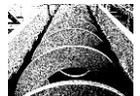


JASH ENGINEERING LTD.

REHART GMBH.



Contributing to a sustainable environment worldwide...



CONTENTS

About JASH & Rehart



Manufacturing Facility



Screw Manufacturing Infrastructure



Products and Applications



Installations



JASH- “A MULTINATIONAL COMPANY OPERATING IN WATER, WASTE WATER, CEMENT, STEEL, POWER AND OTHER INDUSTRIAL SEGMENTS.”

JASH is a leading multinational company having operations in India, Austria, USA and Hong Kong.

 JASH ENGINEERING LTD. INDIA “SINCE 1948”	 RODNEY HUNT INC. USA “SINCE 1840”	 MAHR MASCHINENBAU GMBH, AUSTRIA “SINCE 1927”	 E & M JASH LTD, HONG KONG “SINCE 1990”	 SHIVPAD ENGINEERS PVT LTD, INDIA “SINCE 1990”
--	---	--	--	---

Together we bring more than 350 years of experience in providing customized solutions to meet the most challenging applications world wide. Our comprehensive product range is unrivalled in the flow control, screening, treatment process, pumping, hydro power, cement, steel, power and other Industrial segments. The breadth of our product offering has enabled us to supply equipment across the globe to over 45 countries.

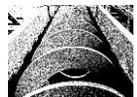


“WE ARE SPECIALIST IN SCREWS”

Established in year 1983 by Mr. Klaus Schuelin, Our collaborator is based in Ehingen-Germany located in the urban industrial triangle of Nuremberg-Stuttgart-Munich. Rehart derives its name from its initial business activities of Regenerate (RE) and hard-facing (HART).

We produce augers from different material and in extremely different sizes. From stainless steel, e.g. for the food sector and for technical ceramics from wear-resistant special steel with hard-faced outer edges and coils.

With collective technology as acquired in collaboration, JASH is capable of manufacturing screw conveyors and feeders for most typical and challenging applications.

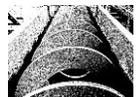


The application, design, manufacturing and operational experience gained over 35 years in screw business aided with strong manufacturing capabilities has enabled JASH to offer screw conveyors and feeders, both shaftless and with shaft for conveying fine, pasty solids, abrasive and non abrasive materials.

Jash invested around 5 Million USD to create a world class manufacturing facility and infrastructure to meet all the requirements for Archimedes Screw manufacturing. With required infrastructure in place, JASH now has the capability to produce screws weighing up to 60 MT with 5,500 mm in diameter and up to 24,000 mm in length – a capability available with only one or two companies worldwide.

With this huge capabilities and expertise gained from technology transfer, JASH is capable of manufacturing and supplying screw conveyors for bulk solid handling applications ranging from mild conveying to most abrasive conveying needs.

With advanced screw forming technology from JASH is capable of supplying one to one replacement screw as per customer's design and drawing or refurbishment of screw for any conveyor.



JASH Screw Conveyor

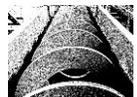
MANUFACTURING FACILITY AT JASH

JASH FABRICATED PRODUCTS PLANT



- Factory Plot Area : 419,000 Sq. Ft.
- Built-Up Area : 155,000 Sq. Ft
- Crane Capacity : 50 MT
- Annual manufacturing : 5000 MT
- SS Production Area : 50,000 Sq. feet
- MS Production Area : 100,000 Sq. feet
- Location : Indore, M.P, India

This state of art manufacturing infrastructure along with proven European technology enables JASH to offer reliable and high quality products at economical price to the world market. With almost all the required manufacturing facilities available in-house, this plant gives flexibility to meet customized requirements and urgent deliveries of the client.



MANUFACTURING FACILITY AT JASH

JASH FABRICATED PRODUCTS PLANT, INDORE



MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



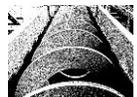
SCREW TURBINE AND SCREW PUMPS



SCREW CONVEYOR



SCREW COMPACTOR



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



RAW MATERIAL AS PER THE REQUIREMENT



- Separate SS / AL (White Metal) & MS / CS (Black Metal) store for clear, distinguished storage of raw material.
- A well defined system for identification of different grades of material kept in segregated racks.
- All incoming raw materials are accurately checked through Automated Positive Material Identification equipment (PMI). PMI ensures correct and desired chemical composition of raw material. This is also a cross verification to ascertain the correctness of material composition against the test certificates supplied by the Vendors
- A full fledged in-house mechanical and chemical testing lab facility to ensure required material hardness & strength etc.



