



KAIVANYA

EXTRUSION TECHNIK

A drop of solution in ocean of innovations

COMPONENTS FOR INJECTION / EXTRUSION / BLOW MOULDING

SINGLE & TWIN SCREW EXTRUSION LINES

BIMETALLIC & NITRIDE SINGLE-TWIN SCREW BARREL SET

SINCE 1998

www.kaivanyaextrusion.com

SCREW DESIGN

PLASTIC MACHINERY DESIGN

SCREWS & BARRELS SPECIALIST

PRE ASSEMBLE PLASTICATING SYSTEMS

TWIN & SINGLE EXTRUSION

SPECIALIZE APPLICATIONS

WORLD WIDE CLIENTS

ABOUT US

About Kaivanya

Established in 1998 as a one-man operation, Kaivanya Extrusion Technik Pvt. Ltd. has become world renowned screw and barrel specialists. Today we cater high quality barrels, high performance screws, pre assembled plasticating systems for specialize applications twin and single extrusion lines. We provide services and products that is second to none. We cater service to plastics & rubber industries processors and OEMs worldwide, countries such as: Africa, Middle East, Europe, Usa. Marketing over 40 countries around the world.

Our Technical and Engineering Department offers more than 15 years of experience in the field of plastic machinery and screw design. We have developed our own system of screw designs which can be tailored to suit your application.

Our Vision

Delivering best quality to our customers by implementing latest innovations in bimetallic technology and specialized screw designs solutions polymer to polymer.

Our Mission

- » Customer friendly atmosphere
- » Honesty
- » Unwavering commitment to customer service.
- » Lowest Risk in Development Project
- » Marketing via quality
- » Developing via innovations

Our Services

We serve following service all over the world;

- » Screw design and mixer patented
- » Retrofitting projects
- » OEM replacement
- » Bimetallic hard facing coatings & Linings
- » Rebuilding & Refurbishing services with inspection
- » At sight drawing service
- » Erection and installation
- » Turnkey project for extrusion lines



Corporate Facilities

FACTORY FACILITY

Factory premises is situated in industrial hub of Ahmedabad (Gujarat) - Vatva Phase IV with work area of 16000 Sq. Ft. and corporate house of 5000 Sq. Ft.

Work area comprises of high tech machineries and skilled labours to manufacture the goods with best quality and shortest lead time.

