

Consumables
ShotEnd

Consumables
Misc.

Automation
Spraying

Automation
Ladlers

Automation
Misc.

*Additional
products
available from
Advance!*



Consumables/Shot End:

Shot Sleeves
Reworked Shot Sleeves
Plunger Tips
Plunger Rods
Ordering Forms

Consumables/Misc:

Hand Spray Guns
Die Clamps, T-Bolts, and Nuts
Slap Stix
Thermocouples
Die Cooling Fountain Water Junctions
Ladle Cups

Automation/Spraying:

SRL-250 Linear Spray Systems
Reciprocating Spray Systems
RSS-2500 Robotic Spray Systems
Spraying Technology
Spray Heads

Automation/Ladlers:

Ladlers
Ladle Cups

Automation/Misc:

Kawasaki Robots
Robot Grippers
Mini-Max Reclaimers
Central Lube Systems
Tool Temp Oil Temperature Control Units
Electronic Bacteria Killers
Stationary Casting Coolers
Vertical C-Frame Trim Press
Safety Signage

Consumables

ShotEnd

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ShotEnd

- Shot Sleeves
- Reworked Shot Sleeves
- Plunger Tips
- Plunger Rods
- Ordering Forms

Advance[®]

consumables

SHOT SLEEVES



For over 50 years ADVANCE[®] has been the leader in shot sleeve manufacturing.

Proper Design, tight manufacturing standards and in-house heat treating and nitriding assure you the highest quality at competitive prices and deliveries.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Your "Window To The World®" Of Shot End

Ask the operator that knows his die casting machine inside and out and he will tell you that "not all shot sleeves and shot end products are created equally."

Many manufacturers use antiquated equipment and inferior metal. The result is a shot sleeve that wears out before its time.

Advance uses only the finest H-13 steel. The metal is cut, bored and honed on computerized equipment by craftsmen with years of experience. We've been serving the die casting industry for over 52 years.

That is why we say *"Experience and Equipment Does Make A Difference."*



Customer side-by-side comparisons have proven the Advance sleeve lasts longer than our competitors' sleeves.

Don't buy sleeves on price alone, because as this brochure shows, not all shot sleeves are created equally.

1. Quality standards - we adhere to all acceptable machining practices.
2. Record keeping procedures - we maintain a file for you, so we can: keep track of heat treat numbers and the exact bar of steel the sleeve was machined from. Should a problem arise, we can trace pertinent information back to the source, have access to your heat treat and nitride hardness records.
3. Quick reference for reordering. So when you reorder a sleeve, we know exactly what you need and can expedite delivery. We make these records worthwhile to you by stamping our name on every sleeve we sell. Should any question arise, you know who to call, with full confidence that ADVANCE® can produce the information you need.

Specifications are subject to change without notice.

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Shot Sleeve Maintenance is a Little Like Maintaining Your Teeth.

Brushing every day, and having your teeth professionally cleaned and polished will correct problems before they become an expensive and painful experience. Do the following periodic inspections and procedures and you could save a sleeve before it is too late:

- 1 Degrease and sandblast each time a sleeve is taken from service. If a crack exists, it will quickly become visible since the grease stays in the crack. Grinding and polishing the cracks at the die end and around the pour hole will extend sleeve life. If left unchecked these cracks can go the length of the sleeve and you could have a catastrophic failure.
- 2 Watch out for washouts. All sleeves will washout over time, but proper maintenance helps. If there is a "gross washout", very deep with sharp jagged edges, you may have a mechanical separation of the grain boundaries caused by excessive temperature when the metal temperature is above 1300°.
- 3 Clean the bore and check it for size. Use a good bore gauge and check both ends and in the middle of the sleeve. You may uncover an excessive bell-mouth or taper condition.
- 4 If you're experiencing excessive plunger tip wear, sticking plunger tips, or plunger tip flash by, it's probably time to call us for professional reconditioning!

Let us show you how ADVANCE[®] can help.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

PROFESSIONAL SHOT SLEEVE RECONDITIONING



Catch 'em before it's too late

Advance offers 3 kinds of services

The first thing we do is clean and degrease the sleeve and inspect it. If we find a crack or washout beyond repair, we stop and will call you. There is a minimal inspection charge for this service. We recommend you clean and inspect the sleeves first. That way you become more knowledgeable about sleeve maintenance. Plus, you'll save the shipping expense, if a sleeve is beyond repair. One last thing, if a sleeve is beyond repair, destroy it. Don't leave it lying around so it can be used again. You could have a major accident if a bad sleeve were unknowingly put back into production. If it is determined to be salvageable, we have three procedures:

Procedure #1

If the sleeve has a minor washout, still concentric, and is in good general condition, we can simply hone it out to the proper size, deburr sharp edges, polish gates and re-nitride, if desired.

Procedure #2

If the sleeve has excessive washout, we will probably have to bore it out first. This procedure assures the sleeve concentricity. We can go for a clean up or bore to a specific size, then hone, grind, polish, and a final nitride.

Procedure #3

If the sleeve washout is severe, the area below the pour hole has become softer than the original hardness. The above procedures will do little for the sleeve's long term life. What's needed is a completely full anneal and re-heat treat. This process will bring the sleeve to its original hardness and proper metallurgical structure. Along with proper boring, honing, and nitriding, you will get a lot more shots from your sleeve.

With ADVANCE® shot sleeve reconditioning procedures, you'll get professional care and professional results! Give us a call today.

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PLUNGER TIPS



**H13 STEEL, HEAT TREATED AND
NITRIDED, IF REQUIRED**



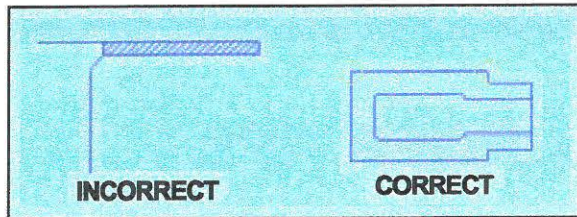
**"LIQUID FORGED" #20
BERYLLIUM COPPER**

- Custom Made to Your Specifications
- ADVANCE[®] Quality - Over 52 Years Serving the Die Casting Industry
- Standard English or Metric Threads
- Blank Plunger Tip Blueprints available. See Your ADVANCE[®] Sales Person.

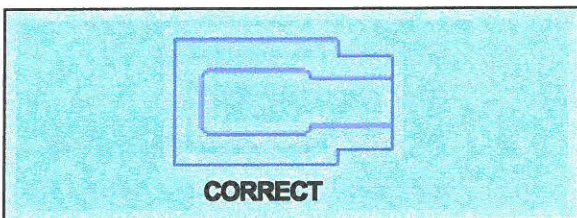
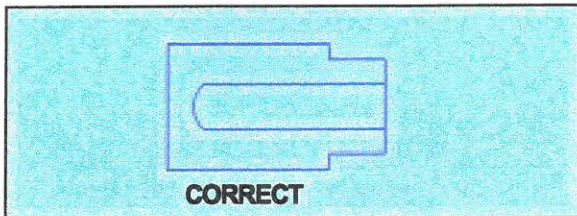
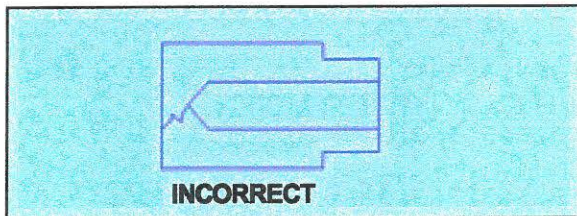
Your "Window to the World"[®] of Die Casting Automation and Consumable Products

POINTS TO CONSIDER WHEN ORDERING

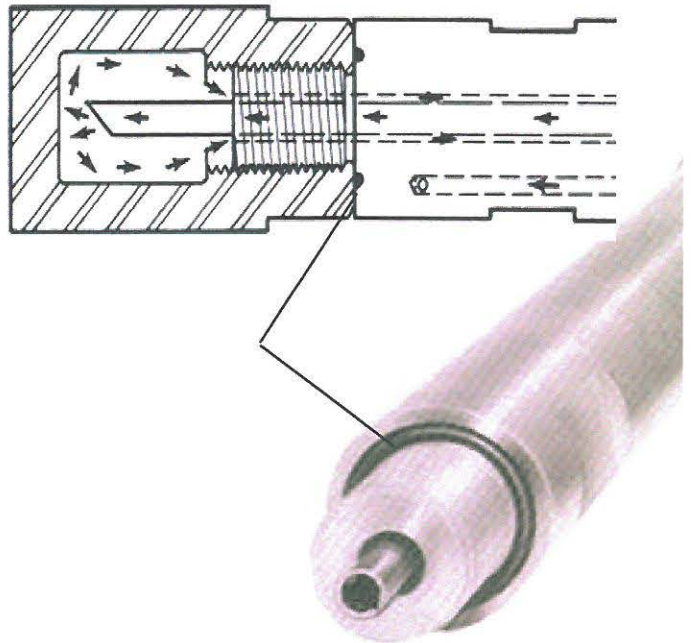
1. **KEEP EDGES SHARP.** A sharp leading edge and back – trailing edge is important. They prevent metal from being wedged between the TIP and the SLEEVE.



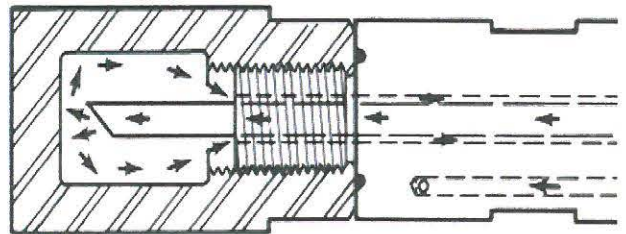
2. **MINIMIZE CRACKING TIP.** Make sure your blueprint doesn't have a sharp point on the bottom of the water jacket. - Sharp points will start cracks.



3. **SEAL TIPS AGAINST LEAKS.** Make sure the TIP is sealed at the ROD by a high temperature O-Ring. Water leaks can run into the SLEEVE to cause an explosion and possible injury. So prevent water leaks by buying a well-sealed TIP.



4. **Make sure the cooling tube is cut on a 45° angle.** Water will flow even if the tube bottoms out.



