The manufacturing activities consist of four divisions: (a) Chemical (b) Engineering (c) Paint (d) Lubricant

We offer a plethora of solutions under one roof, including Electroplating & Specialty Chemicals, Topcoats & Lacquers, Phosphating & Anodizing Chemicals, High Performance Coatings, Zinc Flake Coatings, Industrial Lubricants, Engineering Equipment and Effluent Treatment Plants including Waste Water Recovery Systems. These solutions address the surface finishing & protection needs of various sectors including Automobiles, Hardware, Electronics, White Goods, Jewellery, PSUs, Aeronautics, Railways and Defence.

A countrywide sales network of over 100 dealers and distributors, supported by over 35 branch offices, depots and technical service centres, provide an efficient after sale support to all our valued customers. Our products are exported to over 50 countries.

Our world class Research & Development Centre and six manufacturing facilities form the very backbone of the Company. Our commitment to excellence is reflected in our adherence to the most stringent standards for Quality Assurance and International best practices, like continuous product innovation, backward integration and the latest technological up gradation. Growel became the first Indian surface finishing solution company to be AS 9100 certified in 2016.

Every business enterprise carries the solemn responsibility to raise the living standards of mankind. We at Growel collectively remain dedicated to this cause. We relentlessly strive to develop and supply products and services that are eco-friendly and pocket-friendly to all our valued customers.

ENGINEERING

Growel's Engineering division, located in Pune (200 km South East of Mumbai), manufactures a wide range of surface finishing plants and waste water treatment equipment, tailor-made to meet the specific surface finishing requirements of every industry. Over 700 plants of varied types have been successfully commissioned worldwide.





Brief History

- 1957 - Grauer & Weil (India) Limited Established
- 1965 - First Plating Plant Supplied
- 1969 - Dedicated Metal Finishing Project for MIG (Russia)
aircraft components at Ozar, Nashik
- 1972 - Transporterised Plant Supplied
(under technology of LPW GmbH)
- 1981 - Automated Plant Supplied (Using Tape Drive)
- 1983 - Introduced Dedicated Micro Processors
- 1995 - Introduced PLC in Plants
- 2001 - SCADA (Data logging) system introduced
- 2004 - Zero Liquid Discharge ETP commissioned
- 2009 - ISO 9001: 2008 Certification
- 2011 - Tunnel Pickling Line for Wire Rods
- 2014 - Project commissioned in Russia

Apart from conventional manual/automatic systems, the engineering designs cover special applications like plating on motor cycle spokes, motor cycle rims, interior of gun barrels and continuous lines for sheets/strips/wires.

We cater on a Turnkey basis including Chemicals, Paints, Process Plants, Water and Effluent Treatment Plants for various industries.

SURFACE FINISHING PLANTS

Engineering plays a very important role in the field of surface treatment. Large scale production of quality materials necessitates bulk handling systems of high precision to comply with the extracting needs of the surface finishing industry.



We cater on a Turnkey basis Including Chemicals, Paints, Process Plants, Water and Effluent Treatment Plants for following application:

Auto components | Aerospace and aircraft components
Steel wire rods and tubes | Bathroom and furniture fittings
Defence & Ordnance | Nuclear | Electrical accessories
Artificial jewellery | Fasteners | Hydraulic systems | Hand Tools
Architectural | etc.

Our service offerings include plants for:

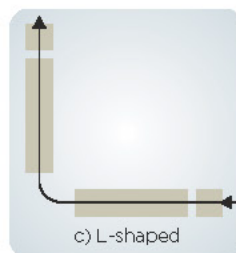
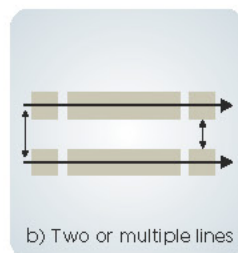
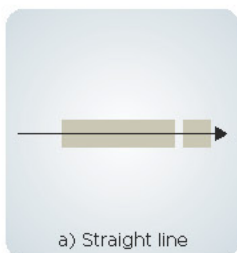
Electroplating: Nickel, Electroless Nickel, Chrome, Hard Chrome, Copper, Brass, Zinc and Zinc Alloys, Tin, Cadmium, Silver, Gold, etc.