PRODUCTION FACILITIES

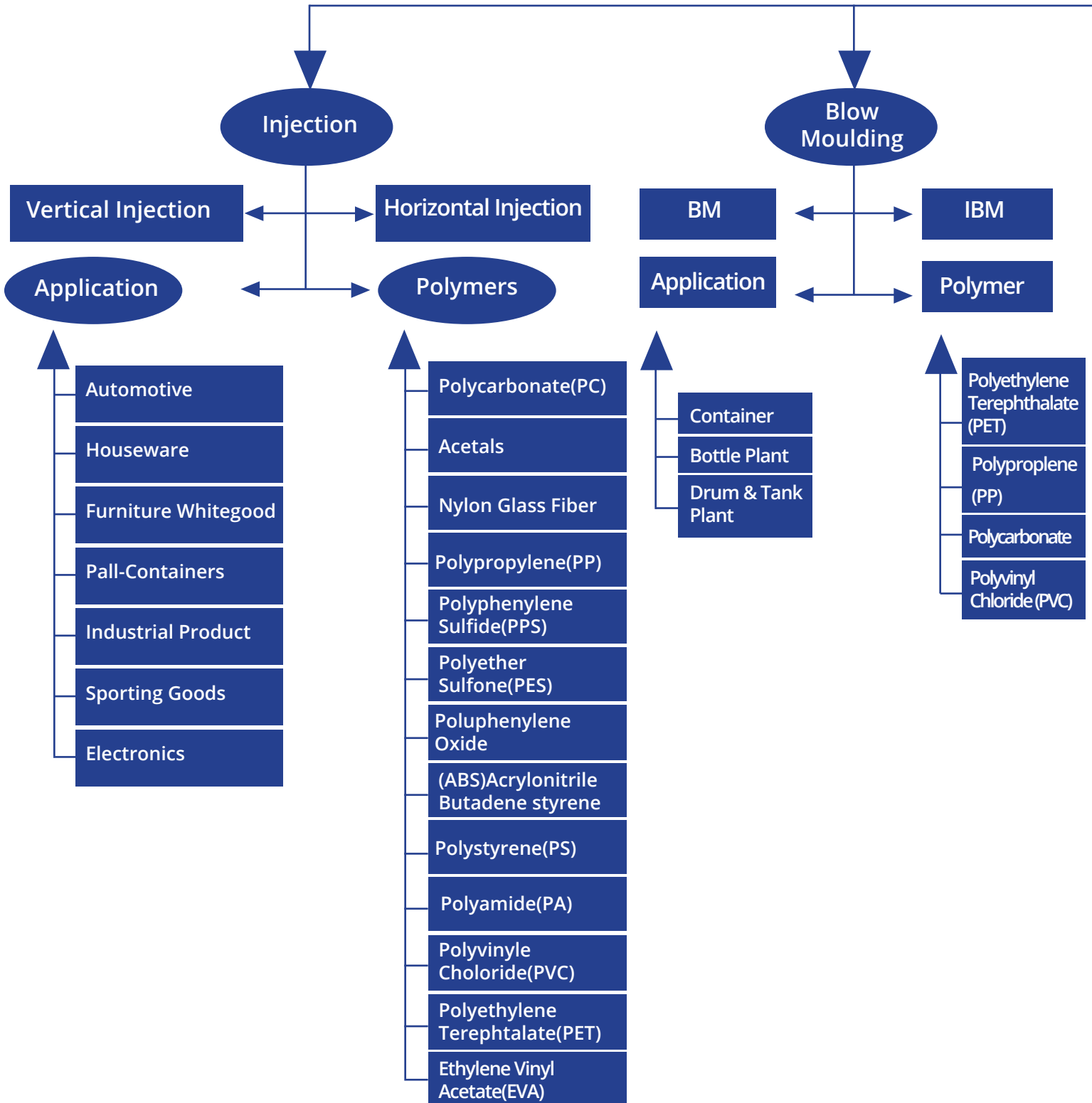
- » Our comprehensive production facilities & specific process outsourcing vendors enable us to perform the high precise end product deliver to customer within tolerances of SPI Guidelines for screw and barrel. As for new screw or old rebuild screw, we utilize traditional methods to achieve the highest international standards.
- » Feed screw cutting machines over 6m (20ft.) long x 20cm (8 in.) diameter.
- » Milling and Turning center, Radial Drilling, Grinding and Polishing.
- » Weld overlay hardfacing PTA, SPRAY FUSE & Thermal spray HVOF equipment.
- » PVD Coating, Spin casting, through hardening.
- » Heat treatments (Ion & Gas nitriding, Vacuum hardening).
- » Chrome plating max. length 6m (20 ft.).
- » Deep hole drilling, Gun drilling, boring.
- » Toughening, Stabilizing, Straightening.
- » Honing upto 6 meter.
- » Polishing & Superfinishing Machine upto 6 meter 200 ton press.

CHANNEL PARTNER FACILITIES

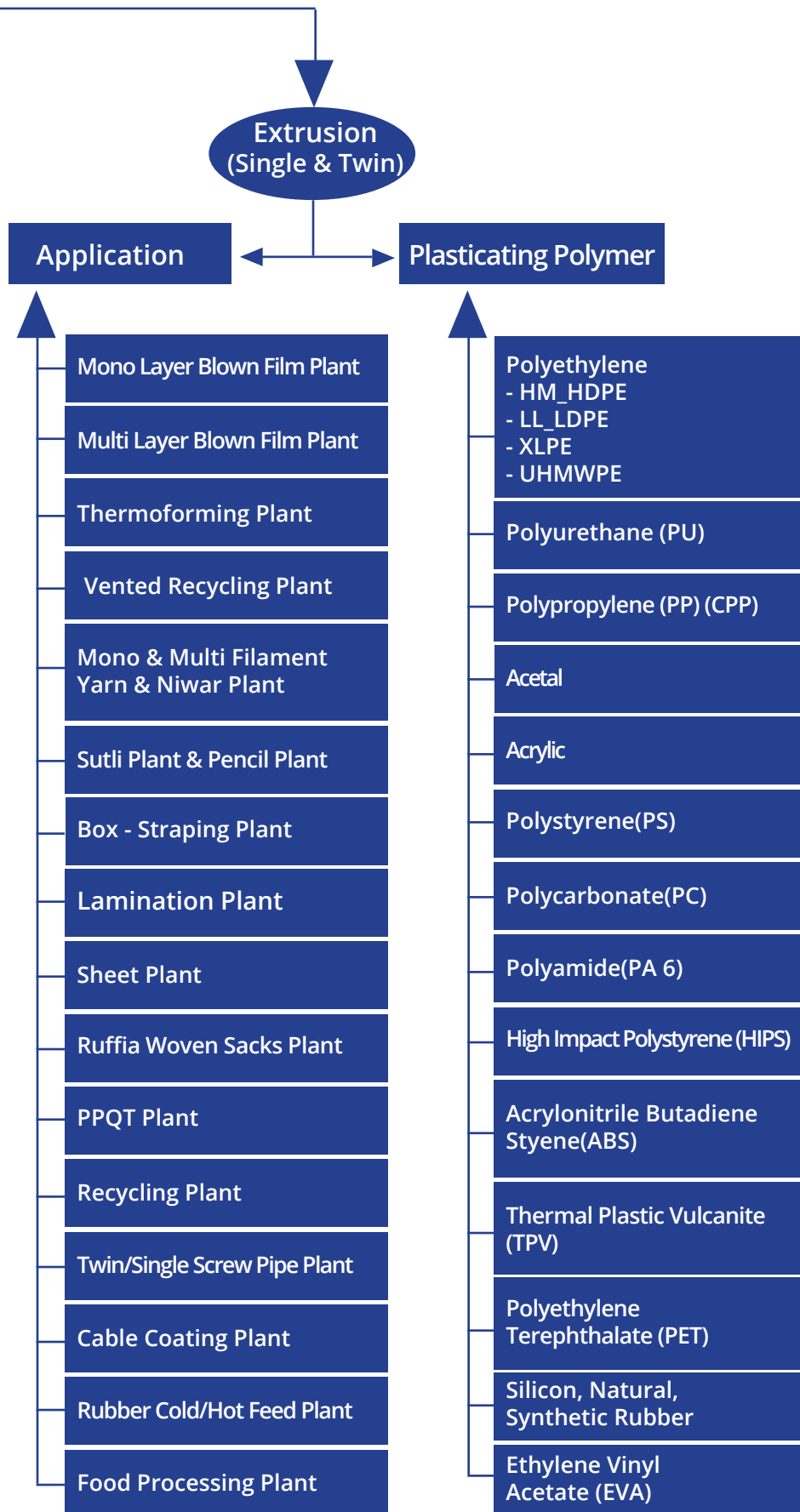
- 1) South Africa
- 2) West Africa
- 3) United Arab Emirates
- 4) Taiwan



