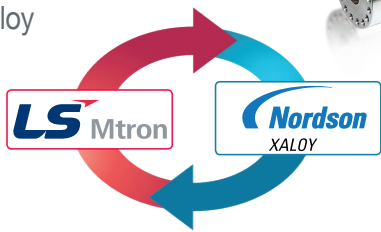


Made a Technical Agreement on Screw Design with Nordson Xaloy

Application of the pulsar mixing screw standard of Nordson Xaloy

Concluded a technical agreement between LS Mtron and Nordson Xaloy

- Will apply the pulsar design screw standard designed by Xaloy (Currently use the bimetal material of Xaloy for barrels)

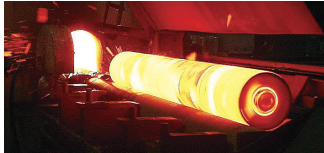


LS Barrel Technology Spin Casting Manufacturing Method

Heating Furnace heat up

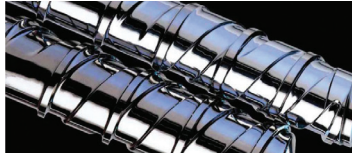
Rotation Spin casting at high RPM

Cooling Cool down, tempering

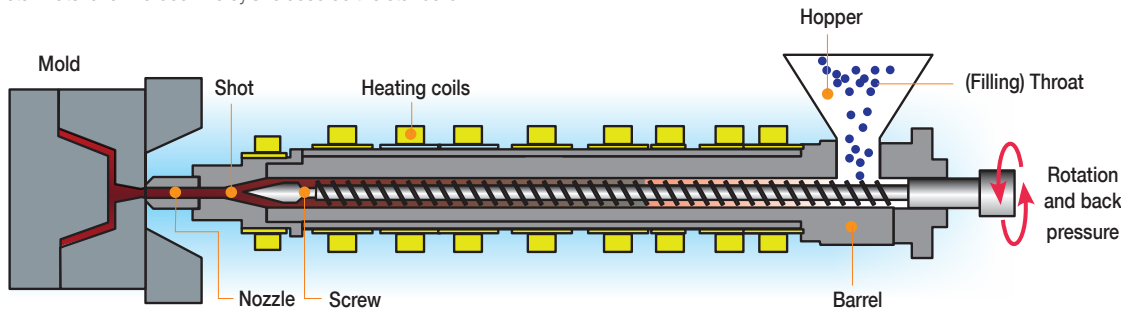


- The bimetal barrel, which is made by Nordson Xaloy's technical skills accumulated for more than 85 years, is stable because the basic material itself is different from domestic/china-made products, and the alloy layer is resistant to wear and corrosion, so it has a long life and can make large products.
- After manufacturing the bimetal layer, the basic metal's heat treatment hardness is kept and the alloy layer is thin with an even thickness, that insures the inherent characteristic are maintained and defects are eliminated.
- The bimetal material of Nordson Xaloy® is used as the standard

LS Screw Technology



- Possible to apply to most thermoplastic
- Mixing effect: increases by about 3 times compared to general screws
- Thermal stability: processing can be at done at lower temperature compared to general screws, therefore shortening the cooling time and preventing excess thermal strain upon the resin's inherent properties
- Time required for purging when replacing resin: reduces by about 25% compared to general screws
- Applies the Nordson Xaloy® Pulsar® Design



Standard Screws of LS Mtron

Nordson Xaloy's pulsar screw is being applied as the standard screw, and a dedicated screw design is applied when customers require

Classification of Design Criteria

Type	Main Features	Remarks
Standard	Dedicated to the Resin Sensitive to Shear Stress	PC, Rigid PVC, PPS etc.
	Respond to General Purpose, General Crystalline / Amorphous Resin	ABS, PEEK, PET, SAN, PEI, PPO, HIPS, GPPS, PA+GF, PP+GF etc.
	For High Shear Stress, Crystalline Resin	LCP, PA, PBT, PEEK, HDPE, LDPE, LLDPE, PP, POM etc.
Dedicated	Optical PC Dedicated, Low Compression, Low Detention Time	Carry Out a Design with Client Company's Requirements on a Single Type Design Basis
	TPU Dedicated Low Shear	
	PP+Long Glass Fiber Dedicated (Possible to Use General PP, PC, ABS)	
	Dedicated to Silicon	
	Dedicated to PA6 / 66	
Mixing	SAN / PETG (Dedicated to Cosmetics)	PP / PE / PS High Mixing Dedicated Screw