Phosphating | Pickling | Anodizing | Lacquering | Hot Dip Galvanizing

Painting: Electrophoretic, Autophoretic | Zinc Flake Coating and others.

MANUAL TO FULLY AUTOMATIC P.L.C. CONTROLLED PLATING SYSTEMS

Manufacturing of plating plants involves virtually all the branches of engineering, from fabrication of steel/steel alloys, polymers, glass films and other non-ferrous materials like titanium, etc., to hydraulics, pneumatics and electronics. In recent years, with the availability of new materials and construction techniques, polypropylene, PVC and other variants of thermo polymers have become the most preferred medium of construction in the designs of plating plants. They are highly resistant to corrosion, inherent to plating environments, and therefore offer a significant advantage over the use of conventional materials i.e., steel / stainless steel etc. However, the fabrication of industrial polymers requires high levels of skills and special techniques.



Plating Plants can be configured in various shapes based on the space available.

Design of material handling system is selected depending on:

- Type of components to be processed
- Throughput desired
- Flexibility of operation

In case of high volume productions of repetitive nature with fixed process cycles, return type of plants with minimal cycle time of one to three minutes are suited. They offer ease of online jigging where the lot sizes are relatively small. The plants involve heavy structural design and are very robust.



TRANSPORT WAGONS

There are numerous variants of motorised transport system. Different types of transport wagons are available to suit specific requirements.

Transport wagons facilitate hoist and traverse movement of Racks and Barrels and can have special functions like dunking, tilting, barrel rotation and drip trays for reduced solution carry-overs.

Transport wagons can be guided in:

Ceiling suspended tracks.

Floor mounted portal structures - TYPE D.

In a laterally arranged track system (guidance above tank) - TYPE Skid.

In a laterally arranged track system (guidance below tank) - TYPE BU.

Transport Wagons can be precisely stopped at desired position by using proximities, laser or linear positioning systems.

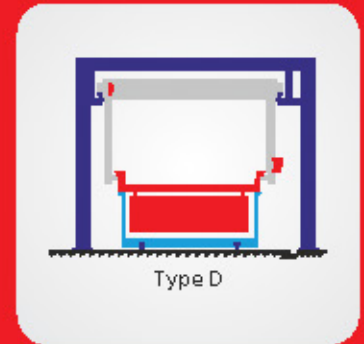
Drip tray arrangement is provided to contain solution dripping from the components (after withdrawal from tanks) falling on lipducts, anodebars and floor as the transporter moves from one tank to another. The dripped solution/water is collected in the tray and is let out to a channel running along the plant. The drain of the channel is connected to drain header which leads to ETR. The movement of the tray is motorized.

Growel has designed wide range of transport wagons capable of operating with traverse speeds of up to 50m/min and pay loads of up to 8 tons.



TYPES OF TRANSPORT WAGONS

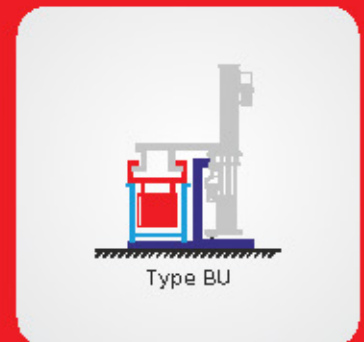
a) TYPE D: Transport wagons type D with its derivatives DI or DII J are designed for heavy loads with higher span widths. They work on an overhead track system and allow for the transportation of heavy payloads. The overhead track system comprises of runway, guide wheels, catenary cable track, etc. The track systems can either be mounted directly on the ceiling of the building or on a self-supporting floor mounted portal structure depending upon space availability.