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



RAW MATERIAL AS PER THE REQUIREMENT



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



PROFILE CUTTING OF FLIGHTS



- Profile cutting for flights is done through high precision CNC water jet cutting machine or latest generation Fiber optic CNC laser cutting machine.
- Being a cold cut method, Water Jet cutting prevents burning, cracking or thermal stress which are associated with cutting through high thermal processes. The Water Jet is capable to cut plates upto 100 mm thickness.
- Jash has also invested on Trumpf TruLaser 1030 Fiber CNC laser cutting machine to rapidly cut thin, medium, & thick plates of 3000x1500x16 mm size and cutting speed upto 32m/min using latest generation fiber laser cutting technology. This machine is already shipped from Germany and will be in operation at Jash facility by February 2018.

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



PROFILE CUTTING OF FLIGHTS



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



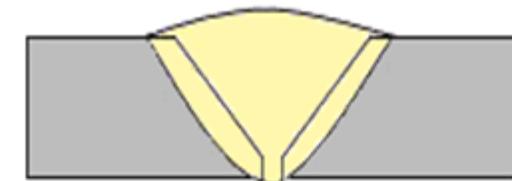
EDGE PREPARATION FOR WELDING



- As per the technical requirement of butt welding process, bevelling is done on plates using advanced bevelling tools & machine to ensure the required welding built up during the welding process
- Tools selected as per the plate thickness to ensure the required edge preparation for the Butt welding process