Kaivanya Extrusion Technik Supplies Screw- Barrel Sets for following Injection & Blow Moulding Processing Application & Polymer




Kaivanya Extrusion Technik Supplies Screw- Barrel Sets for following Extrusion Processing Application & Polymer



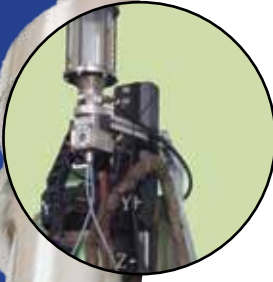
BENEFITS WITH KAIVANYA




HVOF COATING
88% TUNGSTEN +
12% COBALT



K705 SF COATING
50-70% TUNGSTEN
+Ni + Cr + BORON
(KET 900 | KET 705)



K183 PTA COATING
20-35% TUNGSTEN
BAL Ni /Cr + BORON
(KET 183 | KET 188
KET-163)



**KB300 PM TOOL STEEL
VACUUM HARDNING
BARREL Cr | Mo | V**

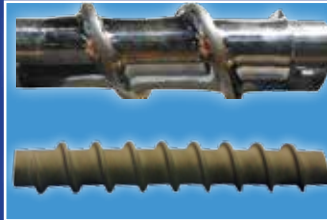


**KB183 CENTRIFUGAL
CASTING**
35% TUNGSTEN
BAL Ni/Cr + BORON ALLOY



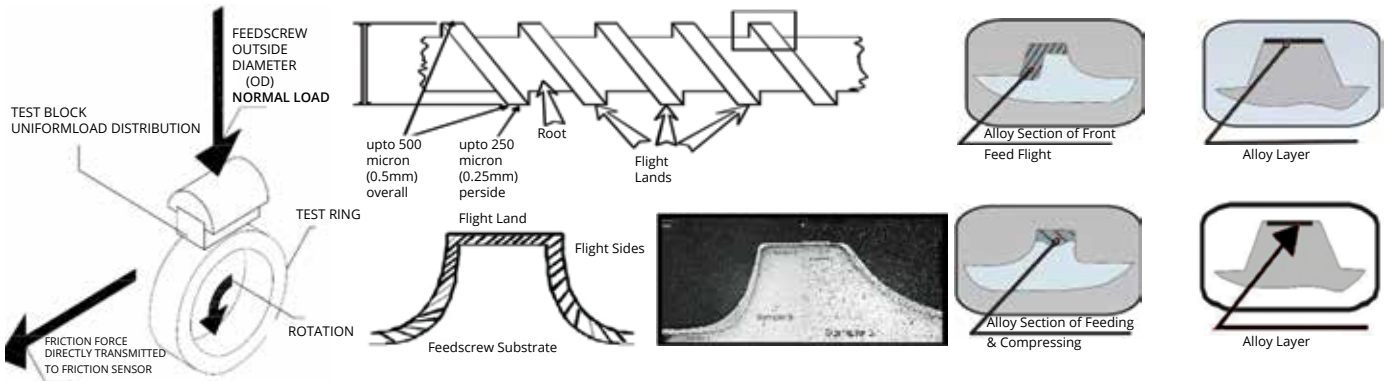
HIGHEST PROFITABILITY UNDER KAIVANYA TREE