Classification By Material

Screen Type	HRC1	Characteristic
General (No Electric)	30 ~ 24	Pre Hardened Steel
Anti-Wear (AW)	56 ~ 60	Alloy Tool Steel
Anti-Corrosion Anti-Wear (AWAC)		Hi-Steel
Super Anti-Corrosion Anti-Wear (SAWAC)		Powdered Hi-Steel Particle Sintering Special Steel

Realization of precision molding with Cutting edge technology system

High energy efficiency, Greater productivity, Leakage prevention
It is **WIZ-T**

LS Mtron
www.lsinjection.com

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LS Machinery CHINA

LS Industrial Park, Lexing Road, National High-tech Industrial development Zone, Wuxi, Jiangsu 214028 CN
Tel: 86-510-8299-3877

PT. LS Mtron Machinery INDONESIA

Jl.Samsung 2 Blok D3A Jababeka UKM Center Segitiga Emas, Cikarang Utara, Bekasi 17550
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LS Mtron POLAND

ul, Legnicka 17/7, 53-671 Wroclaw Poland
Tel: 48-71-349-77-58

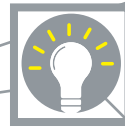
PLASTICS
INDUSTRY ASSOCIATION
MEMBER

Be the ONE
Outstanding People, Best-in-Class Product, Winning Partnership

LS Hybrid Injection Molding Machine

90 ~ 400 Ton
WIZ-T Series

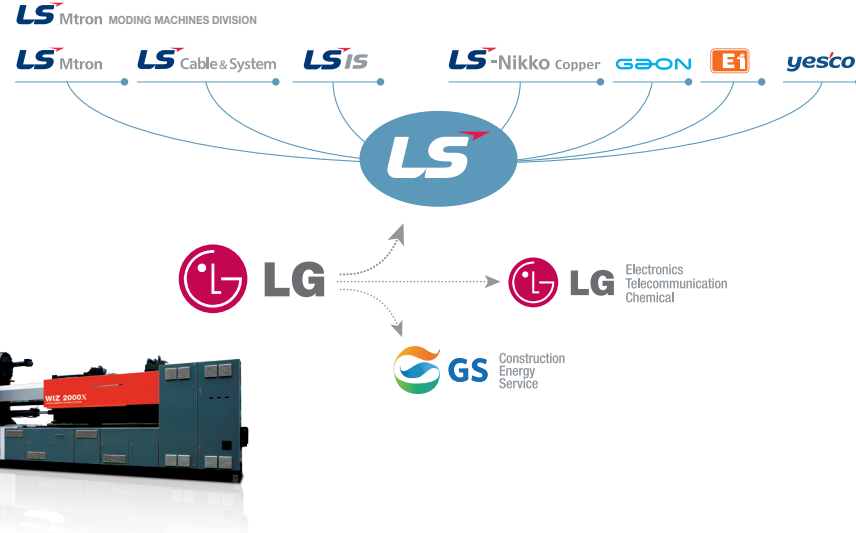
High energy efficiency
Greater productivity
Leakage prevention



LS Mtron
www.lsinjection.com

* LS Group

- Spun off from LG Group in 2003
- A leading company in the areas of industrial electricity and electronics, materials, machinery, components, and energy