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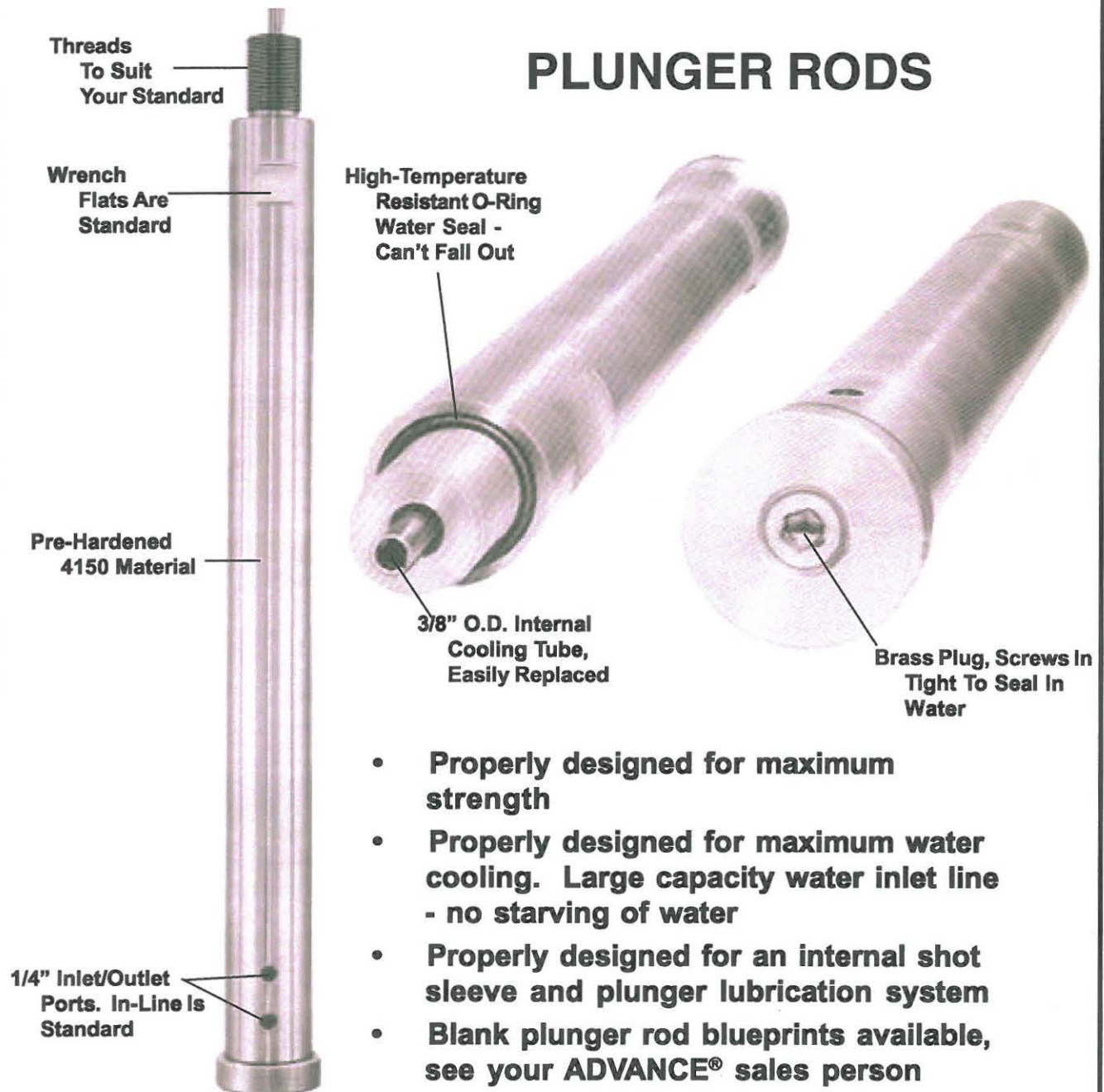
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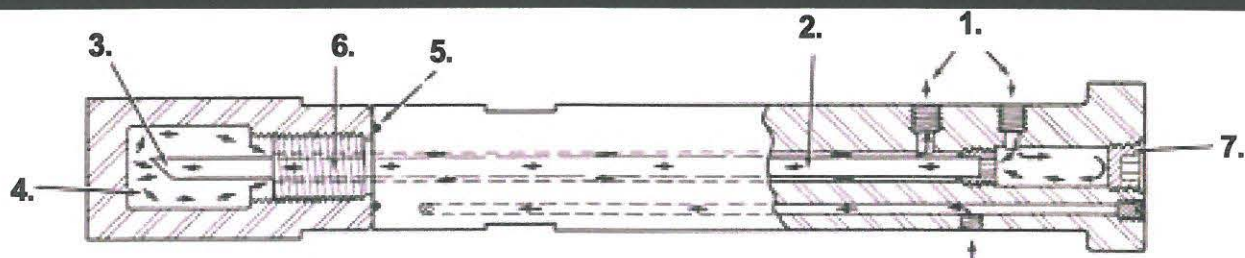
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PLUNGER RODS



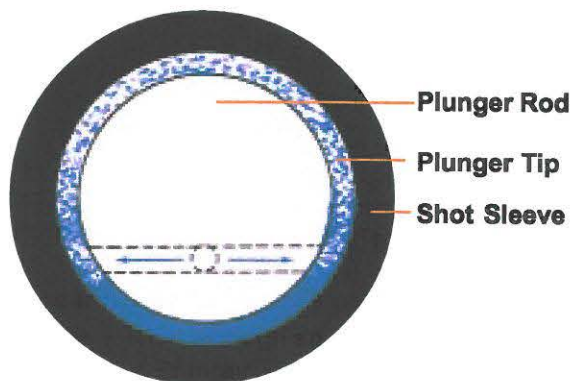
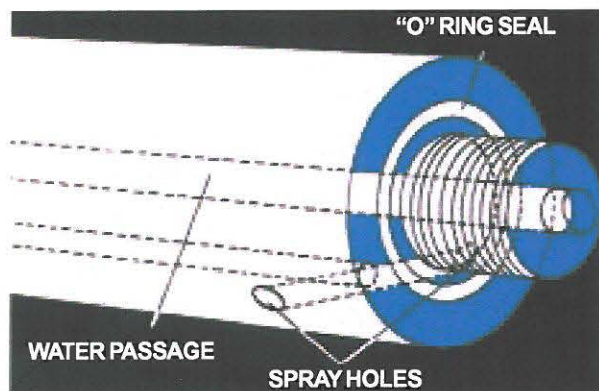
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PROPER COOLING IS A MUST



1. Coolant enters and exits at 1/4" Ports (in-line is standard)
2. ..then it flows the length of the rod through a 3/8" Tube -- large enough so you'll always get sufficient coolant flow. Any smaller could starve Plunger Tip.
3. End of Tube is extra long and slanted so coolant always enters tip.
4. Advance Plunger Tips (sold separately) have a custom coolant chamber. Even wall thickness means even cooling all around, and consistent wall strength.
5. A high-temperature resistant o-ring seal fits snugly between rod and tip. No coolant can leak into sleeve or die -- prevents thermo-shock and possible explosions.
6. Snug fit between tip and rod is vital. The threads on ADVANCE® rods and tips are ring-gauged for precise fit. Standard 1-1/4"-12 thread size means better availability and lower price for ADVANCE® rods and tips.
7. Brass Plug screws in tight to seal in coolant.

SLEEVE AND TIP LUBRICATION IS A MUST



8. Have your rod gun-drilled. The ADVANCE® system puts a precise amount of lube where it belongs -- behind the tip and below the center-line. So you can consistently get an even coating of lube, the length of the sleeve and the tip. And the straight-through, gun drilled hole is easier to clean.

9. Contact between tip and sleeve is greater at their bottom. That's why we spray the lubricant there. So your plunger tip will always hydroplane over a thin layer of lube. And you get adequate lube coverage over sleeve and tip surfaces as well. Your tips and sleeves will last longer, work better.

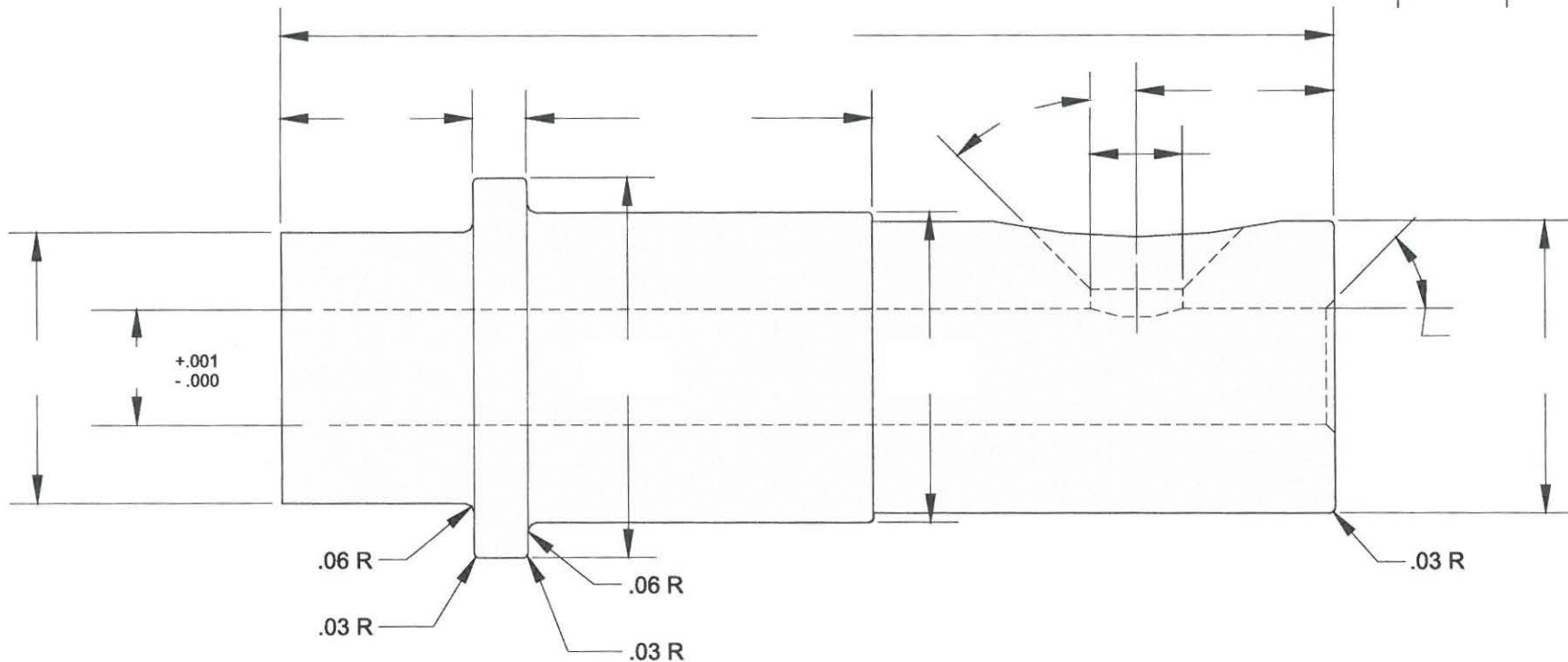
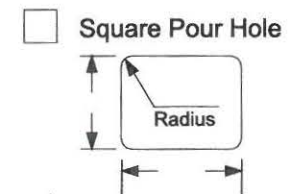
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Standard Shot Sleeve

Advance

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Customer: _____

Material: ☐ H3 Heat Treated Only ☐ H13 Heat Treated and Nitrided

Part / Drawing Number: _____

Quantity: _____

Work Order Number: _____

Date: _____

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Consumable Misc.