- Increase profit and productivity by 1.5 to 3 time yield by kaivanya's innovative screw design.
- Prolonging screw barrel life and reduce maintenance time cycle by kaivanya's world advanced wear resistant bimetallic coating solution.
- World updated technologies scope of spares in retrofitting enhancing customers profit ratio 2 to 3 times in working (ROI) in 6 months.
- Instant profit recovery by rebuilding old screws and refurbishing old barrels with origin clearance as per SPI Guidelines.
- Special wear area solutions, increase customer profitability for long term basis.



Bimetallic Screws

BORON & TUNGSTEN CARBIDE HARDFACING PROTECT SCREW AGAINST ABRASION & CORROSION



SPECIALIST IN WEAR RESISTANCE PRODUCTS & SOLUTIONS

Polymers can be used : Minerals, Glassfibers, Pigment, Carbon fibers

ABRASION RESISTANCE TEST DATA

Coating Alloy	KET 900 (7631F)	KET 800	K 705	K 183	CPM-9V (HIP - PM Total Steel)	KET188	D2 Steel (1.2379)	KET 163	Nitraalloy (1.8550)
Chemical Composition	70 % Wcpta Tungsten	88 WC/ 12Co	Ni/Cr/ Boron/ Wc 50%	Ni/Cr/ Boron/ Wc 35%	Cr/V/Mo	Co/Cr/W	Fe/Cr	Ni/Cr/ Boron	Fe/Al
Application Process	Spirical Tungsten Wire (mig welding)	Hvof Thermal Spray	Weld Overlay	Weld Overlay	Powder Metallurgy	Weld Overlay	Wrought Steel	Weld Overlay	Wrought Steel
Average Hardness RC	68-70	68-71	65-70	65-70	52-56	67	55-58	63	68
Volume Loss mm ³	0.5	2.4	4.5	10	9.5	12	12	15	37



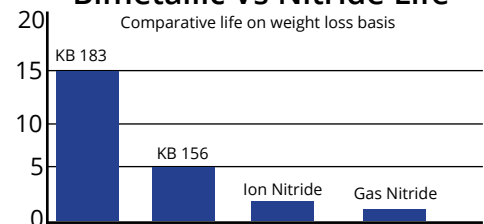
Bimetallic Barrels

Barrel from Dia. 25 mm to 200 mm & Length upto 6000mm

Barrels processed with bimetalllic alloy hardface coating have many virtues, such as high hardness, stronger wear & corrosion resistance. Its general properties are three to fifteen times more compared to the nitriding steel. They are widely used for highly abrasive & corrosive materials like engineering polymers and pvc compounds. The main machining methods are as follows: spot spray, spray coating, cover coating, mould, butt welding etc. The bimetalllic process used in world as advanced technology for better life with consistent production and quality. It is the best choice for production special screws. **Polymers can be used** : Minerals, Glassfibers, Pigment, Carbon fibers

- CPM/Specialized tool steel vacuum hardened Barrels
- Spin cast boron composite inlay layer Barrel (1.5-2mm)
- Spin cast (upto 35%) Tungsten composite inlay layer Barrel
- PM Tool Sleeve and liners (CPM 9V)

Bimetallic Vs Nitride Life



Coating Alloy	KB-300 (HIP-PM Tool /Steel)	KB-200 (Tool /Steel)	KB 183	KB 156
Chemical Composition	Cr/V/Mo	Cr/V/Mo/Fe	Wc/Ni/Cr/Boron	Ni/Cr/Boron
Application process	Vacuum Hardening	Vacuum Hardening	Centrifugal Casting	Centrifugal Casting
Average Hardness RC	54-56	54-56	60	60
Volume Loss mm ³	9.5	12	10	15



Extrusion Screws

Screw from Dia. 25 mm to 200 mm & Length upto 6000mm

BASE MATERIAL : Screws are made from nitroalloy steel (AISI 4340 NITRALLOY 135M), stainless steel (304, 316, 416, 17-4ph), Tool steel & CPM tool steel.

