TECHMIRE

88 NTX

TECHMIRE is the global leader in the design and manufacture of multiple-slide die casting machines for precision zinc components. All models of Techmire machines feature multiple-slide concept and parting-line injection. The advantages are faster cycle speeds, higher precision, reduction of secondary operations, lower energy costs, and savings in raw material compared with conventional machines.

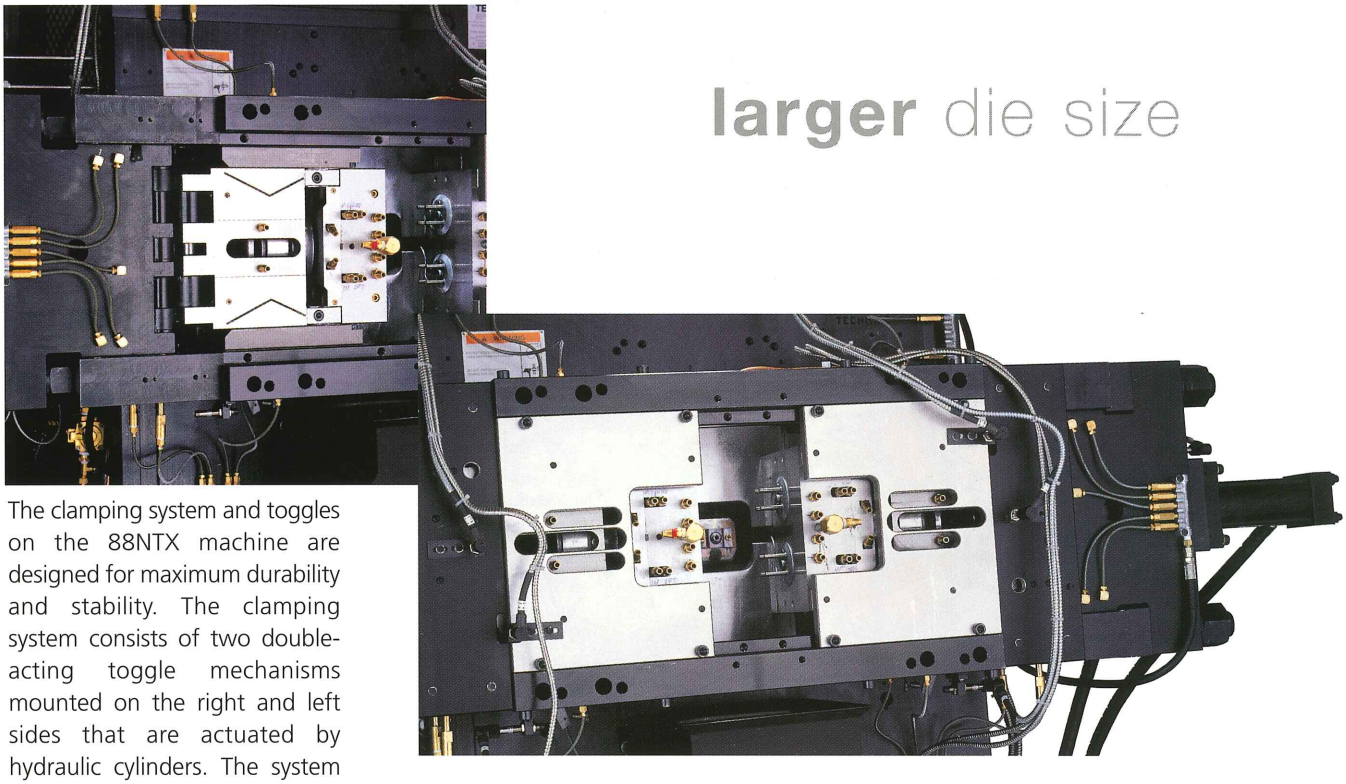
Techmire machines are currently in operation in more than 30 countries worldwide. Founded in 1973 in Montreal, Canada, the company has the expertise to ensure its customers' success in all aspects of the die casting process, including designing and building of dies, selection of auxiliary equipment, as well as initial and ongoing training and service.