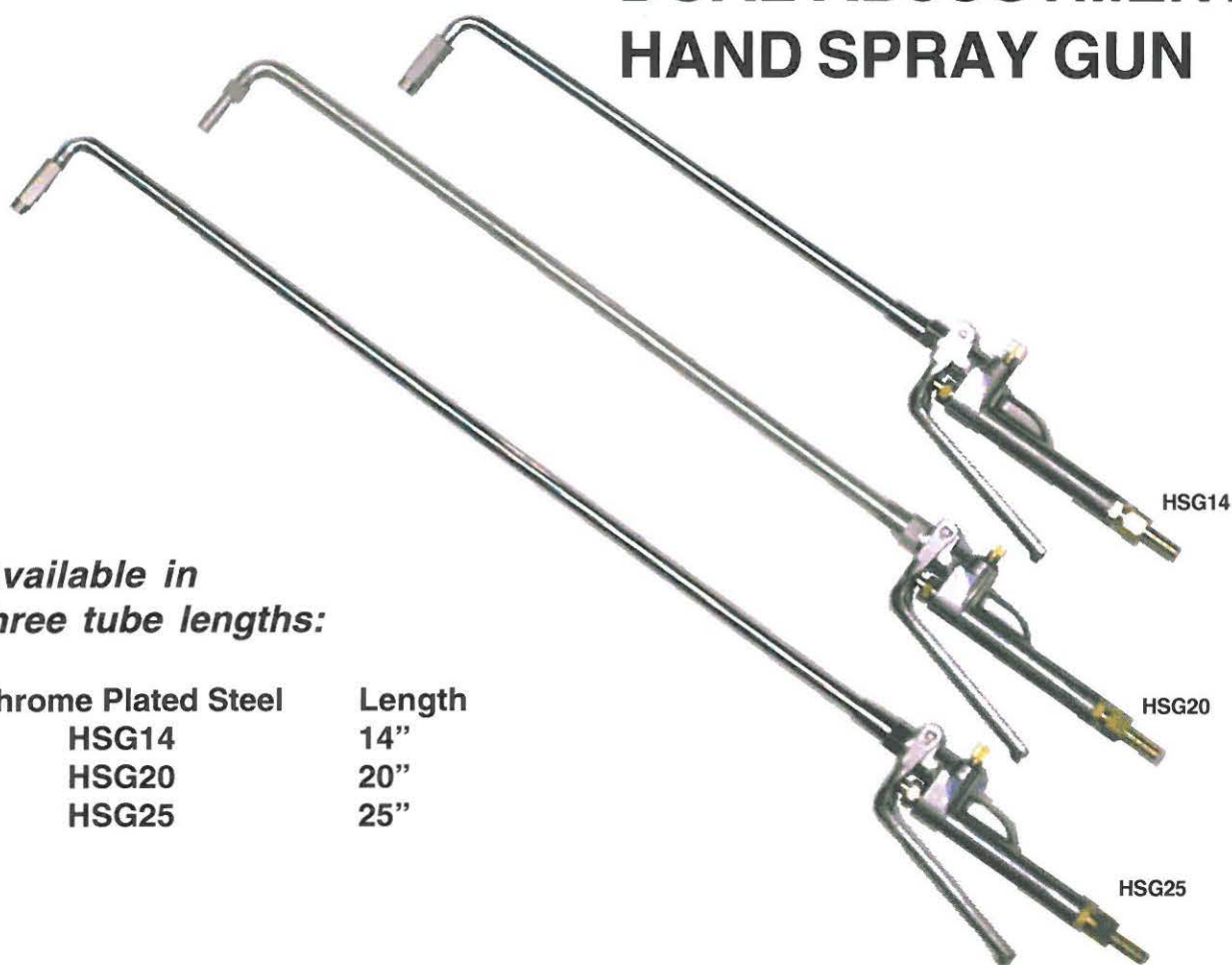
Consumables Misc.

- Hand Spray Guns
- Die Clamps, T-Bolts, and Nuts
- Slap Sticks
- Thermocouples
- Die Cooling Fountain Water Junctions
- Ladle Cups

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DUAL ADJUSTMENT HAND SPRAY GUN

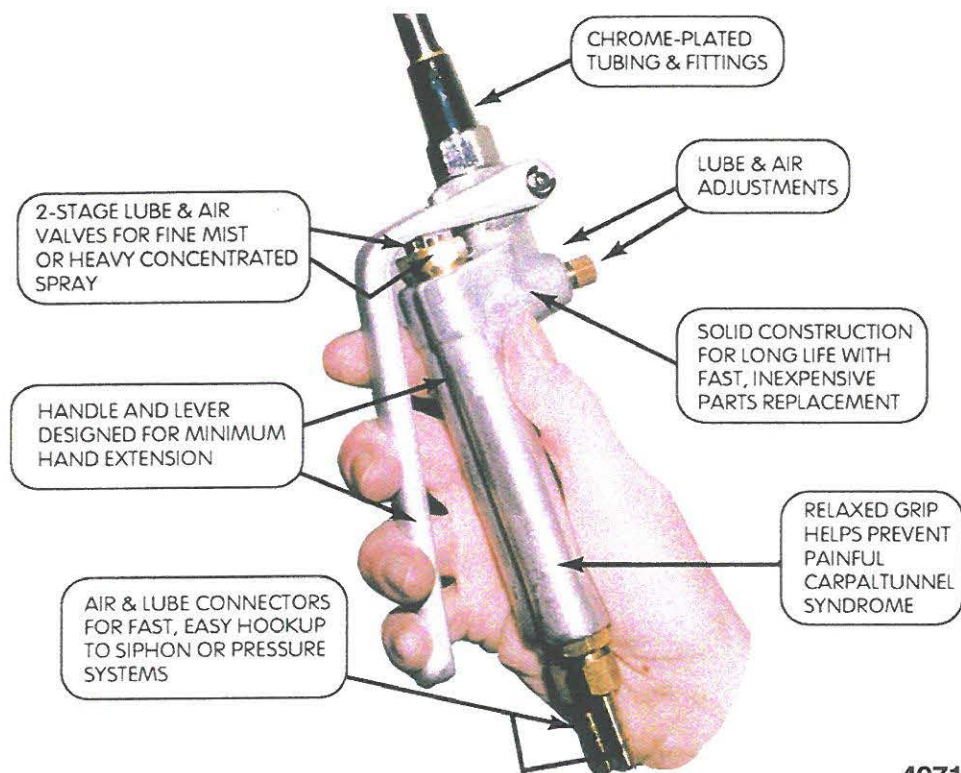


*Available in
three tube lengths:*

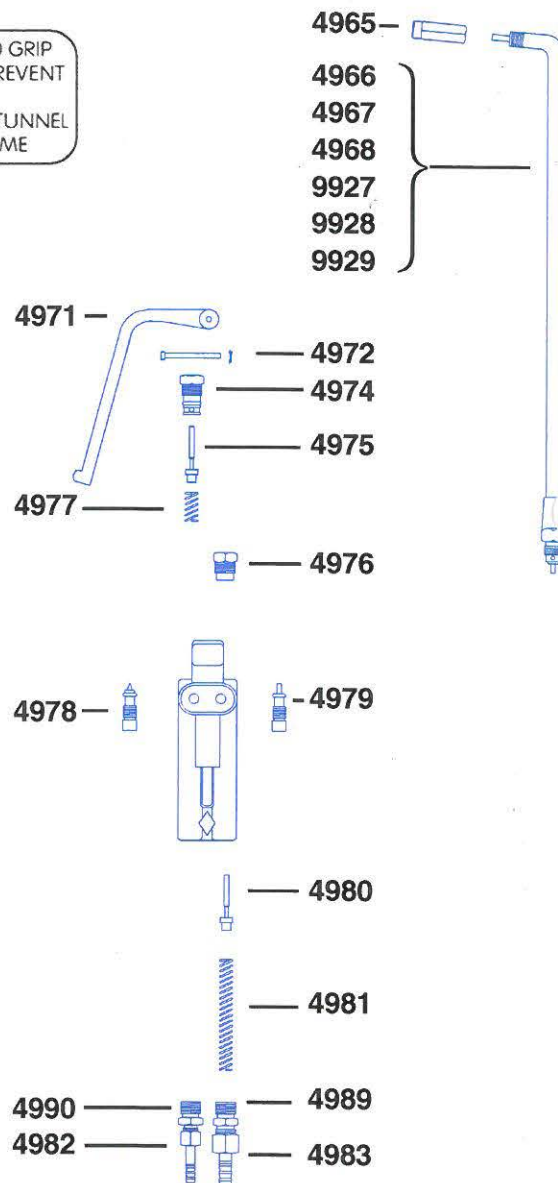
Chrome Plated Steel	Length
HSG14	14"
HSG20	20"
HSG25	25"

- The Hand Spray Gun offers a balanced feel and easy grip for maximum operator comfort and helps reduce operator disability claims.
- Operates with either siphon or pressure systems.
- A large 2-stage trigger for air/lube mix, from a very fine mist, to a heavy concentrated spray.
- Easy-to-adjust air and lube volume screws.

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Spray Gun Part #	Description
HSG-14	14" Spray Tube (Chrome Plated)
HSG-20	20" Spray Tube (Chrome Plated)
HSG-25	25-1/2" Spray Tube (Chrome Plated)
Part #	Description
4965	Nozzle
4966	14" Chrome Tubing Model HSG-14
4967	20" Chrome Tubing Model HSG-20
4968	25-1/2" Chrome Tubing Model HSG-25
4971	Lever
4972	Cotter Pin
4974	Lube Cap
4975	Lube Valve
4976	Air Cap Without Ring
4977	Lube Valve Spring
4978	Lube Regulating Screw
4979	Air Regulating Screw
4980	Air Valve
4981	Air Valve Spring
4982	Lube Hose Connector (1/8" barb I.D.)
4983	Air Hose Connector (1/4" barb I.D.)
4989	Air Nipple
4990	Lube Nipple



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CLOSED SLOT DIE CLAMPS



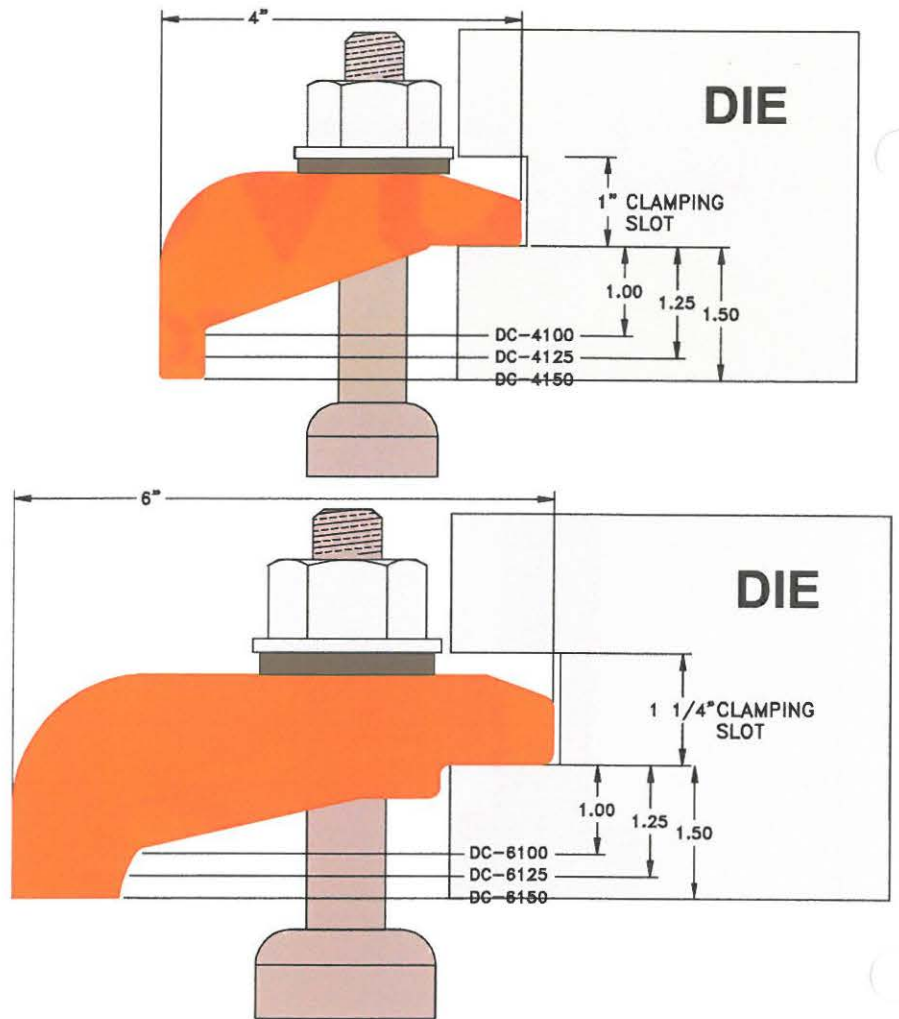
- **Closed Slot Design -**
The clamp can't slip off bolt and forces the bolt to be in only one place closest to the Die for maximum holding power.
- **Straight-Line Parallel Clamping -**
Puts pressure where it is needed.
- **Accessory T-Bolts, Washers, Flanged Nuts -**
Are forged and machined from superior grade steel.
- **Easy Identification -**
Length and height rise are cast into back of clamp for easy reordering.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

INSTRUCTIONS FOR PROPER USE OF ADVANCE DIE CLAMPS

1. Select clamp for proper die clamping slot rise.
2. Locate die clamp so that the maximum clamping surface is in the die clamping slot.
3. Locate the T-Bolt as close to the die as possible.
4. Torque the bolts tight.
DO NOT over-tighten!

