TÜV INDIA
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Your Partner in Improving Quality, Efficiency & Cost Optimisation

MADHU®

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SERVING THE PLASTICS INDUSTRY • Since 1984

Innovative Solutions

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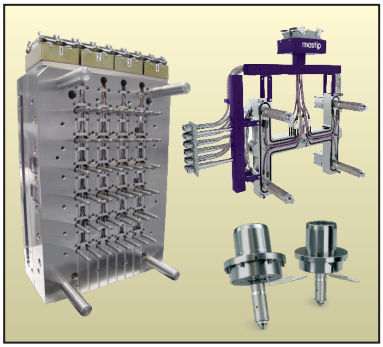


mastip HOT HALVES, NEXUS & VERISHOT SYSTEMS

Hot halves are mostly used for FMCG, Packaging, Medical & PET Preform applications.

Hot Halves

- Specially engineered for each application • Fully Assembled & Tested • Trouble free assembly & disassembly to mould
- Reduced mold manufacturing time • Parting line access to heaters & thermocouples
- Manifold surface thermocouples can also be changed from parting line or from top plate face • Gate area can be serviced while mold is on the machine
- Available in P20, SS420 & customized steels

NEXUS prewried screwed-in system

- Leak proof operation due to the TX screwed in nozzles.
- More consistent thermal profile from advanced heater design of TX nozzles.
- The system can be dropped in, **in cold condition** (no preheating required), this makes installation, maintenance and easier with reduced risk.
- All wiring is enclosed in the NEXUS frame making mould design and machining simpler resulting in cost savings.

VERISHOT single valve gate system

- Most compact single valve gate with inbuilt ring • SS construction
- FlowLoc™ nozzles with leak proof solution. • Excellent thermal profile ensuring wide moulding window.
- Best gate finish

EXATEMP® TOUCH SCREEN HOT RUNNER CONTROLLERS

- R10.4" TFT SVGA LCD, 7" TFT LCD.
- Automatic ID recognition • PID auto temperature control
- Editable zone name • Automatic shutdown for heater abnormality
- Current, output percentage display function
- Easy swapping for individual module failures
- Follower function for thermocouple disconnection
- 8 curves display (temperature, output percentage)
- Synchronized temperature raising / lowering
- Module memory • Power balance detection and display
- Detection for heater open and short circuits
- RS485 communication function : ASCII and RTU mode
- Selectable two output trigger modes (Phase angle / Zero cross)
- Group setup function • Web based file output function (USB)
- Auto / Manual function • Selectable six alarm modes
- Load power usage display per zone • Detection for fuse breakage
- Setting for output percentage limit • Internal alarm buzzer
- Thermocouple break and inverse detect
- Boost function facility
- Stainless Steel terminal box

EXATEMP® MODULAR HOT RUNNER CONTROLLERS

- Built with proven technology and manufacturing
- Flexible, easy to set-up and simple to operate
- Unique features
- Improved reliability to suit Indian conditions
- Improved quality

Key Features

- "Idle mode" protection for hot runner and mould after power failure
- Auto tune on start-up
- Self check on start-up
- Resolution $\pm 1^{o}C$
- Soft Start function to protect heaters during start-up
- Simple to set-up and run
- Under/Over temperature alarms
- Open and reversed thermocouple detection
- J and K type thermocouple
- CE Certified modules
- Boost function facility
- Stainless Steel terminal box

EXAFILT® HOT RUNNER FILTERS

- Avoid foreign material entering into mold
- Very useful for hot runner molds
- Little pressure drop
- Small installation dimensions
- Easy to clean
- Filter cartridge can be easily removed using a knock-out drift
- Unique filter element using 'flight filtration principle'
- Filter supplied with customized machine nozzle

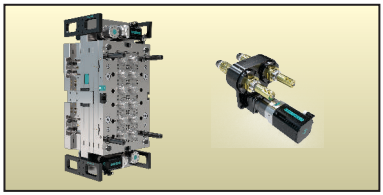
EXATEST® MOLD TESTING UNIT

Checks mould cooling circuits

- High pressure leakage test
- Flow rate test
- Adjustable pressure upto 50 bar
- Pre selection of pressure settings
- Flow Control (Flow Meter)
- Dry Run Protection.