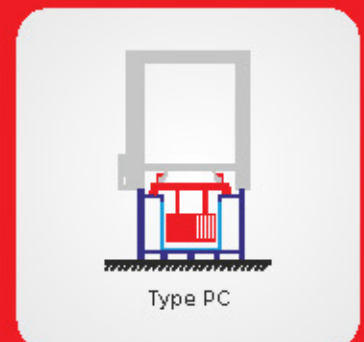
b) TYPE Skid: This skid type transporter is available in different sizes. It is ideal for construction of light weight applications. The transporter has a bridge type design, providing maximum stability during movement and accurate positioning. Due to its independent modular design, it is possible to assemble such systems at our works and offer inspection of dry runs before dispatch.



c) TYPE BU: The transport wagon, guided on a laterally arranged track Type BU system, is mounted on a self-supporting floor structure above the tank level, incorporating the bus-bars and the cable ducts (otherwise generally similar to the BU system) for loads up to 150 kg.



d) TYPE PC: This is generally recommended for laboratory application like small barrels for precious plating lines or small size Jigs/Baskets. It is guided on a mono track, mounted on a self-supporting structure or can be suspended from the ceiling or roof truss. Hoisting is through a geared motor. Synthetic Polymer Belt, which winds and unwinds on a drum, enables speed change during vertical movements. Traverse is by a special brake geared motor. This design is more suited to semi-automatic operations where high speed throughputs are not required; it is basically economical and space saving.



Transport wagons are designed to handle right from 150 kg up to 8000 kg based on customer's specific requirement.



AUTOMATION

Automation is greatly preferred in bulk plating operations, predominantly for the following reasons:

- Consistency
- Reduction in labour costs
- Elimination of human error
- Reduced operational costs
- Regulated inputs
- Effective control of production
- Versatility
- Traceability

AUTOMATION FEATURES

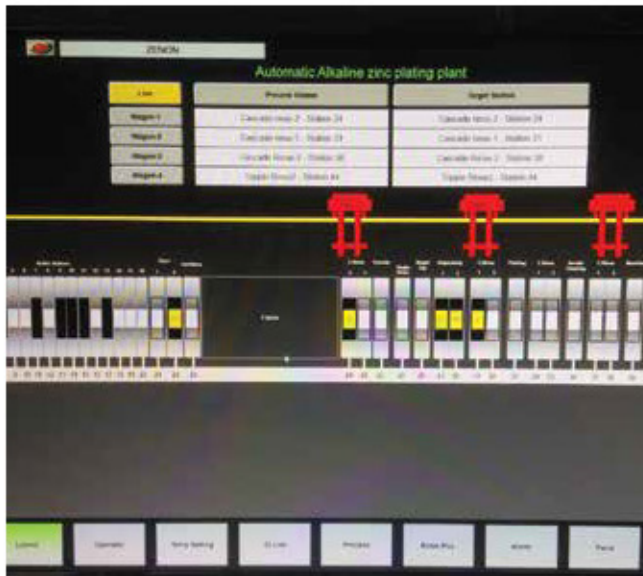
Modern plating plants are designed with various options to minimise pollution and help in maintaining clean environment in the work space. Plant engineering has evolved to offer highly efficient dedicated systems for specific plating processes.

Some of the features are:

- Load as you like for Rack and Barrel plants
- Automatic current and temperature control as per process requirement
- Auto level and conductivity control of rinsing water
- Auto dosing as per ampere-hour consumption
- Production and event data recording
- On line process monitoring
- Event warning by SMS
- Voice alarms
- Barrel Rotation sensing by current monitoring
- Bar Scanner for parts identification

Data Logging (SCADA) is an integral part of automation and has become a necessary tool for all plating plants. Data logging helps in:

- Online monitoring of status of Transport Wagon, Tanks and Equipment
- Abnormalities in the process conditions will generate immediate alarm
- Accurate control of process parameters like temperature, current etc.
- Day/Shift/Load wise production report generation
- Recording of all errors and abnormalities
- Unlimited LAN access for control and monitoring of plant with multilevel password protection
- Generation of Trend screens of all process parameters with reference to real time
- Maintenance alertness for all predefined mechanical, electrical and chemical parameters



DRYING:

After all wet operations, articles need to be quickly and effectively dried to reduce possibility of staining/corrosion. Different types of equipment are available for this purpose, like conveyerised drying ovens for large components and basket/barrel configured dryers for smaller parts as well as centrifugal dryers.