ADVANCE 6-inch, heat treated die clamps are rated at or above 135,000 psi tensile strength. Advance 4-inch die clamps are rated at or above 85,000 psi tensile strength.



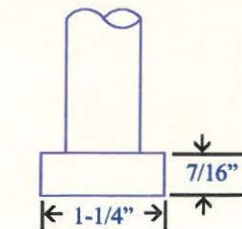
Select clamp desired (see above), then corresponding bolt and nut as indicated below:

DIE CLAMP

DC-4100
DC-4125
DC-4150

T-BOLT

4 1/2" x 3/4"
Order Part
1542



FLANGED NUT

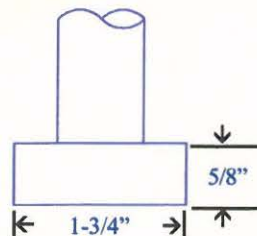
3/4" - 10
Order Part
1544

HARDENED WASHER

1/4"
Order Part
1546

DC-6100
DC-6125
DC-6150

5" x 7/8"
Order Part
1543



7/8" - 9
Order Part
1545

1/4"
Order Part
1547

Specifications are subject
to change without notice.

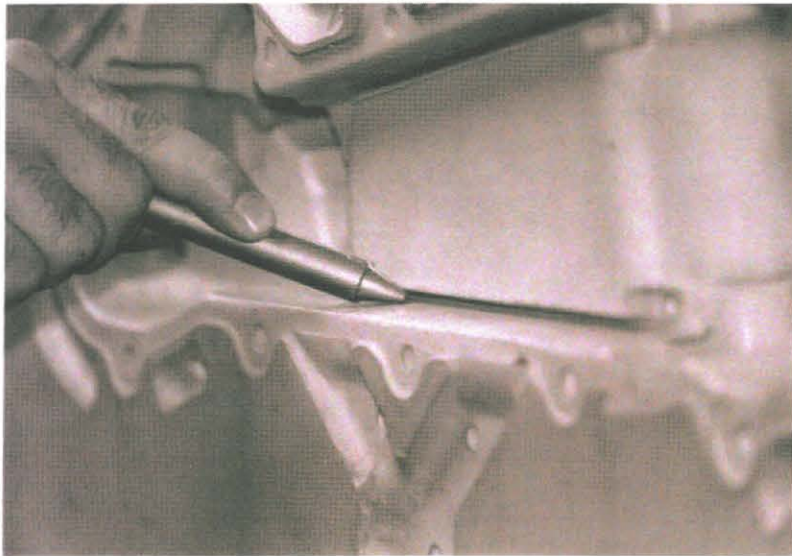
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Slap Stick Lubricant

Slap Stick, a high temperature lubricant, can be applied directly to solder buildup and galling in permanent and die casting molds. It is designed to melt against the exact spot where lubrication is needed, for example:

- Solder buildup in gate areas and cavities-on cores and slides.
- Hot, galled metal-to-metal moving mold parts such as ejector pins or slides.

When applied to any hot area within the casting cavity, Slap Stick quickly melts, then dries to a lubricating film that will not stain, build up or otherwise harm the next casting.

When applied to hot ejector pins or other moveable parts, Slap Stick liquifies and penetrates close tolerances as a lubricating film.

Any Dripping or running into cavity areas will cause no casting problem.

Shaped like a large felt tip pen, Slap Stick is easily held while wearing heavy mill gloves. Slap Sticks are economical; they lock together end-to-end, allowing used end pieces to be firmly attached to a new Slap Stick.

Another great feature is that Slap Stick is clean enough to be carried in a shirt pocket when cool.

Slap Stick is conveniently packaged in boxes of 180 pieces. (Part #4670)

Samples are available at no charge upon request.

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Thermocouples

APC Sentry II Thermocouples with Thermo-Guards have:

One coat of refractory saturated white glass and two coats of refractory saturated, tight-weave fiberglass over 11/16" tubing with silicon carbide tips.

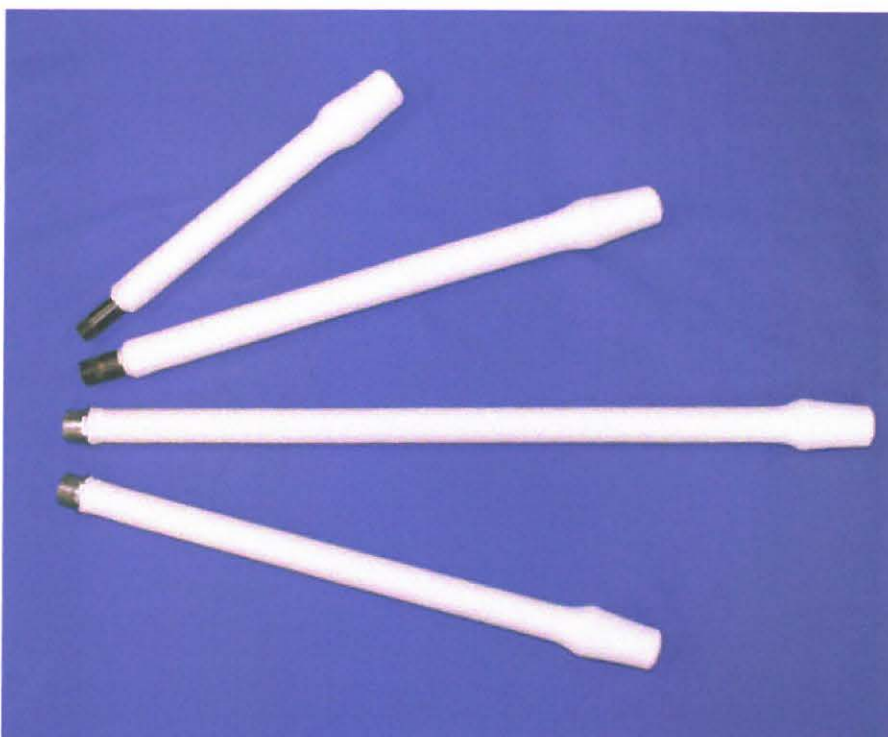
Thermo-Guards protect the Thermocouples.

Advantages Include:

Longer Life - The refractory surface of the *Thermo-Guard* resists erosion by molten aluminum up to temperatures of 1400°F. No additional coatings are required to prolong useful life.

Savings On Man-Hours and Materials - Longer tube life means longer thermocouple life and less man-hours for maintenance.

Standard features include 3/4" NPT, 20 guage Type K wire, and three foot leads.



Length	12"	18"	24"	30"	36"	42"	48"
APC Sentry II w/Thermocouple	#8924-12	#8924-18	#8924-24	#8924-30	#8924-36	#8924-42	#8924-48

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DIE COOLING FOUNTAIN WATER JUNCTIONS



1/8" INLET/
OUTLET
WITH 1/4"
MAIN PIPE



1/4" INLET/
OUTLET
WITH 3/8"
MAIN PIPE

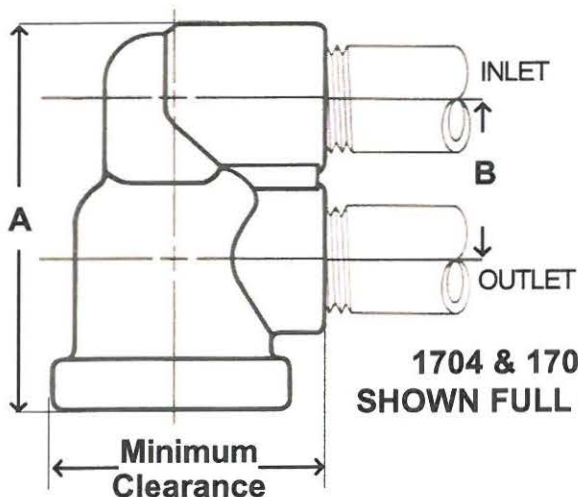


1/4" INLET/
OUTLET
WITH 1/2"
MAIN PIPE

Parts 1702 thru 1706 are supplied with a
14" length of brass tubing. Parts 1707 thru
1709 are supplied with galvanized pipe.

- Standard, medium and high water flow die cooling water junctions
- Off the shelf delivery
- Zinc chromated die cast, complete with 14" brass or galvanized pipe
- The lowest cost in the industry

Your "Window to the World"[®] of Die Casting Automation and Consumable Products



1704 & 1707
SHOWN FULL SIZE

Junction Style

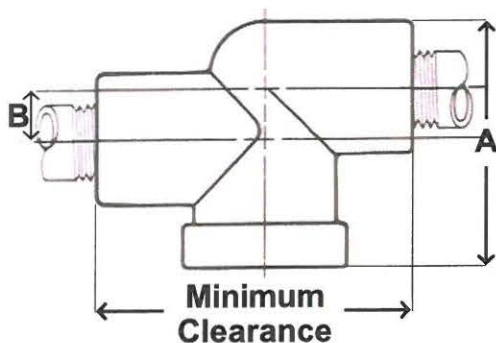
In & out, one side

Part #	Minimum Clearance	A	B	In Pipe Nipple	Out Pipe 14" Tubing
1704	1 3/4" dia.	2"	13/16"	1/2" dia.	1/8" dia.
1707	1 3/4" dia.	2"	13/16"	3/8" dia.	5/16" dia.

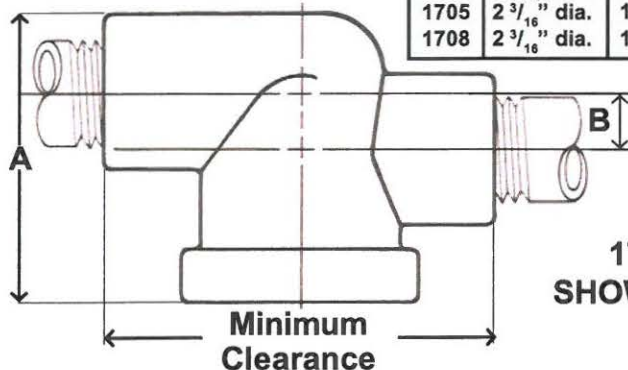
Junction Style

In & out, opposing

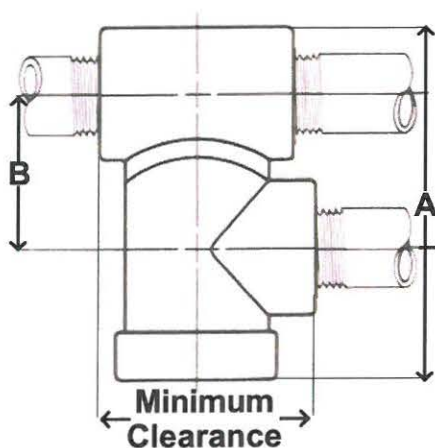
Part #	Minimum Clearance	A	B	In Pipe Nipple	Out Pipe 14" Tubing
1702	1 15/16" dia.	1 15/16"	5/16"	1/4" dia.	1/4" dia.
1705	2 3/16" dia.	1 1/2"	5/16"	1/2" dia.	1/8" dia.
1708	2 3/16" dia.	1 1/2"	5/16"	3/8" dia.	5/16" dia.