HARDENING & HEAT TREATMENT : Toughening, Tempering, Gas/Ion Nitriding & Additional Bimetallic Coatings can be incorporated. We also do special surface treatment like hard nickel plating, chrome plating & PVD coatings, HVOF Thermalspray & PTA weld overlay, vacuum through hardend screws.

HIGH PRODUCTIVE SMOOTH BARRIER MELTPRO SCREW WITH A MIXER

This barrier screw has proven its value in more than 30 years of field experience.

HIGH PRODUCTIVE GROOVEFED BARRIER MELTPRO SCREW WITH A MIXER

Open & closed barrier melt & solid separated channels based designs screws delivers higher throughput at lower melt temperatures at higher melting efficiency. Has proven its benefits in processing polyolefins, PET, ABS and PLA in various extrusion & blow molding processes.

SCREW BARREL APPLICATIONS

- » Blow molding: HDPE, PP
- » Sheet Plant : Air Bubble, PP, HIPS, PVC, Cast PP
- » Film Plant : PVC, Blown Film (Mono Multi Layer), Tape, lamination
- » Pipe Plant : PVC Pipe, HDPE Pipe, PVC Suction, PVC Soft, PVC
- » Pallet Plant : Recycling, Master Batch, & Filler

BENEFITS

- » Increased /Higher Melting Efficiency
- » Improved output/stability
- » Improved mixing in the melt channel
- » Improved physical properties

Extrusion Heat Treatment	Wear Resistance Bimetallic Screw	Spin Cast Inlay Layer Bimetallic Barrel
Gas Nitrided/ Plasma Nitrided	PTA Boron (Full Length) Colomony 63 Ni/Cr 1.5mm layer	Boron inlay layer 1.5 to 2mm
PM Tool steel vacuum hardened	PTA Tungsten 20 to 50 % (Last Zone/Entire) Colomony 63/88/83/705	Tungsten (10 to 35 %) inlay layer 1.5 to 2mm
Hard Chrome/Tin Plating	HVOF thermal spray coating (88 % Wc 12) cobalt) Flight od and core	PM Tool steel vacuum hardened throughout hardened



Screw from Dia. 25 mm to 200 mm & Length upto 6000mm

BASE MATERIAL: Screws are made from nitroalloy steel (AISI 4340 NITRALLOY 135M), stainless steel (304, 316, 416, 17-4ph), Tool steel & CPM tool steel

TWIN SCREW & BARREL APPLICATIONS

Higher proportion calcium powder is used in the parallel / conical screw process in these days. Based on this fact, kaivanya manufactures the best configured screw according to the client's requirement. So the best plasticization status and blending quality are achieved. New configured screws, which can be applicable to process PVC sheet, plate, piece, pellet, mould, high foaming, are developed by Kaivanya Factory. Also, anticorrosion and wear resistant materials are developed to better the life and enhance productivity.

TWIN SCREW & BARREL INNOVATIONS

- » New configured screws, which can be applied to process PVC pipes & profiles are developed by kaivanya
- » Anticorrosion & wear resistant material.
- » Polymer material can be sheared & compressed more softly in screw.
- » The twin-screw are more effective than other types, because of their high capacity and good thermal and mechanical stress.
- » Ease of Application - The powder mixing with chemical additives and melting with thermal and mechanical energy in three zones (feed, compression and material zone) and because of gear pump and screw's pressure, converting to final product in latest plate.

HARDENING PROCESS OF TWIN SCREW & BARREL SET

Extrusion Heat Treatment	Wear Resistance Bimetallic Screw	Spin Cast Inlay Layer Bimetallic Barrel
Gas Nitrided/ Plasma Nitrided	PTA Boron (Full Length) Colomony 56/63 Ni/Cr 1.5mm layer	Boron inlay layer 1.5 to 2mm
PM Tool steel vacuum hardened	PTA Tungsten 20 to 50 % (Last Zone/Entire) Colomony 88/83/705	Tungsten (10 to 35 %) inlay layer 1.5 to 2mm
Hard Chrome/Tin Plating	HVOF thermal spray coating (88 % Wc 12) cobalt) Flight od and core	PM Tool steel vacuum hardened throughout hardened



Barrel Single/Twin Front & Rear Barrel

Barrel from Dia. 25 mm to 200 mm & Length upto 6000mm

Barrels processed with bimetallic alloy centrifugal casting have many virtues, such as high hardness, stronger wear & corrosion resistance. Its general properties are three to five times more compared to the nitriding steel. They are widely used for highly abrasive & corrosive materials like engineering polymers and pvc compounds. The bimetallic process used in world as advanced technology for better life with consistent production and quality. It is the best choice for production special barrels. Like nitride bimetallic single & twin/ front & Rear bimetallic barrel.