Automatic Dryer:

It follows a preset operating sequence, thereby reducing labour and ensuring consistent quality and higher productivity. A self-contained unit, this dryer has its hydraulic aggregated control for sequential operation of all functions. This can handle large loads per batch as compared to manual operations. Unloading is automatic after production-based preset cycle. All sequential operations are interlocked.

Barrel Dryer:

This is recommended for specific components not amenable to drying by centrifugal action, or liable to be damaged during discharge into a centrifugal dryer. Air heaters on either side of the barrel along with a circulation fan at the bottom create a steady flow of hot air over components in barrel, thus dry by evaporation.

Manual Centrifuge Dryer:

It is operated through a foot pedal and incorporates a safety interlocking arrangement which prevents the top-lid from opening while in operation. Adequate supply of hot air is provided by fully enclosed electrical heating elements mounted on the side of the machine; ideal for high single loads at frequent intervals.

Auto Centrifugal Dryer:

Growel supplies a state-of-the-art on line centrifugal dryer with stainless steel basket, also used in passivation lines. The lid opens with pneumatic cylinder & hot air is fed through a special blower with heating system. The basket is static dynamically balanced & rotates for complete removal of water from components. Brake motor provides easy start and stop operations. Basket capacities are in two ranges of 50-75 kg or 75-100 kg.

BARRELS

Small components having high volumes are handled in barrels for purpose of Pickling, Polishing, Phosphating and Plating. Depending on the process, the material of construction can be MS, SS, Plastic-Acrylic or Polypropylene.

The capacities of barrels can be varying from 3kg to say 100kg, with sizes as large as 1200mm l x 500mm a/f.

Barrels for Long Bolts:

These barrels are specifically manufactured for consistent plating on Long Bolts using special anodes in the barrel.

Spokes Plating Barrels:

Specially designed Barrels dedicated to Spokes of bicycle/motor-bike with pocket configuration in each barrel for accommodating Spokes.

Auto lid opening/dosing can be provided at loading/unloading station(s).



FILTERS



We supply a wide range of filters and filtration systems. They are suited for virtually all filtration requirements in plating industry.

Filtration demands of today's plating industry are diverse and stringent, prompting the need for a wide range of filtration systems. Specific applications call for plate type filtration, cartridge type filter candles or bag type elements. Pleated filter cartridges are also finding increasing use. We offer a wide range of pumps in metallic and polymer constructions, magnetically coupled, or with internal mechanical seals. Flow rates range from 500 lph to as much as 30,000 lph.



Growel offers complete range of filtration systems engineered to provide removal of particulates or organic impurities from a variety of chemicals or electroplating solutions. A combination of compatible components ensures internal and external resistance to corrosive or oxidising solutions. PVC, polypropylene, teflon, polycarbonates, Stainless Steel and similar materials are increasingly being used to handle problems associated with solution compatibility.

In addition to basic systems, piping and valve arrangements are designed on a custom built basis where special filtration duties such as online carbon treatment, to filter chamber bypass are envisaged.

Growel offers both disc type and cartridge type systems to cater to specific applications and working conditions. Some of the best Growel range of sturdy and dependable heavy duty filter units are:

A) Hercules:

This model is designed to cater to very high filtration area requirement up to 30,000 lph. It is a two-stage filtration system with the option of carbon treatment in parallel. The combination of bags and cartridges as the filtering media makes this system more versatile.