Bevelled and unbevelled surface



Butt joint

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



EDGE PREPARATION FOR WELDING



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



FLIGHT FORMING

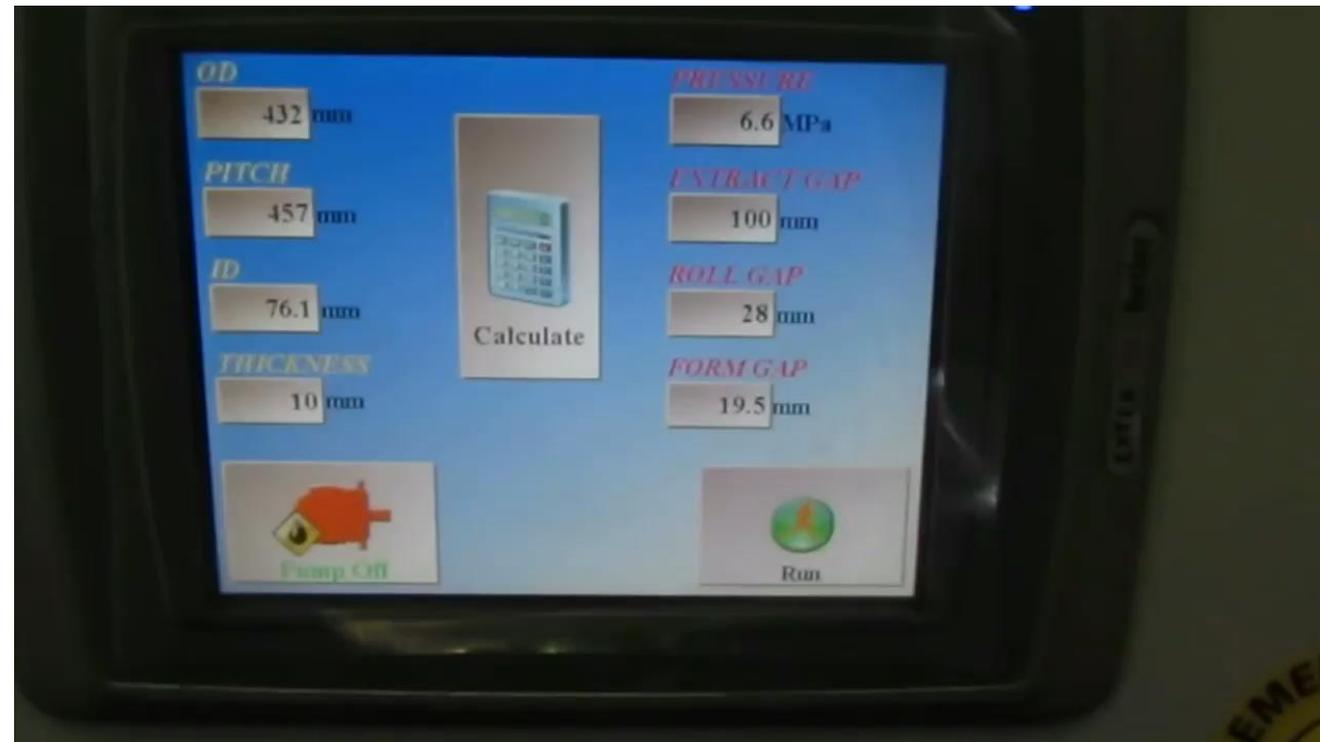


- Flight forming is done through an Automated True Helix Flight Forming CNC machine.
- This machine is capable of forming flights from 150mm dia to 5500 mm diameter for plates upto 32 mm thickness.
- This machine incorporates patented hardware and software which eliminates manual intervention through programming to ensure the utmost accuracy of the flights formed on this machine.
- This machine enables faster flight production at a reduced cost in comparison to convention flight forming processes.

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



FLIGHT FORMING



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



FLIGHT WELDING



- JASH screw fabrication facility is equipped with Automated Flight Welding Machine to produce accurate & faster welding results.
- Automation of welding process ensures the desired quality of welding with least human interference in welding process.
- This heavily reduces the quantum of manpower required and henceforth the cost and time involved in this process is minimal.
- Jash has the ability to achieve uniform and consistent welds on long screw up to 23,000 mm length in compliance to **AWS D1.6 / ASME Section IX**.

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



FLIGHT WELDING



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



SHOT BLASTING OF SCREW



Screw in shot blasting booth

- Surface preparation of the Screw is done using Shot blasting process
- A dedicated shot blasting booth of size 6000x6000x24000 mm equipped with blower & dust collector facility is used for shot blasting
- Professional arrangement of motorized rotator system to rotate such a heavy screw for providing the ease of access to blast each and every surface of the screw is available

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



SHOT BLASTING OF SCREW



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



HARD FACING OF FLIGHTS



Cobalt Base continues cast hard facing rod for TIG and oxy-acetylene welding. Very good resistance to metal-metal wear, cavitation and corrosion as well as heat up to 900° C. Excellent gliding characteristics, good to polish, non-magnetic. Machinable with tungsten carbide tools or by grinding. Hardness: 43 HRC

AUTOGENEOUS BUILD-UP WELDING



Nickel based hard surfacing alloy, which can be deposited using super flame spraying torch over the surface to be hardened.

Deposit of these alloys have high oxidation resistance.

Hardness: 63 HRC

AUTOGENEOUS FLAME SPRAYING

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



HARD FACING OF FLIGHTS (Video)



AUTOGENEOUS BUILD-UP WELDING



AUTOGENEOUS FLAME SPRAYING

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



AIRLESS SPRAY PAINTING ON SCREW



Primer Epoxy Coated Screw
In JASH paint shop

- Paint booth size : 6000x6000x24000 mm.
- In compliance with the environmental and BS OHSAS 18001-2007 requirements, JASH uses airless spray painting techniques in a designated paint booth equipped with clean air suction and fume extraction system.
- JASH meets varied customers expectations by having an ability to provide any kind of painting requirement which may include epoxy, enameled or food grade paints etc. to any micron thickness levels.
- Professional arrangement of motorized rotator system to rotate such a heavy screw for providing the ease of access to paint each and every surface and corners of the screw is available.

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



AIRLESS SPRAY PAINTING ON SCREW



SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



ASSEMBLY



- Complete pre-assembly of screws with shaft, couplings, bearings (upper bearing & lower bearing) and trough (as applicable) is done in-house in our assembly bay.
- Pre-assembly ensures pre-check of all functional dimensions for easier installation at site.
- A detailed professional checklist is maintained and filled by Shop and Quality to ensure the correctness of product before dispatch.