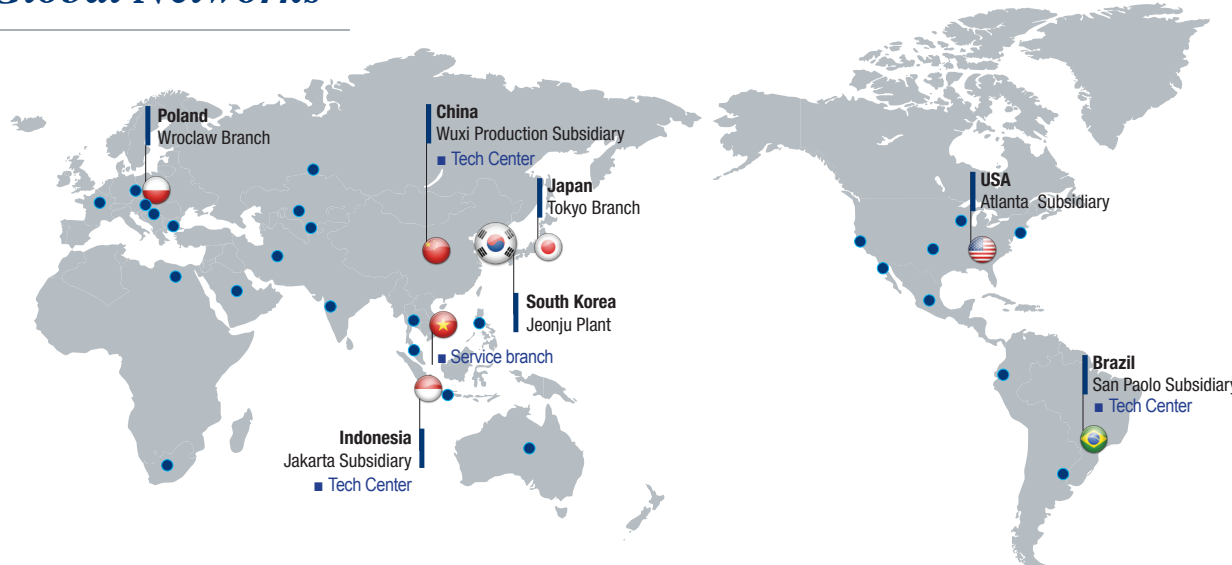


* LS Mtron History

A history of success based on endless efforts to become the best. LS Mtron's challenge to the future.

Founding and Establishment of Growth Foundations	Growth	Innovation	Going Global
1962 ~ 1994 <ul style="list-style-type: none"> May 1962 Established as Korea Cable Industry Co., Ltd. June 1969 Launched an injection molding machine business October 1983 Acquired Gunpo plant from Korea Heavy Industry May 1986 Entered the connector business 	1995 ~ 2002 <ul style="list-style-type: none"> February 1995 Renamed as LG Cable Co., Ltd. April 1998 Launched an automotive rubber hose business September 1998 Secured a KRW 100 million contract to supply tractors to the U.S. August 2000 Launched the copper foil business 	2003 ~ 2007 <ul style="list-style-type: none"> November 2003 Spun off from LG Group May 2004 Established an injection molding machine subsidiary in Wuxi, China March 2005 Relocated the Gunpo plant to Jeonju November 2005 Established the LS Group March 2007 Established an electronic components subsidiary in Qingdao, China 	2008 ~ <ul style="list-style-type: none"> July 2008 Launched LS Mtron November 2008 Established the Qingdao tractor subsidiary in China November 2008 Acquired Daesung Electric Co., Ltd. January 2009 Established a tractor subsidiary in the U.S. March 2009 Declared the company vision June 2012 Established a tractor subsidiary in Brazil April 2013 Completed the LS Mtron Hi-Tech Center June 2014 Completed a tractor engine plant