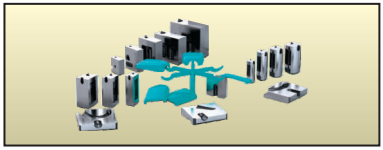
MERKLE® HYDRAULIC CYLINDERS - COMPACT & POWERFUL

- BZ500 : Block cylinders. 500bar, Piston dia 16mm to 200mm. Option of Inductive or mechanical switches. Ground & hardened piston rods.
- BZ250 : Block cylinders with system port. 250bar, Piston dia 25mm to 125mm. Stroke upto 200mm. Ground, hardened & hard chrome plated piston rods.
- MBZ160 : Block cylinders with magnetic field sensors. 160bar, Stroke upto 200mm. Ground, hardened & hard chrome plated piston rods. Hard coated housing.
- RZ500 : Circular Block cylinder. 500bar, Piston dia 16mm to 100mm Ground & hardened piston road, Multiple mounting options.
- ZHZ160 : Tie Rod Cylinder Piston dia 25mm to 200mm. Ground hardened and hard chrome plated piston rods. Viton seals. Linear cushioning.
- VBZ160 : Locking cylinder. Piston dia 32mm & 40mm. Compact block construction. High holding force. Locking with pretension.



servomold® SERVO ELECTRIC

Servo mold is the leading supplier of system solution for the realization of servo-electric rotary and linear movements in injection molding tools. From single threads in technical plastic parts, linear slider-and corepuller movements to high-cavity cap molds-Servo mold has the innovative servo mold alternative for every injection mold.



i-mold TUNNEL GATE INSERTS

Tunnel gate inserts are recognized worldwide as innovative products with high cost reducing potential for moldmakers and molders.

- Time and cost reduction thanks to fast and easy application
- Made of highly wear-resistant hot work tool steel M2 (1.3343)
- High degree of reliability in production process
- Invisible gate marks through underside gating
- Single-part design for compact dimensions
- Available in many different versions and sizes
- Integrated cutting edge for exact sprue separation
- Suitable for all plastics thanks to optimized feed channel geometry up to 60% filler content (e.g. glass fibre) is possible

CUMSA INNOVATIVE MOLD PARTS

Slides: Totally integrated, hardened, ground & adjusted with interchangeability in all versions incorporating several integral mechanisms i.e. slides, heel units, angle pin housings, bush, undercut base unit, modular retainers, slide retainers, automatic retainer, latch lock, coring unit, safety strap etc...

Ejection Systems: Ejector guide pins, ejector guide bush, ejector base, headless ejector pins, double ejection, plate accelerator, accelerated ejectors, expandable cores, angular limiter, ejector foot, shock absorbers, safety stopper etc...

Undercut Mechanism: Double rack lifter with & without cooling, Sprung cores both, New Worm pin & Lifter, Flexible core, Tulip Ejector, Vertical lifter, Dog lifter, Angled guide bush

Vacuum Jet System: Vacuum jet unit (3 different models), vacuum jet valves, vacuum jet plug, vacuum jet seal etc...

Traceability & Accessories: Air valves, filter valve, double valve, reference blocks, mark inserts, recycling inserts, date stamps, mini daters, multi date stamps, lateral date stamps, ejector date stamps, sprue adjusters, standard & high temperature cable retainers, trimming knife, mold cycle counters, electrodes letter box, electrode holder etc... Seal bearing for rotating cores.