B) Guardian/Atlas:

They are compact, corrosion resistant and extremely simple to operate. Cartridge filters, available in flow rates ranging from 8,000 lph to 20,000 lph. Choice of construction material allows use with most liquids, including harsh chemicals at elevated temperatures. As a further option, separate carbon chamber for simultaneous filtration and purification can be designed with appropriate flow control valve arrangements.

CONTINUOUS PLATING PLANT

Continuous plating systems are designed for high speed operations, more specifically for plating of strips, wires and tubes. They comprise of a complex material handling system in keeping with the plating requirements, in an extremely dynamic state of movement. Straight line configurations are made up of a shallow active tank through which singular or multiple strands of the workload is carried at high speeds with specifically designed D.C. contact system. The pre-treatment modules may consist of brush cleaning facilities typical to such processes. The entire conveying system has to synchronise with the spooling drive which is often provided by the customer.





ROTAMATIC PLANT

This is an ideal system for semi automatic electroplating needs. Components to be processed are hung on conductive hooks system which moves at settable conveyor speed, based on process timings. Conveyor chain and supporting system are made from stainless steel to restrict corrosion for prolonged life. Distance between anodes and cathodes (components) is always constant. Precise and controlled current is provided on copper track on which copper hooks move. Loading and unloading is at same point. Material of construction of tanks is usually Polypropylene and that of anode baskets Titanium. A centralised control panel displays conveyor speed with an installed VFD, current & temperatures of various electrolytes.

PAINTING

Systems at GROWEL are engineered to offer world-class finish of paint. Importance and knowledge of right type of paint, proper surface preparation, right application technique, limiting pollutants/disposal for cleaner environment & proper material handling are meticulously considered in the engineering of surface pre-treatment, Cathodic electro coat equipment and Zinc-flake coating equipment. The systems thus designed by the finishing experts, meet the world standards of application technology and offer the customer a green & clean system.



PICKLING PLANTS

Growel has successfully designed the complete system for pickling of steels - carbon or stainless varieties.

The specialities of Growel's pickling plants are

- Construction of most of the tanks operating below 90°C is polypropylene. As this material is resistant to most of the corrosive chemicals normally handled in pickling systems, this benefits the user for low maintenance cost under corrosive conditions, cleaner baths and space conservation, etc.
- Pickling section is provided with high efficiency fume extraction system with water scrubbing system at the end to ensure that only clean air is let out to atmosphere.
- Post treatment sections are also provided with efficient fume extraction system to prevent any spreading of fumes within the shop and are exhausted at levels stipulated by P.C.B.
- Growel offers transporter system to handle the pickling loads of up to 8 ton parts per load through the entire process hence controlling the process timings very precisely and ensuring consistent quality and high productivity.
- In case of wire rod coils, we offer special type of transporter system operating in an entirely closed tunnel like construction, leading to reduced fumes in the operating environment and energy conservation due to a more efficient fume extraction system.
- Fully automated complete system including all essential equipments such as chemical dosing systems, on line continuous sludge separation etc.
- The entire system can be monitored easily with the help of SCADA.
- Growel offers a total solution including effluent treatment, zero liquid discharge, water recycling, acid regeneration system.

EFFLUENT TREATMENT & RECOVERY:

We have a solemn responsibility towards our natural habitat from which we draw our resources and to which we return our waste products. At Growel, we always strive for an ecological balance. Pollution regulations worldwide coupled with depleting resources necessitate recovery and reuse of resources and proper treatment and disposal of residual waste products. Our systems for the treatment of Effluents in surface finishing industry are based on the latest international technique for waste minimisation at source. This highly evolved technique incorporates an effective 'Rinse Technique' with an integrated 'in-line' water re-circulation system.