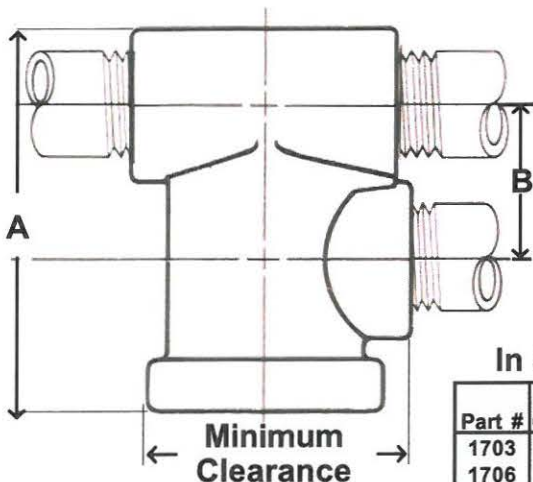
1702 SHOWN FULL SIZE



1705 & 1708
SHOWN FULL SIZE



1704 SHOWN FULL SIZE



1706 & 1709
SHOWN FULL SIZE

Junction Style

In & out, one side or opposing

Part #	Minimum Clearance	A	B	In Pipe Nipple	Out Pipe 14" Tubing
1703	1 1/2" dia.	1 7/8"	13/16"	1/4" dia.	1/4" dia.
1706	1 3/4" dia.	2"	13/16"	1/2" dia.	1/8" dia.
1709	1 3/4" dia.	2"	13/16"	3/8" dia.	5/16" dia.

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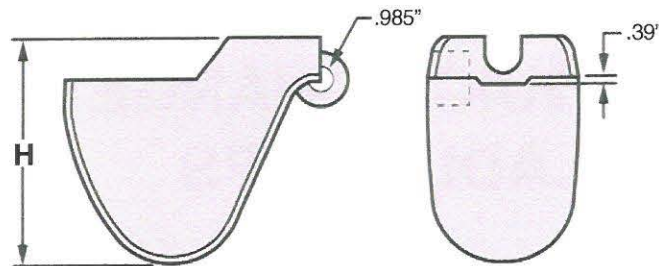
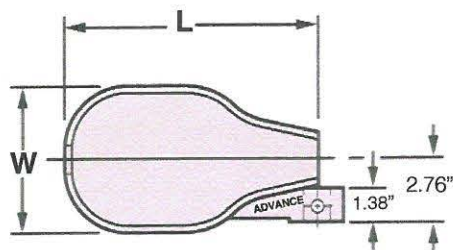
QUICK CHANGE LADLE CUPS



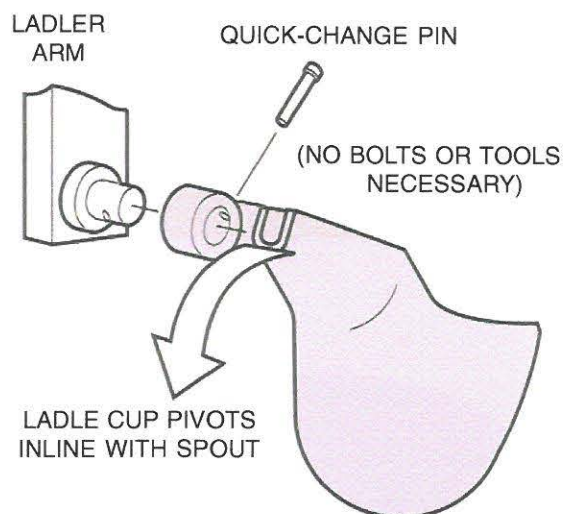
- "Direct Mount" -
Pin-mounting design means no tools or adapters needed for changing ADVANCE[®] Quick-Change Ladler Cups
- ADVANCE[®] Quick-Change Ladle Cups that are made in America means high-quality materials made to exact specifications
- Operator and helper-side ladle cups available for immediate delivery
- No adapters needed for ADVANCE servo ladlers. Adapters available for other ladler manufacturers
- Special heat-treated cast iron means extra long life

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Specifications



Sizes to fit any need
(operator-side shown)



Designed for easy removal and installation
(mechanism and ladle cup shown from the operator-side)

LADLE CUP # (Operator)	LADLE CUP # (Helper)	Maximum Capacity		Minimum Furnace Size		Dimensions		
		in Kg	In Lbs.	(Round) 45° Angle of Entry	(Square) 45° Angle of Entry	L	W	H
0.5A	0.5B	0.5	1.1	17.25"	17.13 x 11.75	6.69	4.33	5.91
1.0A	1.0B	1.0	2.2	18.31"	18 x 12.13	6.87	4.69	5.75
1.5A	1.5B	1.5	3.3	18.75"	18.5 x 12.34	7.28	4.72	6.30
2.0A	2.0B	2.0	4.4	19.6"	19.25 x 13.25	7.87	5.50	6.25
2.5A	2.5B	2.5	5.5	19.75"	19.32 x 13.18	8.27	5.51	6.50
3.0A	3.0B	3.0	6.6	20"	19.69 x 14	8.66	5.51	7.48
3.5A	3.5B	3.5	7.7	20.45"	19.69 x 14.25	9.10	6.10	8.00
4.0A	4.0B	4.0	8.8	21.45"	20.84 x 16	10.24	6.30	9.45
6.0A	6.0B	6.0	13.2	22.5"	21.68 x 16.9	11.42	6.30	10.24
8.0A	8.0B	8.0	17.6	23.25"	22.28 x 18.13	12.20	7.87	11.42

- Above ladle cups are "Direct Mount" for use in all ADVANCE and Toshiba ladlers. No adapter needed.
- Ladle Cups adapters are available for other ladler manufacturers:
SPK-1210 Rimrock adapter kit
SPK-1218 Snair adapter kit

* Please specify operator-side or helper-side mounting when ordering. If you are using an operator-side ladler on the helper-side of the die casting machine, order "operator-side" ladle cups.

Consult ADVANCE Products Corporation for cup sizes and mounting information sizes to 100 lb.

Specifications are subject
to change without notice.

Advance

Advance Products Corporation - 2527 M-63 Benton Harbor, Michigan 49022
Phone (269) 849-1000 - Fax (269) 849-2200 - www.advanceproductscorp.com

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APC-100-2002

Automation Spraying

Automation Spraying

- SRL-250 Linear Spray Systems
- Reciprocating Spray Systems
- RSS-2500 Robotic Spray System
- Spraying Technology
- Spray Heads

Advance[®] automation

SRL-250 LINEAR SPRAY UNIT



SRL-250 Valve Package



- DIE CASTER PROVEN FOR OVER 4 YEARS!
- ACCURATE - REPEATABLE TO .020"!
- SPEEDS TO 72" PER SECOND!
- RELIABLE - NOTHING TO GREASE OR LUBRICATE!
- FULL DIGITAL SERVO!
- BLOW-OFF IS STANDARD!

The SRL-250 is designed for 150 Ton to 600 Ton die casting machines. Completely digital servo controlled, travel speeds up to 72" per second. The user friendly MMI terminal stores 20 alphanumeric programs. *The SRL-250 complete with no hidden extras. The unit comes with blow off, 4 head spray manifold, digital control, premounted valve package, pedestal mount and 15' prewired cable set. The SRL-250 is built with a 110 volt electric servo system, *no transformers and no heat exchangers are needed!*

CALL 269-849-1000 NOW FOR MORE INFORMATION!

Your "Window to the World"[®] of Die Casting
Automation and Consumable Products

Technical Specifications

Rated Maximum Speed	72 inches per Second
Programmable Speed	0 to 72 inches per Second
Positioning Accuracy	.050"
Number of Stop Positions	20
Number of Direction Changes	20
Blow Off	Standard
Number of Alphanumeric Programs	20
Dwell Times	.1 Second to 99.9 Seconds

Installation Requirements

Voltage	110 V / 60 Hz Single Phase
Air Pressure	Filtered to 40-100 psi
Lube Pressure	Regulated 40-100 psi

Product Features

- Trombone air system - no hoses necessary for air or blow-off.
- Easy Programming MMI
- Complete mounting base system included.
- 5 Meter electrical cables included.
- Remote air/lube valve package.

Program Features

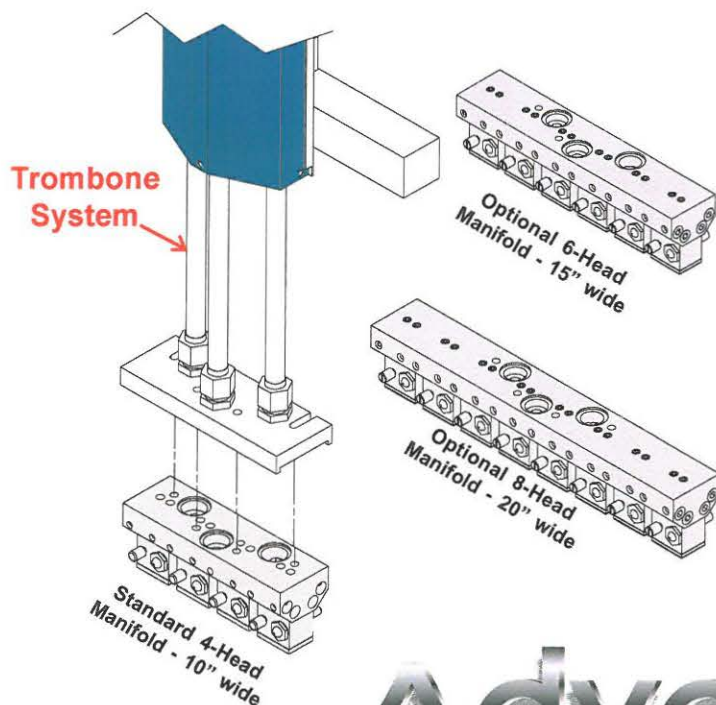
- Wait Function or Parts Present
- Independent spray and blow-off

NOTE: Unit is shown in the full up and full back position and can be moved up or down in horizontal frame to suit specific applications.

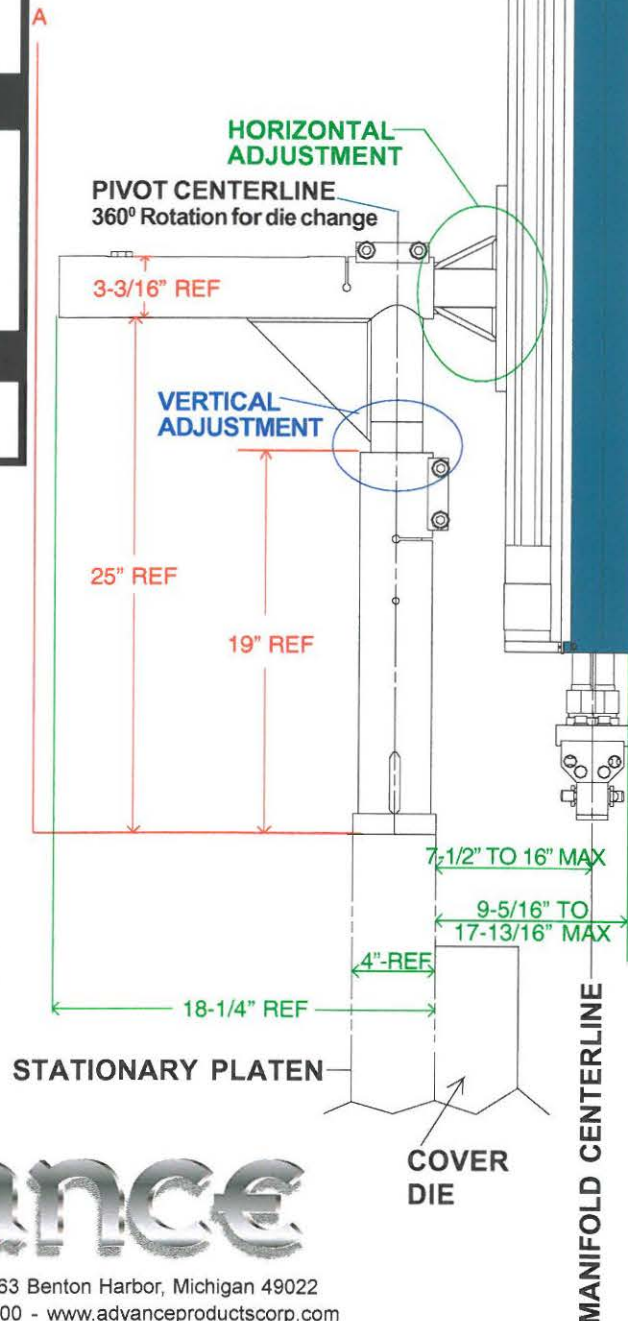
30" STROKE: A=57 3/4"

36" STROKE: A=63 3/16"

48" STROKE: A=75 3/4"



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Advance

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Advance[®] automation

Digital Servo Reciprocating Sprayers



Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Introduction

Your "Window To The World®" Of Die Cast Automation

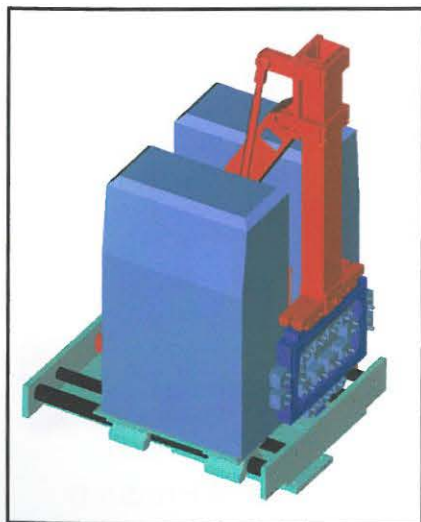
Advance Automation is your "Window to the World®" for robotic reciprocating die spray systems.