SCREW MANUFACTURING INFRASTRUCTURE AND PROCESS FLOW



ASSEMBLY

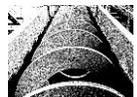
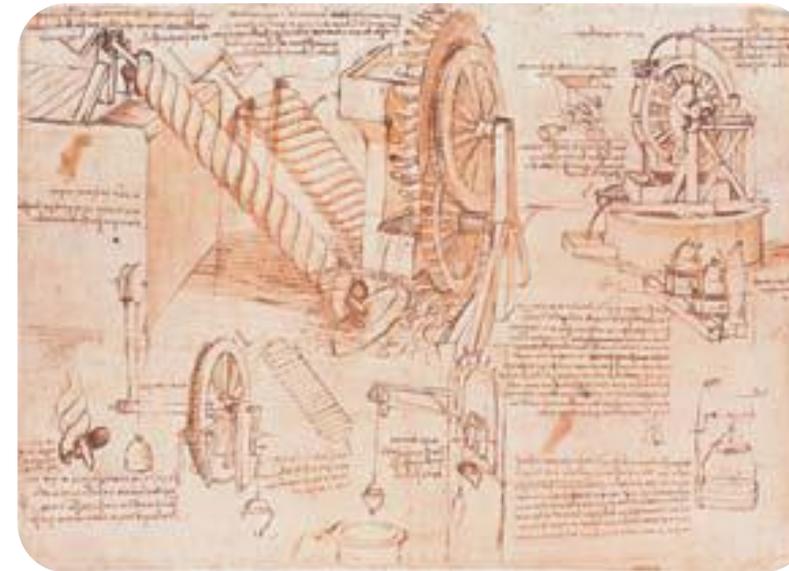
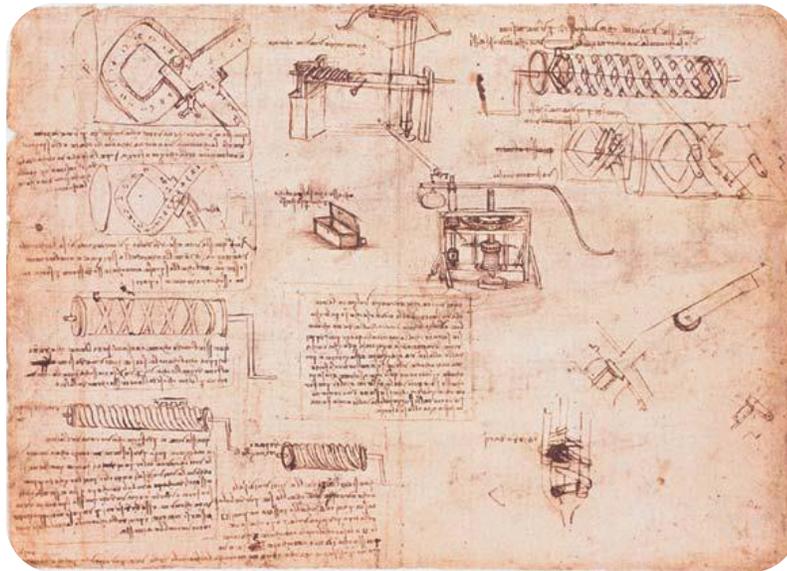


PRODUCTS AND APPLICATIONS

HISTORY OF SCREW CONVEYOR:

The history of the screw conveyor, one of man's simplest and most efficient tools for the conveying of bulk materials - can be traced back more than 2,000 years to ancient Greece and the development of the "Archimedean Screw." About 240 b.c.

Archimedes, a renowned Greek mathematician and inventor, perfected a spiraled tubular device for removing water from the hold of a large ship. In doing so, he became the first man to put the screw conveyor principle into practical application. Today the screw conveyor plays an important role in a wide variety of industries. Because it is compact, versatile and economical, it has become one of the most useful mechanisms for the transport and distribution of bulk materials.



JASH Screw Conveyor

PRODUCTS AND APPLICATIONS

CLASSIFICATION



PRODUCTS AND APPLICATIONS

SHAFTLESS SPIRAL CONVEYORS



Shaftless Screw or Spiral Conveyor is an alternative concept to the traditional shafted screw conveyor. Material is conveyed by an extra heavy duty shaftless screw that slides on a low-friction, wear-resistant liner inside the conveyor trough housing. Shaftless spiral conveyors are successfully used to transport jamming, bridge forming and sticky materials. JASH shaftless spiral conveyors can be furnished in a wide variety of materials to resist corrosion, abrasion and exothermic conditions.