PM Tool steel & Specialized Tool Steel vacuum hardened Barrels
 Spin cast boron composite inlay layer Barrel (1.5-2mm)
 Spin cast (upto 35%) Tungsten composite inlay layer Barrel
 PM Tool Sleeve and liners (CPM 9V)
 Specialized Tool Sleeve Groove Sleeves

BARREL FOR :

Injection | Extrusion | Blow Moulding | Twin Extrusion

Coating Alloy	KB-300 (HIP-PM Tool /Steel)	KB-200 (Tool /Steel)	KB 183	KB 156	KB 100
Chemical Composition	Cr/V/Mo	Cr/V/Mo/Fe	Wc/Ni/Cr/Boron	Ni/Cr/Boron	AISI 4340
Application process	Vacuum Hardening	Vacuum Hardening	Centrifugal Casting	Centrifugal Casting	Nitride Gas/Ion
Average Hardness RC	54-56	54-56	67	67	67
Volume Loss mm ³	9.5	12	10	15	30 - 37
Thickness Layer	Throughout	Throughout	1.5 to 2.0 mm	1.5 to 2.0 mm	350 - 500 micron



Injection Screws

Screw from Dia. 25 mm to 200 mm & Length upto 6000mm

BASE MATERIAL: Screws are made from nitroalloy steel (AISI 4340 NITRALLOY 135M), stainless steel (304, 316, 416, 17-4ph), Tool steel & CPM tool steel.

UNIVERSAL SCREW

Applied with Highly glass-filled materials, Materials with metallic powders or mica fillers & Shear-sensitive polymers.

UNIVERSAL SCREW WITH A MIXER

Applied with Molding materials with color and additive concentrates, fiber reinforcements, thermoplastics & engineering resins.

BARRIER MELT - PRO SCREW WITH A MIXER

Applied with any polymer except rigid PVC.

DOUBLE BARRIER MELT - PRO SCREW WITH A MIXER

Applied with Molding materials with color and additive concentrates, fiber reinforcements, thermoplastics & engineering resins.

APPLICATIONS

- » Injection molding
- » Custom processors running a variety of resins
- » Virgin & regrind resin applications
- » Pre - colored - Color additives
- » ABS, PE, PP, PET, PLA, MDPE, PVC

BENEFITS

- » Custom-tailored for variety of resins
- » Intensive mixing with low temperature rise
- » Good melt homogeneity
- » Reduce shot cycle time
- » Increase moulding & cooling time

HARDENING PROCESS OF SCREW & BARREL INJECTION

Extrusion Heat Treatment	Wear Resistance Bimetallic Screw	Spin Cast Inlay Layer Bimetallic Barrel
Gas Nitrided/ Plasma Nitrided	PTA Boron (Full Length) Colomony 56/63 Ni/Cr 1.5mm layer	Boron inlay layer 1.5 to 2mm
PM Tool steel vacuum hardened	PTA Tungsten 20 to 50 % (Last Zone/Entire) Colomony 88/83/705	Tungsten (10 to 35 %) inlay layer 1.5 to 2mm
Hard Chrome/Tin Plating	HVOF thermal spray coating (88 % Wc 12) cobalt) Flight od and core	PM Tool steel vacuum hardened throughout hardened



Front Component & Mixtures (Ring Plunger Set)

FRONT COMPONENT & MIXTURES

Kaivanya can design and manufacture a complete line of front end components for injection units from a variety of abrasion and corrosion resistant including : Nitride (Plasma & Gas), H13, D2, S7, CPM, vacuum hardend and 17-4PH Stainless Steel, PVD (TiALN, TIN,).

SLIDING RING VALVES

- » Industry standard design
- » Flow path design can be tailored to wide range of resins

APPLICATIONS

- » General Purpose
- » Special four-piece "shear eliminating" designs for fluoropolymer materials

ADVANTAGES

- » Wide range of resins
- » Variety of construction materials
- » Durability
- » Versatile three and four-piece configurations
- » Low Cost

BENEFITS

- » General purpose design
- » User-selectable levels of wear Performance
- » Good for custom molding applications
- » Replaceable components
- » Low investment

PVD COATING

Physical vapor deposition (PVD) is a variety of vacuum deposition and is a general term used to describe any of a variety of methods to deposit thin film by the condensation of a vaporized form of the desired film material onto various work piece surfaces. The coating method involves purely physical processes such as high temperature vacuum evaporation with subsequent condensation, or plasma sputter bombardment rather than involving a chemical reaction at the surface to be coated as in chemical vapor deposition.