The 88NTX is the biggest multiple-slide, parting-line injection machine designed and built by Techmire. The machine features a die size of 8 X 10 inches (205 X 255 mm) and a clamping force of 45 tons, optional 65 tons. Ideal for producing zinc components weighing up to 17.6 oz (500 grams) with tight tolerances at fast cycle speeds. Optional closed loop real time control of the injection system results in excellent surface finish.

The 88NTX is equipped with a precise quick die change system which allows die changeover in less than 15 minutes. The 88NTX will accept dies designed for all 66NT machines and will facilitate automatic degating and separation of parts from runners.

The larger die size and greater tonnage of the 88NTX compared to other Techmire machines allow for more cavities, which means greater productivity. A two cavity die on an 88NTX outperforms a six cavity die on a 200 ton conventional machine.

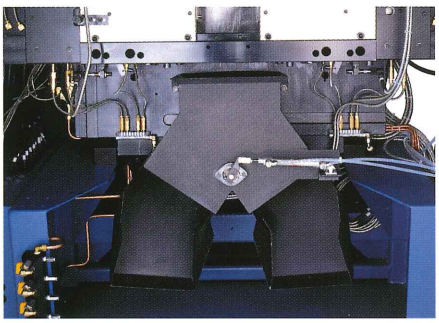
Clamping System



larger die size

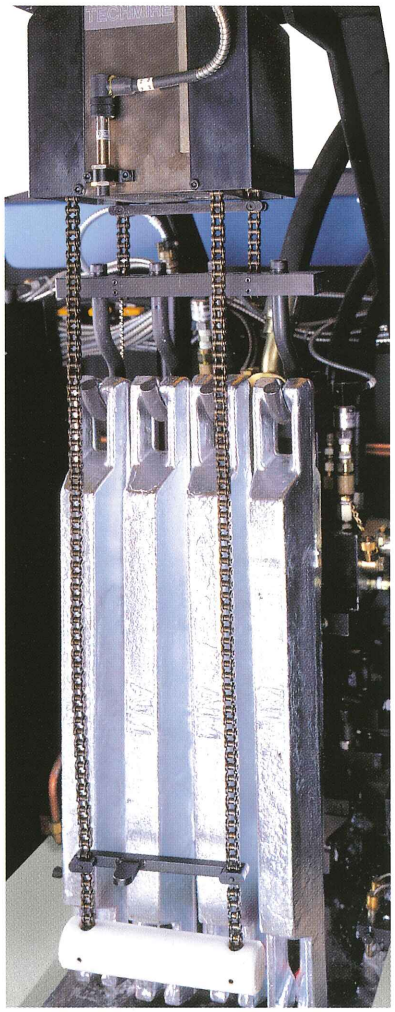
The clamping system and toggles on the 88NTX machine are designed for maximum durability and stability. The clamping system consists of two double-acting toggle mechanisms mounted on the right and left sides that are actuated by hydraulic cylinders. The system is designed to operate at a maximum clamping force of 45 tons, optional 65 tons. The toggle mechanisms are designed with an auto lubrication system, which reduces the requirement of operator intervention, thereby diminishing maintenance costs. Slide guiding mechanisms with wear plates, cover, and shanks are included. Guiding mechanisms are ground to .001" (0,025 mm) clearance between slides and wear plates, to maintain tight tolerances on castings.

Automatic Degating and Separation



Automatic degating can be designed into Techmire's dies. When used in conjunction with the separation feature of PPCS, parts and runners can be segregated automatically at the machine, without any manual intervention.

Automatic Ingot Loading System



A multiple ingot feeding system incrementally loads up to 60 kgs (132 lbs. – 8 ingots) of zinc, while maintaining accurate control over molten metal level and temperature.

A "low metal" audible warning signal and an alarm message on the computer screen alert the operator to load ingots.

The 88NTX is equipped with a double chamber melting pot for improved stability of alloy temperature and increased melt rate, ideal for producing larger components.