Advance has been the leader in spraying technology with many firsts in the industry. We developed the first reciprocating spray system in 1966; introduced the first hydraulically operated reciprocator in 1971; the first servo-controlled reciprocator in 1981; and the first digital reciprocators in 1994.

We are never satisfied with yesterday's accomplishments. We are innovators.

Utilizing SDRC Ideas 3-D solid modeling design software and cutting-edge manufacturing processes have set us apart.

We offer a complete line of reciprocating die spray systems to fit 300-1800 ton die casting machines.



In-House Manufacturing Capability

Advance automation products are made in-house at our Benton Harbor, MI, facility. By taking charge of every step of the manufacturing process, we can assure process consistency.

Process consistency is the first step in achieving total quality. A reliable, consistent process begins with reliable equipment.

The new millenium brought a three phase plant renovation and modernization project to our facility. By improving our process and adding new equipment, we are better able to serve our customers with a more efficient manufacturing process.

Parts are made by skilled craftsmen on state-of-the-art CNC and other computer controlled milling equipment.

Engineering is another critical part in the manufacturing process. Advance engineers design equipment from measurements taken of your die casting cell to ensure that our equipment performs at the optimum in your unique casting environment.

Advance servo sprayers - made in America - are known for their durability, reliability, accuracy, ease of operation and low maintenance costs. This means a consistent, quality part at a world competitive price.

Motor And Feedback



The Advance reciprocating sprayer is controlled by a servo-motor drive system attached directly to the gear reducer for maximum torque and efficiency. Since there are no air cylinders, hydraulics, cams or motor brushes, reliability is greatly improved.

Continuous positioning accuracy is achieved by a closed-loop resolver feedback system. Positioning accuracy of .020 inches provides constant repeatability.

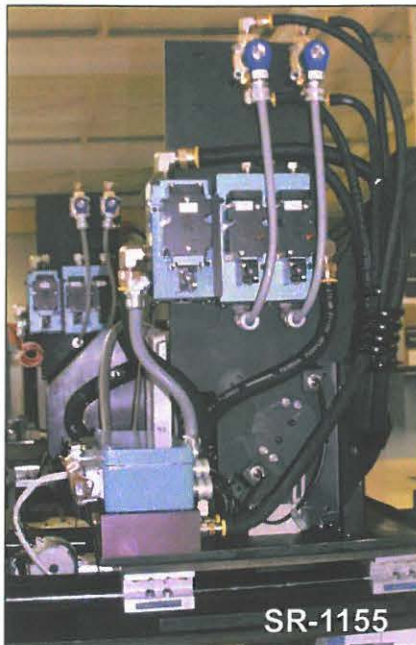


Air/Lubrication Valves

No external valve packages are needed. All air and spray lubrication valving is mounted directly on the sprayer. A filter on the lube input line prevents foreign material from entering the system.

One lube zone comes standard with additional lube zones and Super Air Blast optional. The Air Blast is standard. The sprayers can spray lube and blow off either simultaneously or sequentially.

Additionally, if Lube 2 and Air Blast options are selected, any combination of Lube 1, Lube 2, or Air blast can be selected and programmed to function independently at any time.



Main Controller & Remote

The main controller on the Advance sprayer is a color touch screen controlled HMI. It can store 500 parts programs alpha-numerically in FLASH memory, automatically recalling specific spray patterns for each part.

The easy-to-use controller has touch screen and backlit display to guide you step-by-step through programming options. No special computer training is needed.

The Hand Held Remote allows the operator to manually program the sprayer movement from a visually convenient location near the open die. Spray and Air Blast zones are monitored during programming for maximum spray efficiency.



Features and Specifications

The Advance line of straight-line digital reciprocating sprayers includes the popular SR-1155 and its little brother the SR-1145, and its big brother, the SR-1165. They fit 300 to 1800 ton DCMs. See the sizing chart below.

These feature-laden work-horses have been designed to stand up to rigorous work schedules with minimum maintenance.

Manifold capacity is 75 pounds on the SR-1145 and SR-1155 and 125 pounds on the SR-1165.

DESIGN AND CONSTRUCTION

The Advance sprayer has two axis. One is fully programmable to position the spray manifold into the die area. The second axis has a 8-inch horizontal travel and can be operated from the control panel or a hand-held remote to adjust the reciprocator for different cover die thicknesses.

The horizontal slide base with a pedestal mount is useful for many applications. For some applications, the pedestal mount can be eliminated. Various risers are also available to avoid obstructions like water lines

A gear reducer is mounted on the top of the slide base. The main drive arm carries the vertical snout with manifold attached to the end into the die. The snout has a 12-inch adjustment to allow different spray manifolds to match the die being sprayed.

SPRAYER DIAGNOSTICS

Fault indicators are located as LEDs on the main controller and include:

Motor Faults

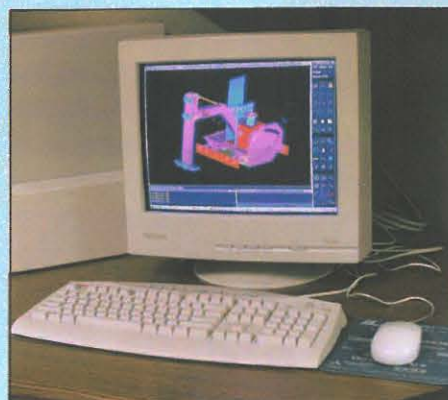
Input/Output Fault
Current Limit
Over Temperature
Resolver Fault and
Over Current

PC Faults

Die Open Fault
Emergency Retract and
Communication Error

SPRAYER SIZING MATRIX								
300T	400T	600T	800T	1000T	1200T	1400T	1600T	1800T
SR-1145								
		SR-1155						
		SR-1165						

From Concept to Completion



SDRC Ideas 3-D solid modeling program is used to design the sprayer.



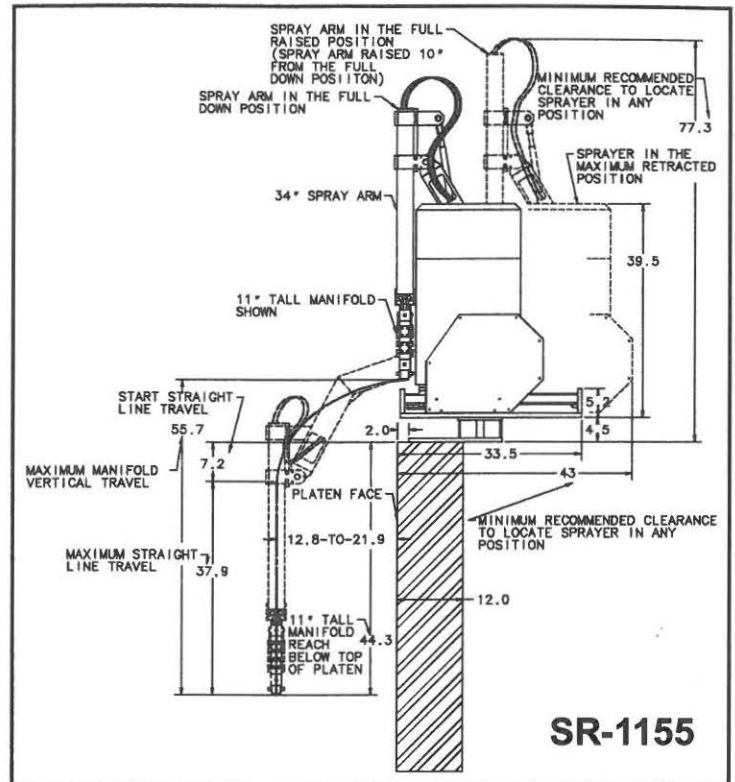
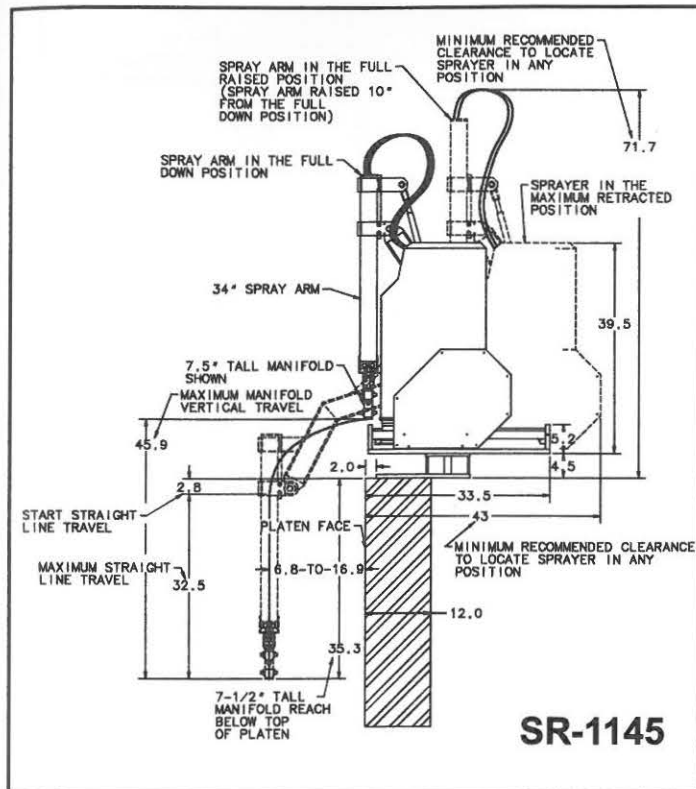
Building the sprayer according to engineering designs.