* Global Networks

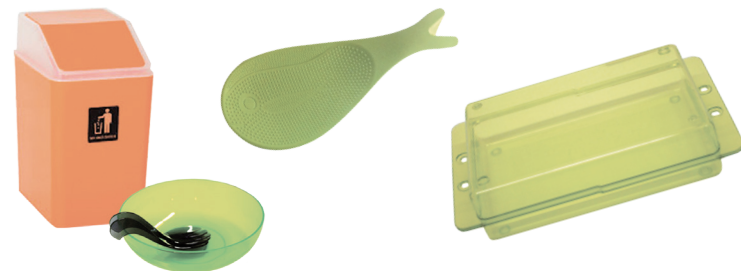


Small Hybrid Injection Molding Machine

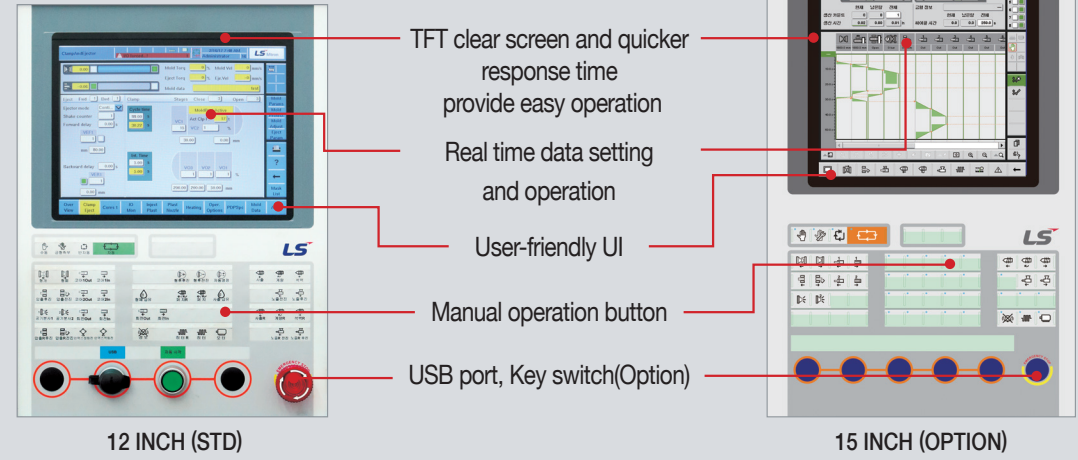
WIZ-T Series

Major Specification

		WIZ90T			WIZ110T			WIZ140T			WIZ160T			WIZ200T			WIZ250T			WIZ280T			WIZ320T			WIZ400T			
INJECTION UNIT																													
Injection Unit		i2.2			i3.2			i4.8			i6.7			i9.6			i9.6			i13.5			i13.5			i17.2			
Screw code		Y	A	B	Y	A	B	Y	A	B	Y	A	B	Y	A	B	Y	A	B	Y	A	B	Y	A	B				
Screw diameter		mm	28	32	36	32	36	40	36	40	45	40	45	50	45	50	55	45	50	55	60	50	55	60	55	60	65		
Injection Capacity Calculated		cm³	88	115	146	130	165	204	204	251	318	279	353	436	394	487	589	394	487	589	599	725	862	599	725	862	784	933	1095
Injection Capacity (PS)		g	81	106	134	120	152	187	187	231	293	257	325	401	363	448	542	363	448	542	551	667	793	551	667	793	721	858	1007
Injection pressure		kgf/cm²	2480	1898	1500	2492	1969	1595	2370	1920	1517	2405	1900	1539	2430	1968	1626	2430	1968	1626	2253	1862	1564	2253	1862	1564	2190	1840	1568
Injection rate		cm³/s	85	111	141	106	134	166	111	138	174	138	175	216	174	215	260	174	215	260	234	284	338	234	284	338	241	287	337
Plasticizing Capacity (PS)		kg/hr	43	66	96	59	86	117	74	100	142	95	135	184	103	141	187	103	141	187	147	196	259	147	196	259	156	206	246
Injection speed		mm/sec	138			132			109			110			109			109			119			119			101		
Max screw speed		rpm	380			340			290			275			210			210			220			220			175		
CLAMPING UNIT																													
Clamping force		ton	90			110			140			160			200			250			280			320			400		
Distance between Tie-bars		mm	360 x 360			410 x 410			460 x 460			480 x 480			530 x 530			580 x 580			630 x 630			680 x 680			730 x 730		
Die Plate Dimension		mm	540 x 540			605 x 605			670 x 665			710 x 710			790 x 780			870 x 870			930 x 930			1030 x 1030			1100 x 1100		
Clamping Stroke		mm	320			350			380			435			495			540			590			660			720		
Daylight		mm	670			765			860			955			1025			1110			1235			1380			1500		
Minimum Mold Thickness		mm	140			150			160			180			200			200			200			250			250		
Maximum Mold Thickness		mm	350			415			480			520			530			570			645			720			780		
Ejector Force		ton	3			3.8			5			5			7			7			7			7			11		
Ejector Stroke		mm	90			100			120			135			140			150			150			160			190		
OTHER																													
Max pump pressure		kg/cm³	160			160			160			160			160			160			160			160			160		
Utilized Oil Quantity		ℓ	180			200			265			300			300			380			390			680			770		
Motor power		KW	11.6			17.6			17.6			23			29			29			33.5			33.5			33.5		
Heating power		Kw	5.5			6.5			10.5			11.4			13.4			13.4			20.4			20.4			23		
Machine Dimension		m	3.81 x 1.19 x 1.70			4.15 x 1.12 x 2.00			4.51 x 1.16 x 1.87			4.86 x 1.30 x 2.10			5.22 x 1.60 x 2.21			5.82 x 1.60 x 2.24			6.11 x 1.81 x 2.41			7.08 x 1.99 x 2.38			7.56 x 2.00 x 2.52		
Net weight		ton	2.9			3.4			4			5.4			6.4			7.5			8.8			12.8			15.4		



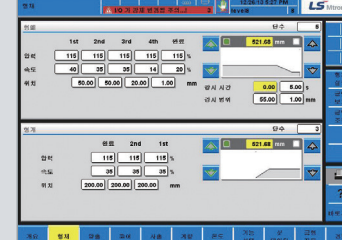
Control System (KEBA Controller)



Overview

- Overview of machine operation
- Set/Monitor clamp/Ejector position
- Monitoring temperature

Clamp



- Mold close speed-Max 5steps
- Mold open speed-5steps
- Monitoring parameter by graph

Injection



- Injection speed-Max 10steps
- Holding pressure-Max 10steps
- Cut over by pressure, time, speed

Mold protect



- Adjust sensitivity

Unit setup



- Able to set display unit by User

Core



- 2 CORE(Standard)
- Able to change Core operation by User

IO parm



- Monitoring digital output (1 zone standard)