Computer Based Control System

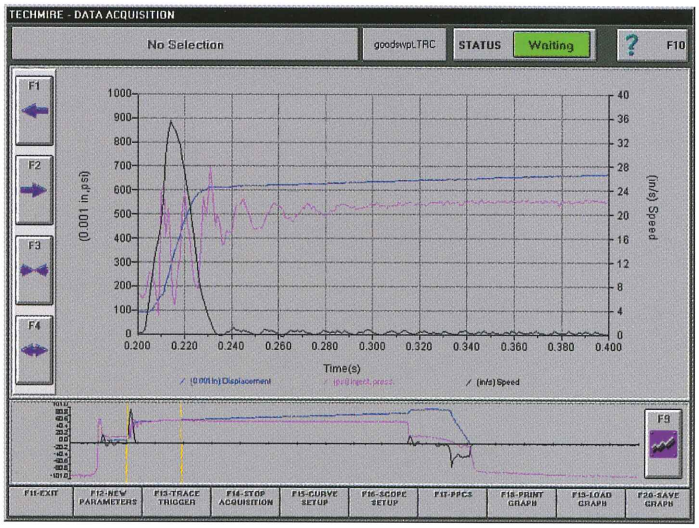
The controls of all Techmire NT and NTX machines are based on a PC with Windows based operating system. Proprietary software has been developed by Techmire for control of sequencing and timing of both the injection process and up to eight functions or movements. A PDF instruction manual is loaded on hard disk for easy access by the operator. Temperature controls are integrated in the software for greater accuracy and control.

The computer-based control system incorporates an easy-to-use graphical interface for programming, program storage and set-up repeatability, integrated access control, and an error messaging system. A modem is available for remote diagnostic.

Closed Loop Control of the Injection System

The Techmire system permits real time control of the injection process from start to finish, resulting in stable system performance and premium part quality. The main elements of the system are a special manifold, a fast response time servo valve, digital programmable servo controllers, microprocessors and proprietary software. All settings of the real time control system for any given mold can be saved on the hard disk, along with the mold sequence and PPCS settings, for ease of set-up and repeatability.

Typically, the closed loop control system helps to reduce flash caused by peak metal pressure at the end of the injection cycle and reduces cavity fill time.

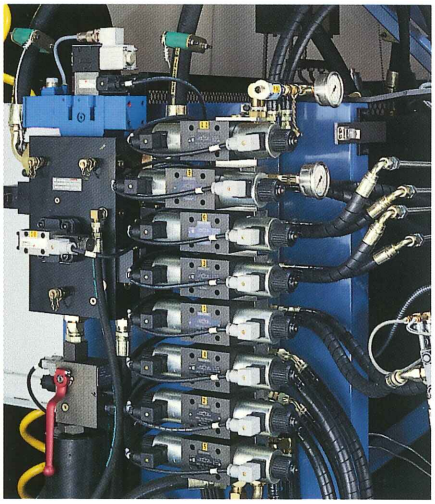


advanced process **controls**

Process Parameters and Shot Monitoring System (PPCS)

An optional shot monitoring system is capable of monitoring up to 27 parameters (e.g. temperatures, pressures, injection speed, fill time). Each parameter can be programmed with upper and lower limit settings. In the event that an out-of-tolerance condition is detected, the machine can be programmed to do a number of things, such as setting off an alarm, stopping the machine or directing the out-of-tolerance components in a separate bin. The system has a directional palette to segregate out-of parameter castings. All out-of-tolerance injections are logged with their respective parameters for analysis. The shot monitoring portion of PPCS is an excellent diagnostic tool for operators and process engineers. Graphs of shot profiles can be generated, saved, retrieved, printed or downloaded on a network, for offline analysis.

Hydraulic System



A fully integrated hydraulic system incorporating high flowrate and rapid response valves ensures fast cycle speeds. Clamping is controlled by the function manifold, which also controls the movement of the slides and the gooseneck. There are six hydraulic functions available to incorporate core pulls and two pneumatic functions to facilitate automation. An independent injection manifold controls the speed of the injection piston, which results in consistent casting quality.

faster cycle speeds

Injection System

The entire injection system is designed for high performance and repeatability, resulting in maximum process capability. An innovative double piston injection system reduces porosity. All Techmire machines are equipped with a precision-machined, steel gooseneck designed for maximum life and consistent performance.