Specifications	TiN	CrN	TiAlN
Hardness	HV 2200-2300	HV 1700-1800	HV 3200-3400
Thickness	0.004-0.005mm	0.004-0.005mm	0.004-0.005mm
Color	Golden	Silver	Violet Grey
Application	Transparent Material Optical Purpose	Transparent with Glass Fiber Optical Purpose	Halogen-Free Material with Glass Fibre Optical Purpose
Wear Resistant	★★★★★	★★★	★★★★★
Corrosion Resistant	★★★	★★★★★	★★★★





Extruders

SINGLE SCREW EXTRUDER

Series of extruders screw from kaivanya will ensure of its best performance. Finished product quality is the best and energy consumption is the lowest. Based on the conditions of different modern extrusion process and the increasing usage of additives & modifiers, kaivanya factory has explored screw and barrels with anticorrosion & wear resistance properties which is applicable to high speed and pressure process.

Main forms of extruders screws are as follows gradual change, abrupt change, wave, barrier, distributary, separation, air discharge, pin, blending, head-variation, triple-head, etc. These are applicable to the process of different shapes of materials such as powder, pellet, flake and cotton-like materials and applied in the extrusion for sheet, pellet, carbon, food, chemical fiber etc.

Model	(Screw Dia) mm	L/D	(Driving Motor) HP	(Capacity) Kg/h
KET 32	32	26-30	7.5	20-25
KET 35	35	26-30	10.0	30-35
KET 40	40	26-30	15.0	40-45
KET 45	45	26-30	20.0	50-55
KET 50	50	28-30	25.0	65-70
KET 55	55	28-30	30.0	80-90
KET 65	65	28-32	50.0	130-150
KET 75	75	28-32	60.0	150-170
KET 90	90	28-32	90.0	250-270
KET 100	100	28-32	100-125	300-375
KET 120	120	28-32	150-200	450-600
KET 140	140	28-32	300-400	900-1200

FILM PLANT

- » PVC Film Plant/ PPTQ Film Plant
- » Lamination Film Plant
- » Blown Film (Mono Layer)
- » Tape Plant
- » Multi Layer Film Plant

SHEET PLANT

- » Air Bubble Sheet Plant
- » PP Sheet Plant
- » HIPS Sheet Plant
- » PVC Sheet Plant
- » Thermo Forming Sheet Plant

PIPE PLANT

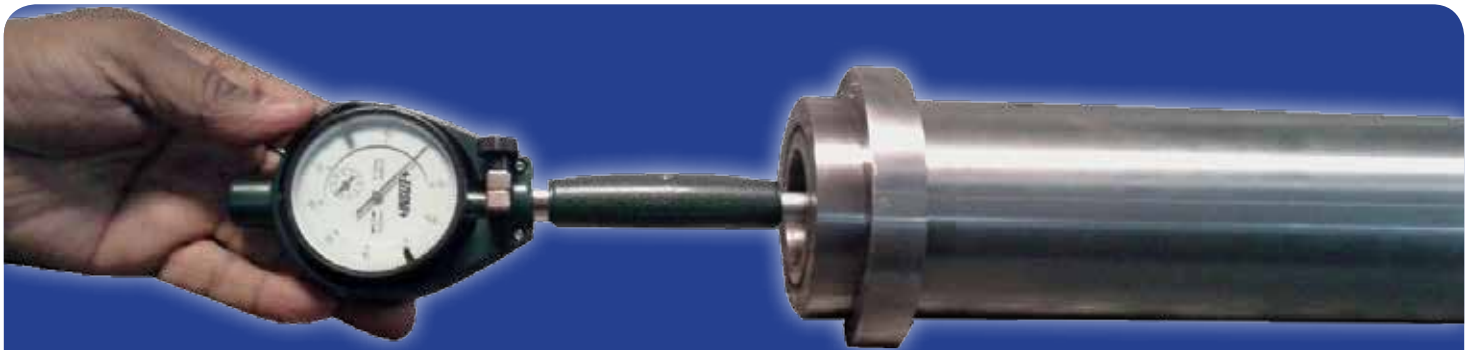
- » PVC Pipe Manufacturer (U PVC, RPVC, CPVC)
- » HDPE Pipe Manufacturer
- » PVC Braided Pipe Plant
- » PVC Suction Hose Pipe
- » PVC Soft Tubing Plant

GRANULES PLANT

- » Reprocess Granules plant (2 stage, 1 stage).