Features

- Tailor made design.
- Carbon steel, stainless steel or abrasion resistant steel are available.
- "U" shaped or to provide a wider opening "V" shaped trough can be manufactured.
- Fully enclosed trough ensures dust-free environmental friendly operation.
- Shaftless screw minimizes the risk of clogging.

Construction

Trough and cover:	Steel or stainless steel AISI304 or AISI316
Spiral:	Special Steel or stainless steel AISI304 or AISI316
Wear Liner:	HDPE or steel or stainless steel
Drive Unit:	Direct Coupled, Chain transmission, belt transmission
CIP:	Clean in Place option available on demand

Advantages

- Low maintenance costs.
- Handling of difficult materials.
- Clean operation and absence of odours.
- High efficiency.
- Easy access and cleaning.
- Total material discharge.
- Hardly any maintenance required.
- Modular system, easily adaptable to different applications extremely versatile.

PRODUCTS AND APPLICATIONS

APPLICATIONS



Waste water treatment



Solid waste treatment



Pulp and Paper



Chemical and Plastics



Food Processing



Beverage Industry

PRODUCTS AND APPLICATIONS

SHAFTED SCREW CONVEYORS



Screw conveyors are easily adapted to congested locations, due to their compact and flexible design; enabling horizontal, inclined and vertical installations. The conveyors are particularly suited for transporting materials which tend to jam, material containing particles of varied sizes which often tend to form “bridges”, hygienic material and material of a sticky nature. Since it is possible to feed directly into the side of a second conveyor and even transport vertically, compact and space-saving installations are possible.

Features

- Tailor made design.
- Carbon steel, stainless steel or abrasion resistant steel are available.
- "U" shaped or to provide a wider opening "V" or Tubular shaped trough can be manufactured.
- Fully enclosed trough ensures dust-free environmental friendly operation.
- Can handle fine, coarse, granular, powder and abrasive materials.

Construction

Trough and cover:	Steel or stainless steel AISI304 or AISI316
Screw:	Special Steel or stainless steel AISI304 or AISI316
Wear Liner:	HDPE or steel or stainless steel
Drive Unit:	Direct Coupled, Chain transmission, belt transmission

Advantages

- Low maintenance costs.
- No impedance from bearings.
- Ability to transport large size materials.
- Can be used for both discharge and feeding applications.
- High speed inclined conveying can be made possible.
- Can be manufactured with or without hanger bearings.
- Long length conveying is possible.
- Dust free and isolated operations.

PRODUCTS AND APPLICATIONS

APPLICATIONS



Power Plants



Cement Plants



Steel and Aluminium



Chemical Industry



Petrochemical Industry



Agriculture

PRODUCTS AND APPLICATIONS

JASH SCREW COMPACTOR



Screw compactor are suitable for washing and compacting the floating waste coming out of the screens and travelling through a belt or screw conveyor in case of multiple screens or directly from the screen in case of single screen installed in municipal waste water pumping station or treatment plant. The Screening wash compactor shall remove the organic material by washing and compaction thus reducing the volume and weight by 40%.

Construction

Trough and cover:	Steel or stainless steel AISI304 or AISI316
Screw:	Stainless steel AISI304 or AISI316
Wear Liner:	HDPE, UHMWP or stainless steel
Drive Unit:	Direct Coupled, Chain transmission, belt transmission

Advantages

- Absence of outlet end bearing and intermediate bearing assemblies.
- No mechanical components in contact with the product handled.
- Low speed.
- No jamming or blocking even if with fibrous products.
- Fully enclosed pollution-free and odour-free machine.
- Horizontal or vertical outlet.
- Possibility of discharging into plastic bags.

Features

- Tailor made design.
- Throughput rates up to 8 m³/Hr.
- Screw diameter up to 360 mm
- Fully enclosed trough ensures dust-free environmental friendly operation.
- Volume reduction of screens up to 40%.
- Trough can be provided with wear liners.