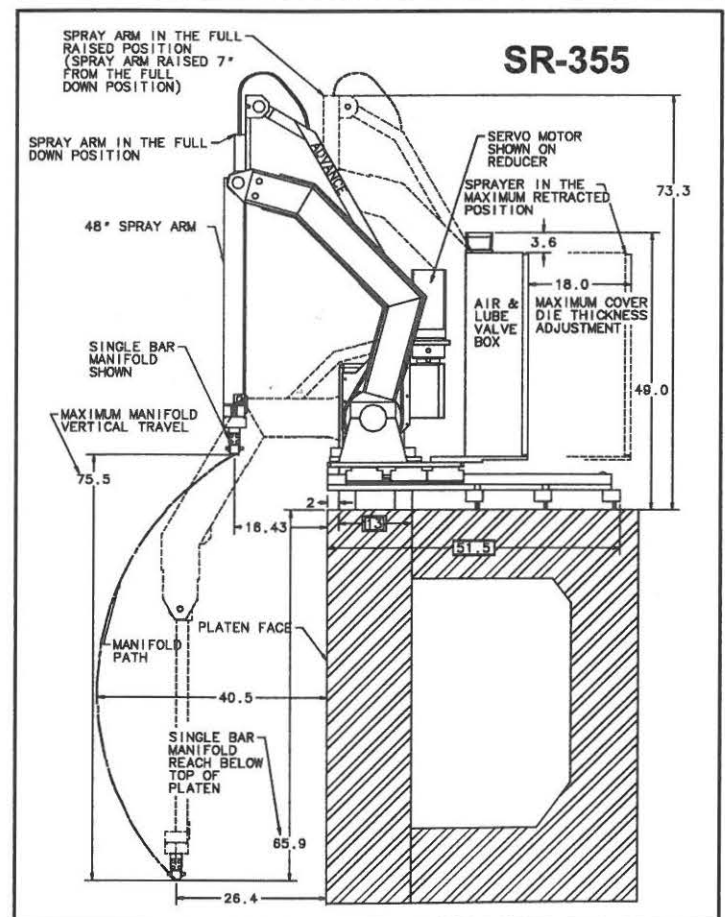
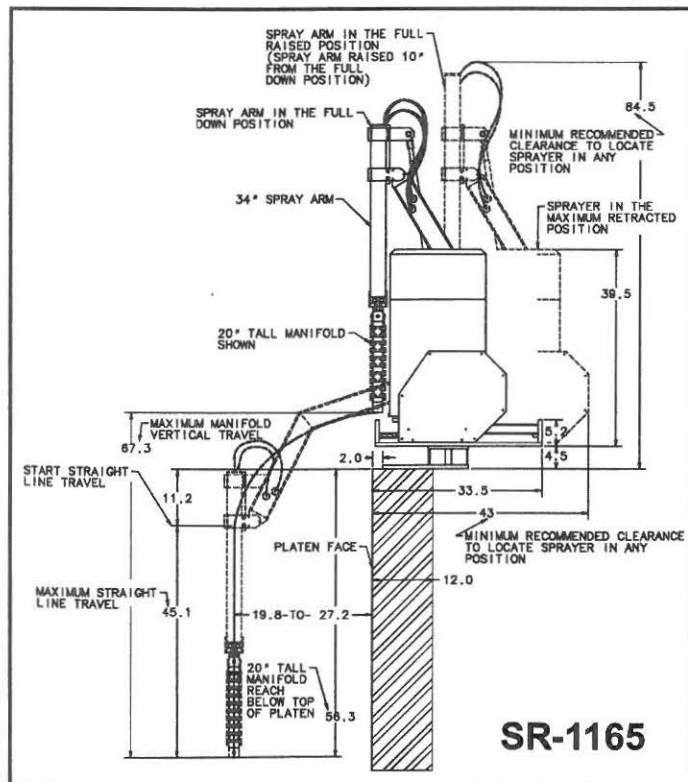
Completed unit.

Features and Specifications

Straight Drop Sprayers



Arc Profile Sprayer



Manifolds

Advance Has Many Manifold Options

Advance makes a variety of bar and picture frame manifolds, as well as custom manifolds for special die applications.

Bar manifolds are typically 13 to 37 inches long and offer up to 9 spray heads.

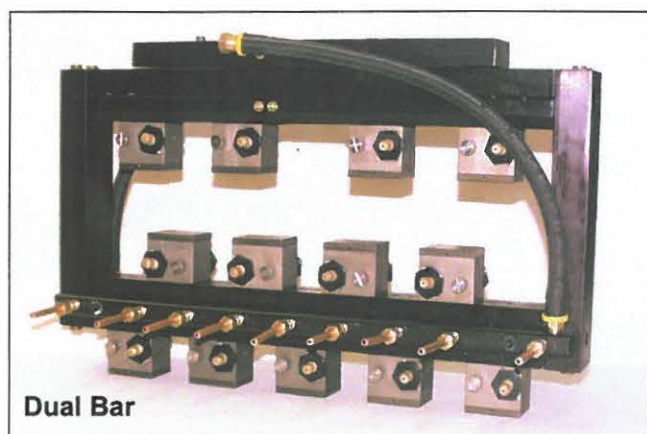
Picture frame manifolds are our most popular manifold and come in a variety of sizes in dual and single zone.

Spray heads can be located in an unlimited number of patterns for even the most complex parts. They can also be fitted with standoffs and on and off plane-T's to give even more location options.

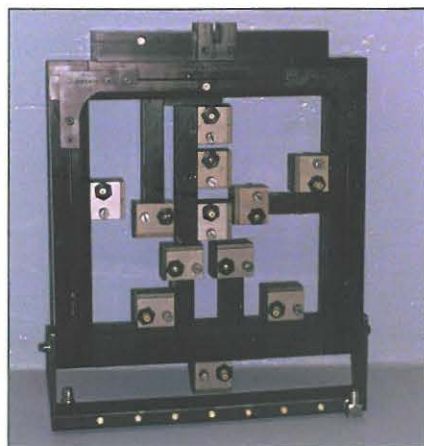
Advance also has conversion adapters so you can use Advance Spraying Technology on your present Reciprocating Spray System.



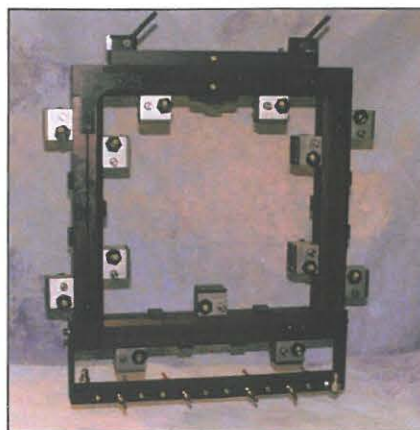
Bar Manifold



Dual Bar



**Picture Frame®
Manifolds**



Manifold Sizing Chart

Advance has changed its standard sizes for picture frame® manifolds so that stock extrusions can be used for bar and picture frames® both as the following chart illustrates.

<u>BAR OR PF TOP</u>	<u>PF SIDE OR BOTTOM</u>
13"	13"
19"	19"
25"	25"
31"	31"

Made to order Sides:

7", 10", 16", 22", 28"



SH-3000

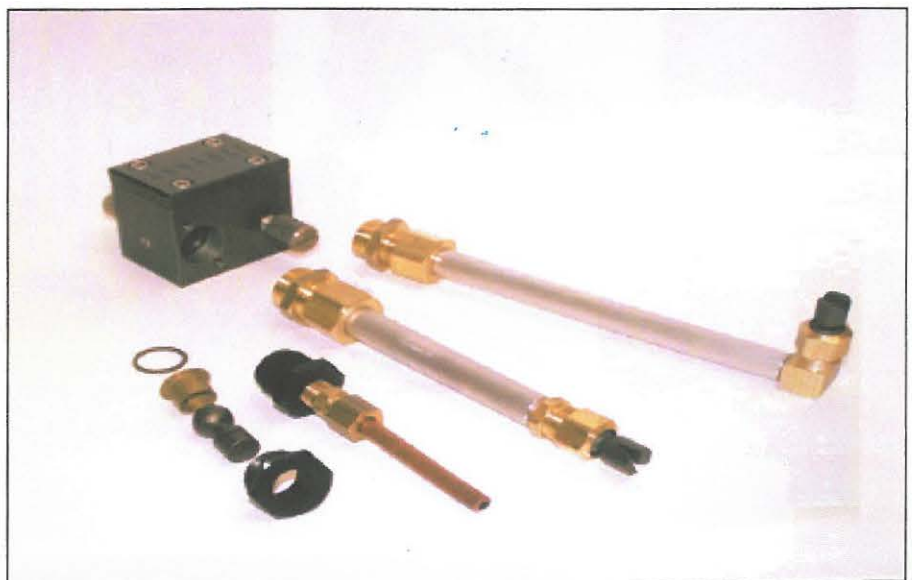
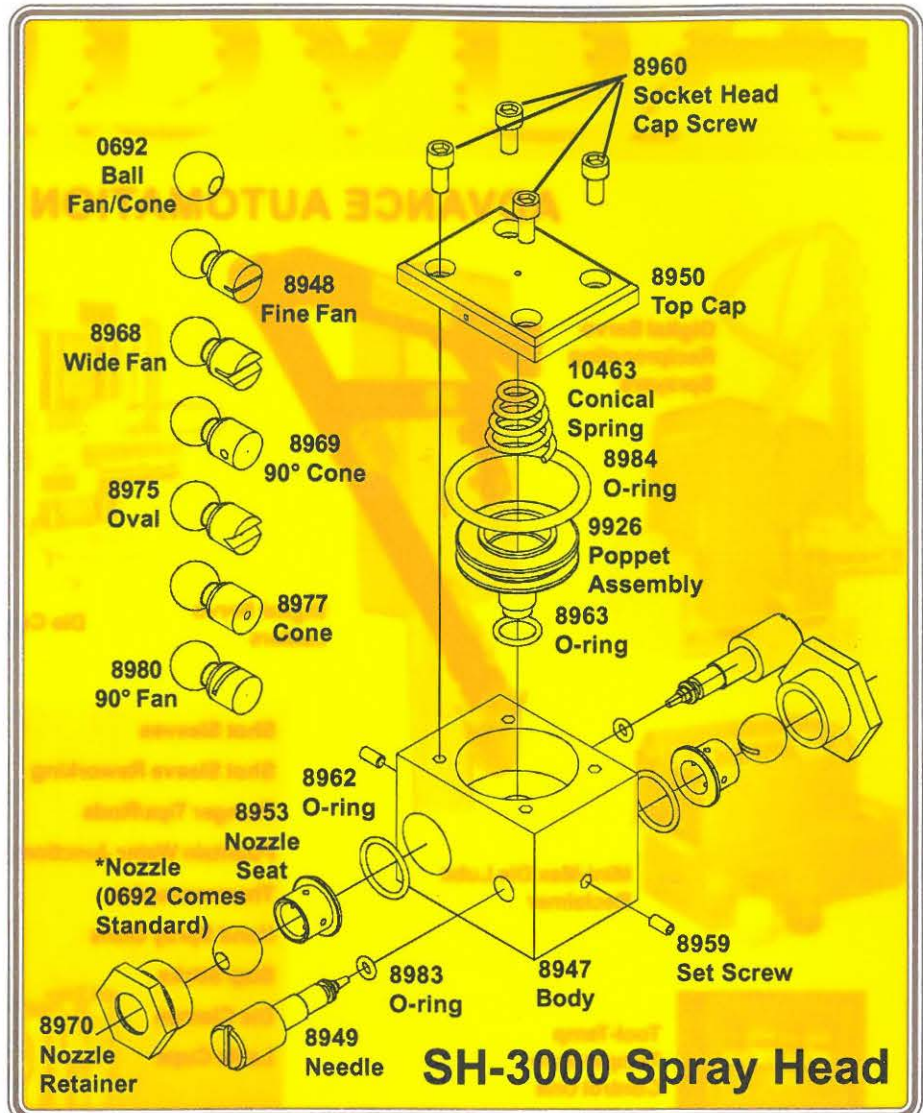
After years of research and development, Advance, the industry leader in spraying technology, has developed the ultimate spray head for die spraying. It is the Advance Model SH-3000 spray head.

The Model SH-3000 has fewer parts and an improved design over previous Advance models. Adjustability is greatly improved with a full three-turn range compared to 1-1/2 on the Model 2000. There is also improved atomization consistency over a larger variation of air to lube pressure.

The Model SH-3000 offers a wide range of spray patterns with 9 interchangeable nozzles from ultra-fine mist to maximum output. Various extension tubes are also available. Air and lube pressures can be set independently and are adjustable from 40 to 110 psi.

The spray head is also retrofittable on any of our spraying reciprocators. Manifold conversions are available for any brand of sprayer.