COMPOUNDING PLANT

(MASTERBATCH, FILLER PLANT)



WE RETROFIT UNDER BELOW MENTIONED PARTS TO ENHANCE PRODUCTIVITY & FULFILL TO COMMITTED OUTPUTS

Retrofit Spares

Air Ring



Twin Extruder Gear Box



Co-Rotate Twin Screw Spline Shaft



Multilayer ABC/ABA Die



Continuous Screen Changer



Melt Pump



Screws



Single Extruder Gear Box



Twin Screw Extruder



Tdie Woven Sacks



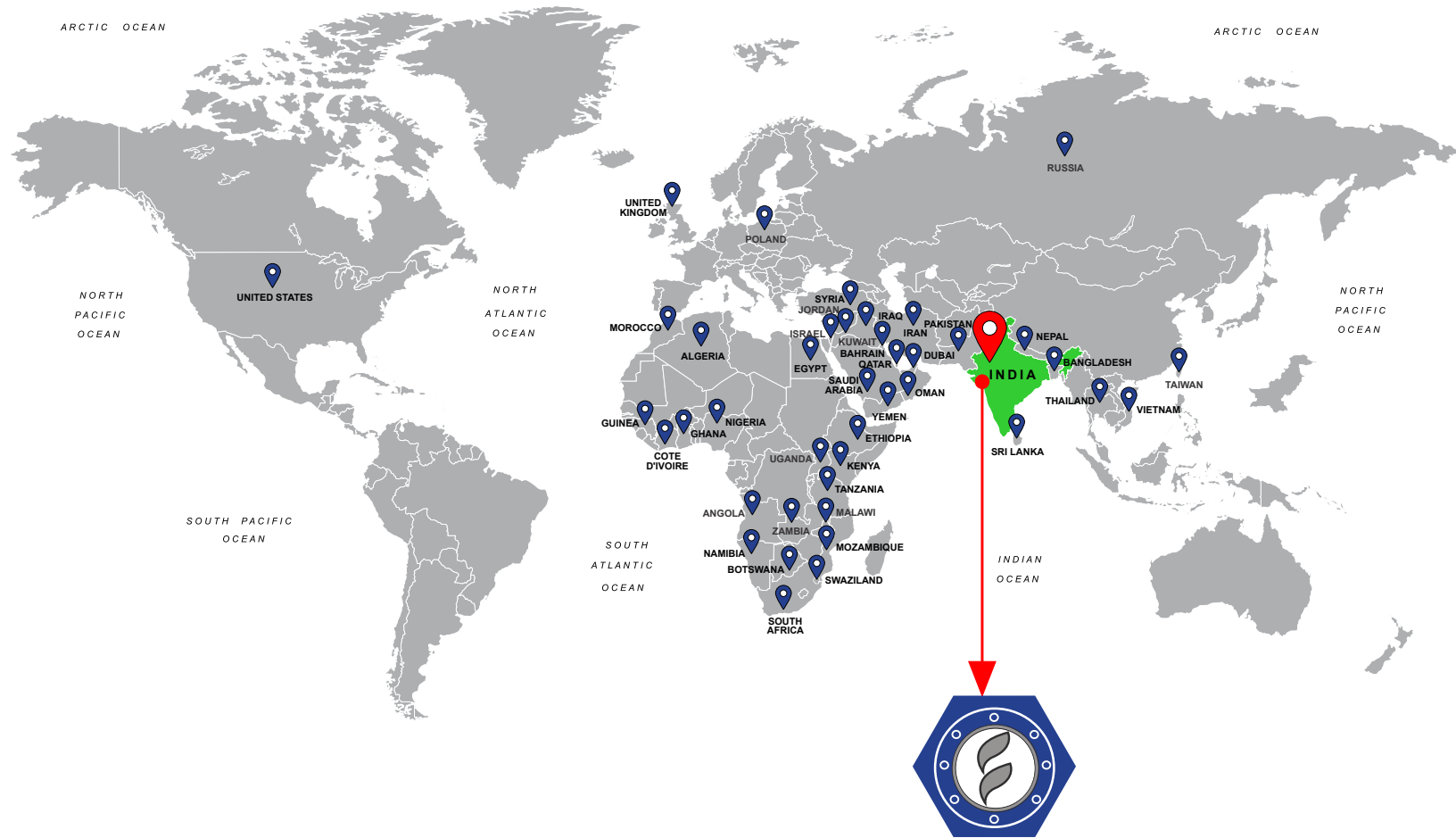
Hydro Motor



Elements



GLOBAL PRESENCE



KAIVANYA
EXTRUSION TECHNIK
A company you can rely on...

A drop of solution in ocean of innovations

INJECTION MOULDING

CAST FILM

BLOWN FILM

SHEET

PIPE

TUBING

PROFILE

BLOW MOLDING

WIRE & CABLE

RECLAIM COMPOUNDING

RECYCLING

KAIVANYA EXTRUSION TECHNIK

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