INSTALLATIONS



Equipment: Shaftless Spiral conveyor
 Application: Sludge
 Dia: 660 mm
 Length: 17400 mm
 Customer: Relianz Engineering PTE Ltd.
 Year: 2017



Equipment: Shaftless Spiral conveyor
 Application: Sludge
 Dia: 660 mm
 Length: 9680 mm
 Customer: Relianz Engineering PTE Ltd.
 Year: 2017



Equipment: Shaftless Spiral conveyor
 Application: Solid Waste Management
 Dia: 250 mm
 Length: 1525 mm
 Customer: SFC Environmental Tech.
 Year: 2017



Equipment: Screw Compactor
 Dia: 600 mm
 Application: STP
 Customer: Punjab water supply and sewage board
 Year: 2016

OTHER INSTALLATIONS

Sr. No.	Equipment	Application	Dia	Qty	Customer	Year
1	Spiral Screw Conveyor	STP	600, 400, 300	5	Johannesburg Bushkoppies Sewage, South Africa	1999
2	Spiral Screw Conveyor	STP	300	1	Bellville Sewage Works, South Africa	2002
3	Spiral Screw Conveyor	STP	300	1	Beer Sheva Sewage Works, Israel	2002
4	Spiral Screw Conveyor	STP	300	1	Klerksdorp Sewage Works, South Africa	2003
5	Spiral Screw Conveyor	STP	300	1	Central Sewage Screening Plant, HK	2006
6	Spiral Screw Conveyor	STP	220	1	Degremont Limited	2011
7	Spiral Screw Conveyor	STP	220	2	Degremont Limited	2012
8	Spiral Screw Conveyor	STP	220	3	Degremont Limited	2013
9	Spiral Screw Conveyor	STP	220	2	VA Tech Wabag	2013
10	Spiral Screw Conveyor	STP	220	2	VA Tech Wabag	2014

OTHER INSTALLATIONS

Sr. No.	Equipment	Application	Dia	Qty	Customer	Year
11	Spiral Screw Conveyor	STP	250	1	IOCL, Paradeep	2014
12	Spiral Screw Conveyor	STP	220	1	UPJN, Varanasi	2014
13	Spiral Screw Conveyor	STP	220	1	OWSSB, Cuttack	2015
14	Spiral Screw Conveyor	STP	220	1	OWSSB, Bhubaneshwar	2015
15	Spiral Screw Conveyor	STP	300	2	Ilugin, Phillipines	2016
16	Spiral Screw Conveyor	Sludge	500	2	JWRP, Singapore	2017
17	Spiral Screw Conveyor	STP	220	2	Kariobhangi WWTP, Kenya	2017
18	Spiral Screw Conveyor	STP	220	1	RAAD, Malaysia	2017
19	Spiral Screw Conveyor	STP	350	1	Rukungiri, Uganda	2017
10	Spiral Screw Conveyor	STP	220	8	VA Tech Wabag	2017

Thank You



JASH ENGINEERING LTD

31, Sector-C, Industrial Area,
Sanwer Road, Indore,
INDIA.
Ph. No. +91-731-2720143, 2720034
Email: info@jashindia.com
Website: www.jashindia.com

RODNEY HUNT INC

158 Gov Dukakis Drive,
Orange, MA 01364,
USA
Ph. No. (978) 633 4362,
Email: orange@rodneyhunt.com
Website: www.rodneyhunt.com

JASH USA INC

4800 Sugar Grove Blvd, # 602,
Stafford, TX 77477
USA
Ph. No. (281) 962 6369,
Email: sales@jashusa.com
Website: www.jashusa.com

MAHR MASCHINENBAU GMBH

Kupferschmiedgass 8,
A-2201 Hagenbrunn,
AUSTRIA
Ph. No. +432246 3521
Email: office@mahr.at
Website: www.mahrmaschinenbau.com

SHIVPAD ENGINEERS PVT LTD.

3/86-E, ATC Street, 2nd Main Road,
Ambattur Industrial Estate, Ambattur,
Chennai , 600 058, **INDIA**
Ph. No. +91- 44-4860 6201/4860 6203
Email: sales@shivpad.com
Website: www.shivpad.com

E&M JASH LTD.

905, Silvercord Tower 2,
30 Canton Road, Tsimshatsui, Kowloon,
HONG KONG
Ph. No. +852 2375 3180
Email: office@eandmjash.com
Website: www.eandmjash.com