We offer solutions for:

- Surface Treatment Industry
- Food and Beverage Industry
- Textile Industry
- Aluminium Processing
- Printed Circuit Board Industry
- Power Stations
- Semiconductor and Solar

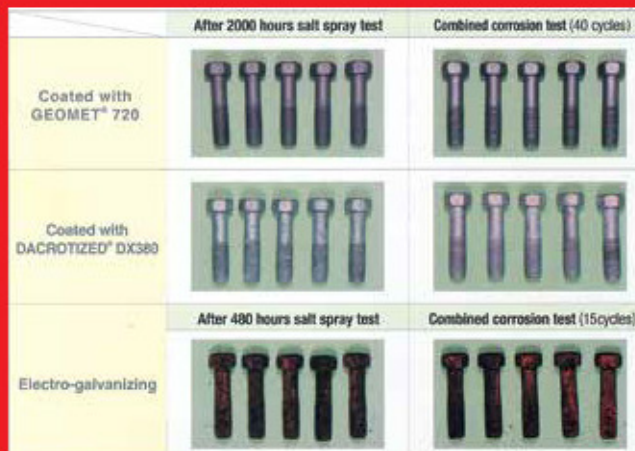
Our range of supplies include:

- PLC controlled, fully automatic in-line water re-circulation system, based on ION Exchange principle. The system can treat water, suitable for any metal finishing application.
- Fully automatic or semi-automatic effluent treatment plants for chrome, cyanide, nitrite, phosphate, heavy metals, acids and alkalis. The plants invariably consist of rugged filter press for effective de-watering of sludge.
- Recovery systems for chromium, heavy metal, precious metals, acids, etc.
- Sophisticated system like Ultra-filtration for treatment of emulsions and Reverse Osmosis (RO) for removal of Total Dissolved Solids (TDS).
- Vacuum Evaporators.

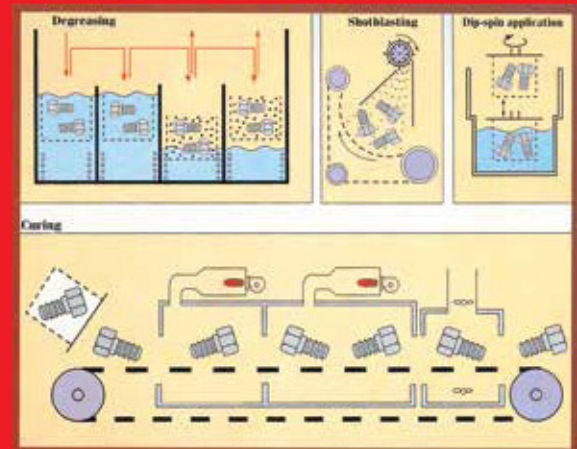


DACROMET® AND GEOMET®

Environmental awareness has in recent years encompassed the globe, and increasingly stringent laws are being enacted to regulate toxic substances. Among others, the use of hexavalent chromium, a substance hitherto widely used as an effective coating for the prevention of rust, is likely to be regulated and phased out under the new environmental regulations (chiefly those being adopted in the U.S. and Europe). Responding to this trend, Growel, in collaboration with NFO Metal Coatings Japan, is offering GEOMET® based on DACROTIZED, the rust preventive coating technology that has been perfected through 30 years of real-world appreciation. The new chromium-free coating technology is now being offered to the Indian industry, in addition to DACROMET®, which is already available with us.



Performance



Process Dacromet® / Geomet®

GEOMET® is a water-based coating technology that is completely free from chromium

1. Water-based chemical solution: GEOMET® coating is made for the environment, using aqueous liquid. Since the coating is not solvent-based, the surface treatment requires relatively simple equipment and is friendly to both natural and working environments.
2. Completely chromium free: Chromium compound is not used at all in the processing of GEOMET® coating nor is it used in the film itself. It also completely meets the requirements of ELV regulations.
3. Closed system coating process: The process for GEOMET® coating is 'no-drainage', closed system. Additionally, exhaust emissions in the baking process are mainly steam, and do not include any substances regulated by law to be toxic.
4. Outstanding resistance to the salt spray test and cyclic corrosion test: GEOMET® coating provides a very high resistance when put through its paces in the salt spray test, between 1200-2000 hours and cyclic corrosion test up to and beyond 40 cycles.