BOLEXP GUIDANCE SYSTEMS

Ball Guidance Bushes

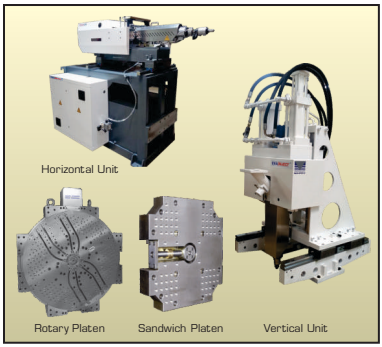
- High precision rolling system (Hardness 60-62 HRc)
- Reduced travel resistance
- Made up of an outer casing of steel for rolling, hardened & ground • Balls positioned at slight angle
- Increased contact area • Greater load bearing capacity

Ball Guidance Mould Centerer

- Minimal friction with better adjustment
- Great agility of motion
- Endless travel with balls re-circulating
- Materials : 1.2379 Hardness 60-60 HRc.
- Cover : 1.2311 Black oxide finish + High precision balls

Molds Centerers

- All edition includes male part with graphite insertions
- Female part coated with a TiN treatment at 2300 Hv for reducing seizing • Guarantee appropriate alignment
- Three different models available



EXAINJECT® CONVERT 1K MACHINE TO 2K MACHINE

Additional Injection Units in Vertical, Mold Mounted & Horizontal (non-operator side) configurations available.

Rotary Platen & Index Platen Optional.

FEATURES

- Unit bast plate can be customized to suit main machine
- Screw design to suit plastic material
- Servo hydraulics with German gear pump ensuring repeatbility
- Keba control unit for accuracy in settings
- Hydraulic power pack can drive Rotary Platen
- Flexibility to shift from one machine to another (V Unit)
- Injection pressure and speed profiles
- Mold data storage and log of last cycles
- Alarm diagnostics
- Heating regulation for each cylinder zone
- Display of active Inputs and Outputs
- Euro map 67 interface available

EXAMIX® MIXING NOZZLE FOR INJECTION PROCESS

Contains 8 very efficient static mixing elements that homogenize the polymer melt prior to injection resulting in the following benefits.

- Reduced spots, streaks and clouds of color.
- Reduced colorant usage (10% - 40%).
- Narrower part tolerance.
- Less part distortion.
- Less part weight variation.
- Improved part quality when using regrind material.
- Shorter cycle time.
- Improved melt flow, uniform filling of multi-cavity molds.
- Reduced reject rates.

SMF Filter for SMN Mixing Nozzles

- Retains solids and only partially molten granulates.
- Protects hot runner systems and tools from clogging and/or damaging.
- Retrofitting possible without modification of the nozzle body.
- Filter length = length of two (2) mixing elements.

EXACOOL® BLOW MOLDING BOOSTER (BMB)

Blow Molding Booster (BMB) units have been developed based on many years of experience, to improve the product quality, consistency and increase production of the blow molded products.

Cooling the product is the longest and most critical part of the solidification process. The fact that the mold only removes heat from the outside surface of the container causes material stress and extended cooling time in the mold. The Blow Molding Booster (BMB) with Special blow pins replaces the regular air with chilled compressed air (3 to 5°C) inside the container during the blowing process reducing material stress and cutting cooling time.

BMB units are suitable for virtually all types of extrusion blow molding machines. They are easy to install and have very low energy consumption.

Trust, you will appreciate tremendous technological advantage, BMB equipment will give to your blowing process, to improve competitiveness & product quality / consistency.

Blue Air SYSTEMS DRY MOLD SYSTEM (DMS)

When the surface temperature of an object sinks below the dew point of the ambient air, condensation builds on this object. This problem especially occurs on chilled molds of plastic processing machine. The answer to this problem is to create a dry climate around the mold. The Dry Mold System (DMS) fills the enclosed mold area with dry process air with dew point of 3-4°C. Result : The DMS allows the usage of cold water with constant and optimal process temperature without the problem of condensation.

Injection moulding thermo forming and blow moulding without condensation is possible. Blue Air Systems' new DMS series (Dry Mould System), a dehumidifier which works **without the need for chilled water**. An enclosed production area is supplied with dry air with a dew point of 4°C (39.2°F). The DMS dehumidification units with process air volumes ranging from 500 to 3.500 Nm^3/h are now available.