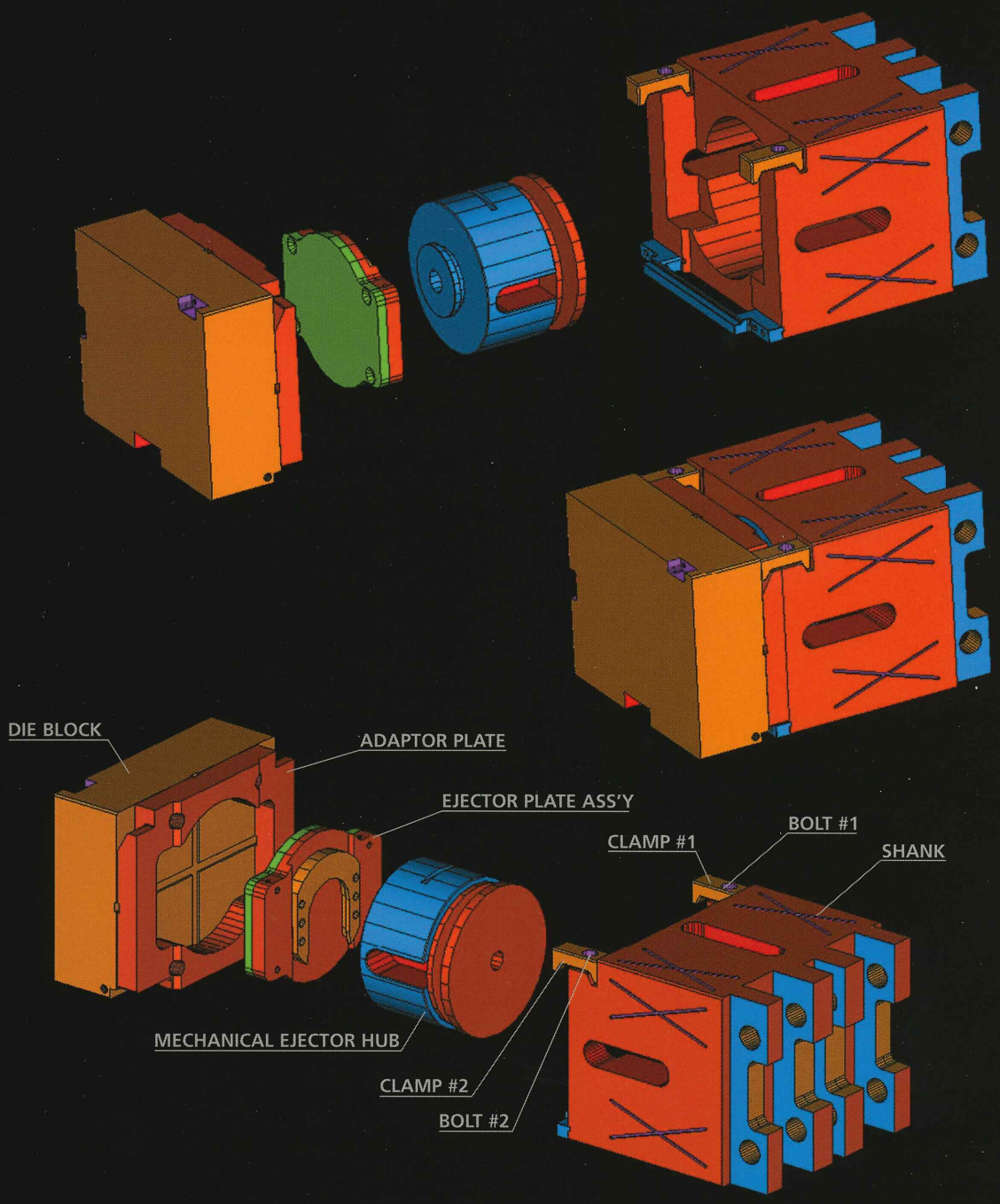
Pump and Motor

The 88NTX is equipped with a stand-alone hydraulic power unit, for easier access to hydraulic pressure adjustments and maintenance on the pump and motor. This unit is equipped with sensors to monitor oil temperature and level, as well as the condition of filters. These sensors are linked to the Techmire software, which will generate alarm messages, informing the operator of any abnormal conditions.