(For additional information, please refer to technical brochures available on request.)

COMPLETE SOLUTION FOR METAL FINISHING

Growel manufactures and markets a wide range of chemicals for the metal finishing industry. These include compounded salts, brighteners, special additives, a complete range of chemicals for the PCB industry and other highly specialised applications such as Electroless Plating and Plating on Plastics.

Growel's product range of chemicals covers

- Soak and electrolytic cleaners for ferrous aluminium, brass, mazak and plastics
- Plating and post plating coatings
- Continuous plating of strips, wires and tubes
- Alloy plating processes
- Plating on plastics
- Conversion coatings
- Electroless copper and nickel
- Phosphating
- Colouring metals
- Metal strippers
- Protective post treatment
- Treatment of effluents
- Dacrotizing

To continue the process of innovation and improvement, Growel maintains a state-of-the-art Research & Development department supported by the experience and knowledge of an extremely capable team of scientists of national and international fame.

The R&D centre is recognised by the Indian Council of Scientific and Industrial Research, for its contribution to chemical engineering research. We have been accredited with ISO 9001:2000 certification for our entire chemical division and also ISO 14001:1996 certification for our Barotiwala Plant. All inputs and final products are subjected to stringent quality control measures to provide our valued customers hassle-free service and the best value for their money.



AFTER-SALES SERVICE & SUPPORT



At Growel we strongly believe that the end of a sale, marks the beginning of a commitment

After-sales service and support to our customers is provided by us, at all times, through a mobile team of highly experienced and capable engineers, who are at the beck and call of our valued clients. We strive hard to ensure minimal downtime on production programme. Normal spares are often stocked by our various branch offices, located in different parts of India, to assure deliveries in time.

Over 1000 chemicals required for the widest range of applications for the surface treatment industry

State-of-the-art automated plants & equipment for electroplating

Environmental Engineering

OUR STRENGTH. OUR INFRASTRUCTURE.



PLANTS

DADRA

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Dadra 396 193, (D & NH - UT)
T: 0260 2669985 / 87
F: 0260 2668151
E: dadra@growel.com

DADRA (Paints)

Plot No. 7, Survey No. 216/3 & Survey No. 216/4,
Dadra Industrial Estate, Dadra 396 193 (D & NH - UT)
T: 0260 2669985 / 87
F: 0260 2668151
E: dadra.paints@growel.com

BAROTIWALA

Plot No. 31 & 32, Industrial Area,
Barotiwala (H. P.) 174 103
T: 01792 305805 / 305809
F: 01792 - 305841
E: btgrowel@growel.com

JAMMU

Phase II, SIDCO Industrial Complex,
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E: jammu@growel.com

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Tal. - Khed (Alandi), Dist. - Pune 412 105
T: 02135 671000
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VAPI

Plot No. 407, Phase II, G.I.D.C.,
Vapi 396 195
T: 0260 2401389 / 6542838
F: 0260 2451852
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ALIGARH:	09045458123	JAIPUR:	09829180378	MADURAI:	09786626236	SALEM:	0427-2217229 /
CHANDIGARH:	09815603775	JAMNAGAR:	09898240810	MATHURA:	07060872024		07708687010
DELHI:	011-25126430 /	JALANDHAR:	09417408646	MEERUT:	09897066604	SURAT:	09825412710
	09818555948	RAIPUR:	09584708585	MORADABAD:	09837066065	TRICHY:	097866262366
FARIDABAD:	09891921007	RUDRAPUR:	09927018902	NASIK:	0253-2353772 /		
GHAZIABAD:	09582427913	NAGPUR:	09765700227		09767958336		
GURGAON:	09899773300	KANPUR:	09839096654	NOIDA:	098719947488		

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