TECHMIRE

TOOLING CAPABILITY

TECHMIRE offers full service capability in the design and manufacture of high precision tooling for multiple-slide machines. Our expert team has extensive experience in the die casting industry enabling us to facilitate every stage of a tooling project from the redesign of components to first article approval. We employ advanced technology in die design and manufacturing processes. All designs are done on a 3D solid parametric CAD system, with data easily transferred electronically. Each die arrives at the customer fully tested with the appropriate set-up information so that it can be in production immediately.



QUICK DIE CHANGE SYSTEM

The standard quick die change system built into the 88NTX machine provides fast and efficient die changes in less than 15 minutes. Tooling cost is reduced as the 88NTX comes standard with two shanks, two intermediate adapter plates, four quick-connect clamps and one mechanical ejector hub assembly. An optional ejector hub is offered for automatic degating purposes.

The quick die change system ensures set up repeatability and accurate alignment. The alignment feature is an angular seat. The total tolerance of the assembly between the shank and the intermediate plate (adapter plate) is 0.0004" (0,01 mm) maximum. This angular seat positions the die blocks relative to each other in a vertical position, while mounted in the crosshead and facing the machine. The retainer bar at the bottom of the shanks positions the die blocks relative to each other in depth.

88 NTX

		STANDARD		OPTIONAL	
SLIDES	Number of Die Motions	2		8	
	Die Size	8.07 x 10.04 in.	205 x 255 mm		
	Stroke of Each Die Section	3.15 in.	80 mm		
	Ejector Stroke	1.75 in.	44.4 mm		
	Maximum Total Die Opening	6.3 in.	160 mm		
INJECTION	Injection Plunger Diameter	1.875 in.	47.625 mm	1 in. 1.25 in. 1.625 in.	25.4 mm 31.75 mm 41.27 mm
	Injection Cylinder Diameter	3.25 in.	82.55 mm		
	Injection Plunger Stroke	4.72 in.	120 mm		
	Maximum Dry Shot Speed at 1000 psi/70 bars*	55 in./sec.	1.41 m/sec.		
	Injection Capacity (max. theoretical)*	35.3 oz	1000 g		
	Shot Weight (max. recommended)*	17.6 oz	500 g		
	Metal Pressure (max. recommended)*	4500 psi	310 bar		
	Nozzle Heater	3.2 kW			
HYDRAULICS*	Hydraulic Line Pressure (max.)	1867 psi	128.7 bar		
	Hydraulic Tank Capacity	30 US Gal.	113.5 liters		
	Clamping Force	45 tons	40.8 t	65 tons	
	Dry Cycle Speed / Hour	1200			
MELT POT (electric)	Heaters	48 kW			
	Capacity of Melt Pot	1100 lbs	500 kg		
	Melt Rate / Hour	396 lbs	180 kg		
MOTOR	Motor Power	20 HP	14.91 kW		

* dependent upon machine configuration
TECHMIRE reserves the right to modify specifications at any time without notice.
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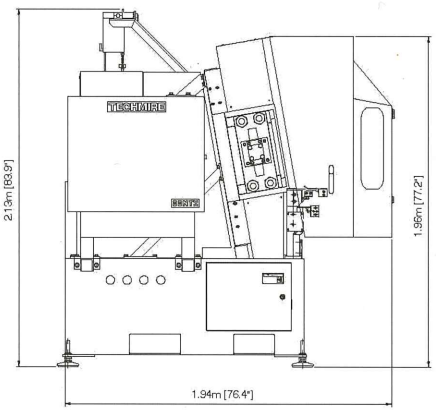
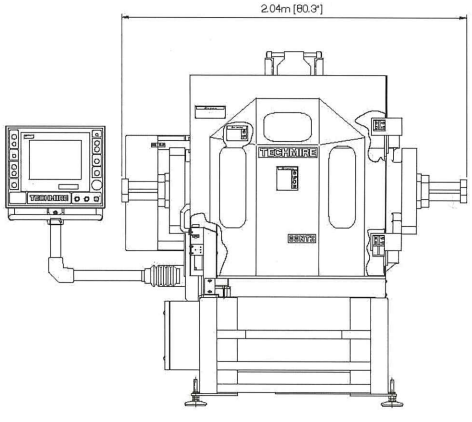


LEFT SIDE VIEW



FRONT VIEW

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