All internal parts are warranted for 1,000,000 cycles. The spray head body has a 10 year warranty.



SH-3000 Extensions, Accessories

Advance®

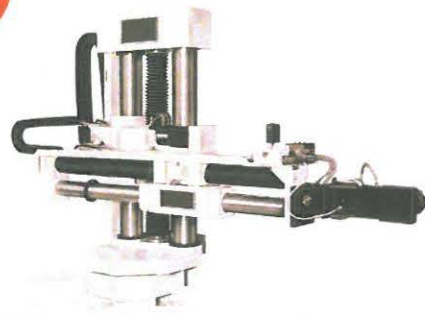
ADVANCE AUTOMATION EQUIPMENT



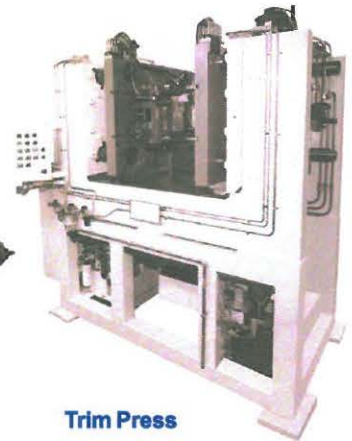
Digital Servo
Reciprocating
Sprayers



Digital Servo
Ladlers



Die Casting Extractor



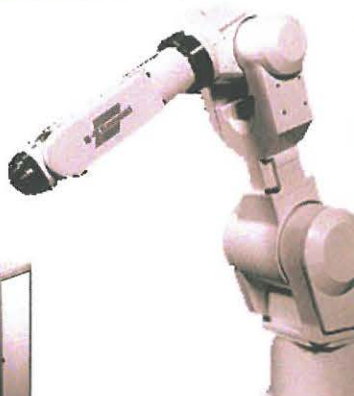
Trim Press



Mini-Max Die Lube
Reclaimer



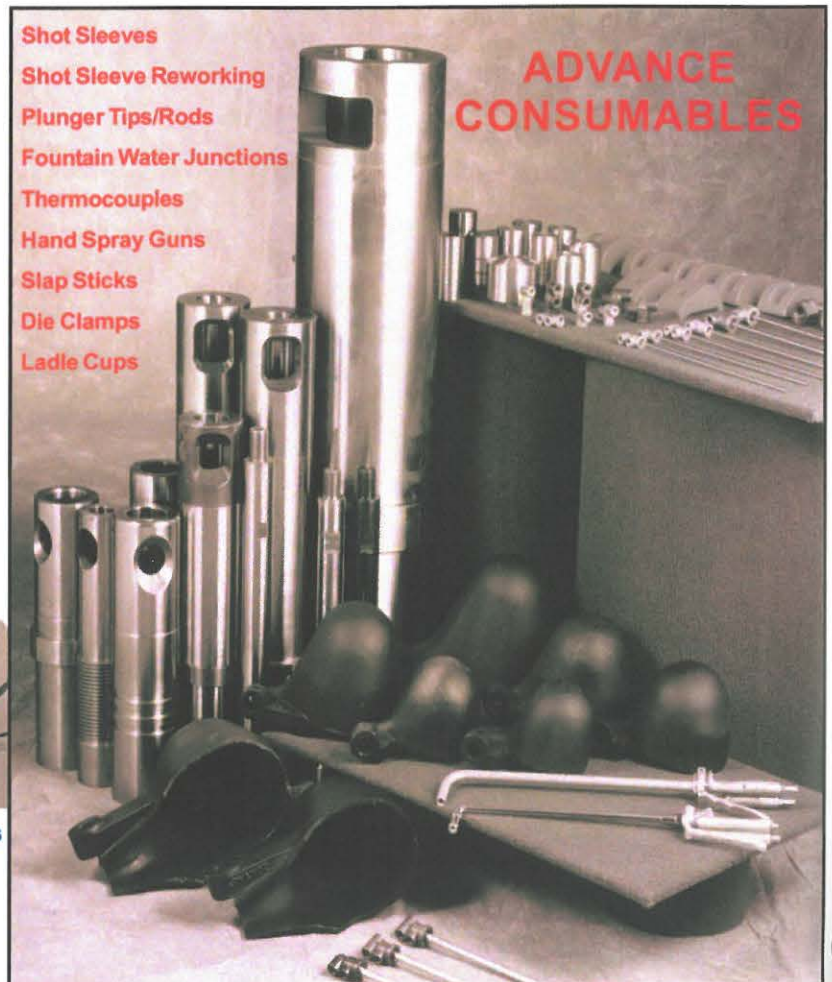
Tool-Temp
Temperature
Control Unit



Kawasaki Robots



Central Lube
Systems



Shot Sleeves
Shot Sleeve Reworking
Plunger Tips/Rods
Fountain Water Junctions
Thermocouples
Hand Spray Guns
Slap Sticks
Die Clamps
Ladle Cups

**ADVANCE
CONSUMABLES**

Your "Window to the World"® of Die Casting Automation and Consumable Products

Phone: 269-849-1000

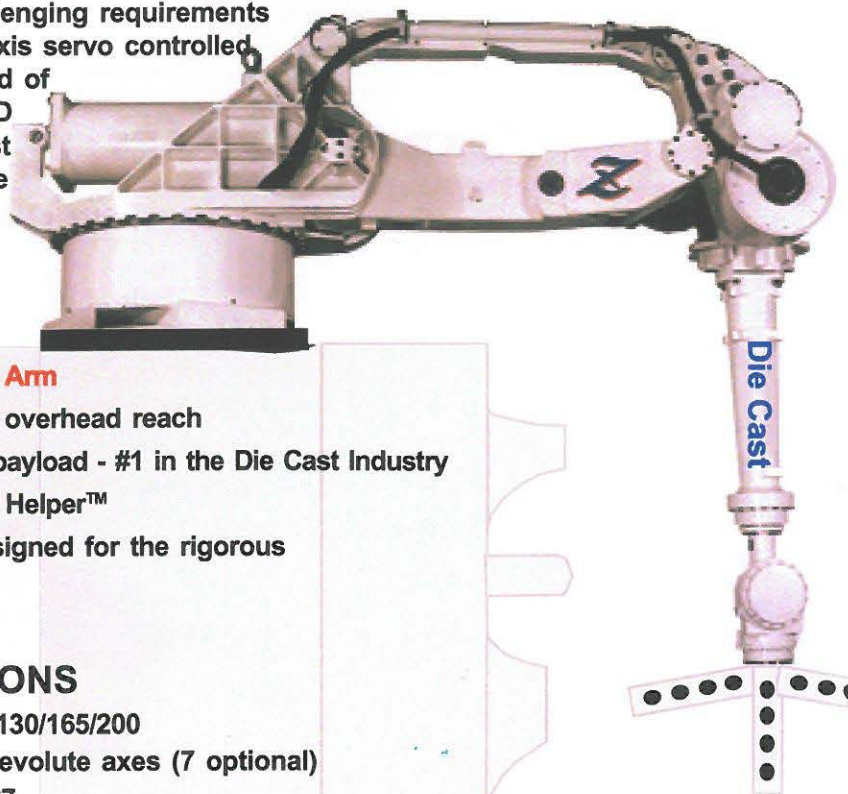
2527 HWY M-63, Benton Harbor, MI 49022

Fax: 269-849-2200

Advance[®] automation

Die Casting Robotic Spray System

The Advance Die Casting Robotic Spray System utilizes the Kawasaki ZT130/150/200 shelf mounted robot which is specifically designed to meet the challenging requirements of the die cast environment. The six-axis servo controlled robot carries a maximum static payload of over 300 lbs. The hand held LCD Multifunctional Touch Panel is the most user-friendly panel of its type in the die casting industry.



DIE CASTING FEATURES

- **IP-67 rated wrist and IP-65 rated Arm**
- Unique Hybrid Link for greater overhead reach
- 130-200 kg (286-440 lbs.) static payload - #1 in the Die Cast Industry
- Special Die Cast Software - Die Helper™
- Special seals and bearings designed for the rigorous Die Cast environment

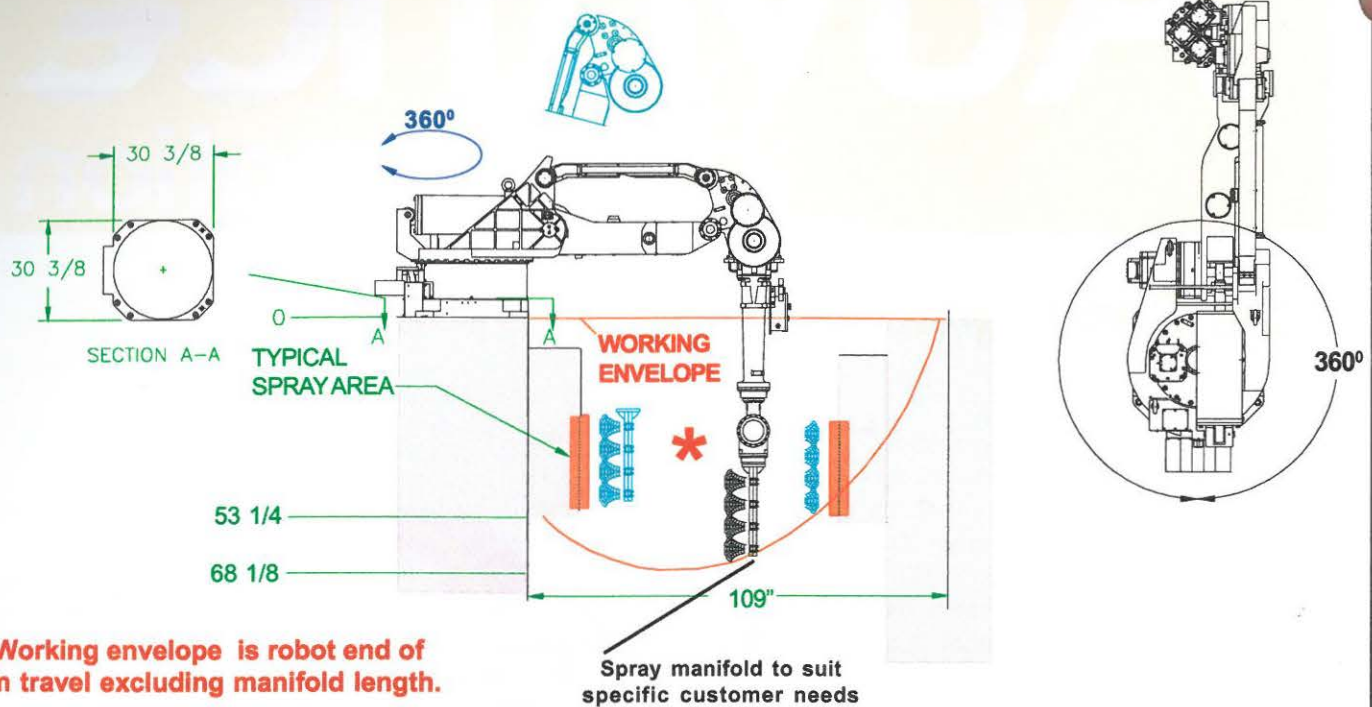
MECHANICAL SPECIFICATIONS

• Model Type	ZT130/165/200
• Servo Axis	6 revolute axes (7 optional)
• Wrist Rating	IP67
• Arm Rating	IP65
• Maximum Rotary Velocity	6,337 mm/sec (250 in/sec)
• Maximum Static Payload	130-200 kg (286-440 lbs.)
• Maximum Vertical Reach	5027 mm (198 in)
• Maximum Horizontal Reach	3458 mm (136 in)
• Repeatability	+/- .30 mm (.012 in)
• Positioning Feedback	Absolute Encoder
• Drive Motors	Brushless AC Servo Motors
• Machine Weight	(3850-3960 lbs.)

**Model
RSS-2500**

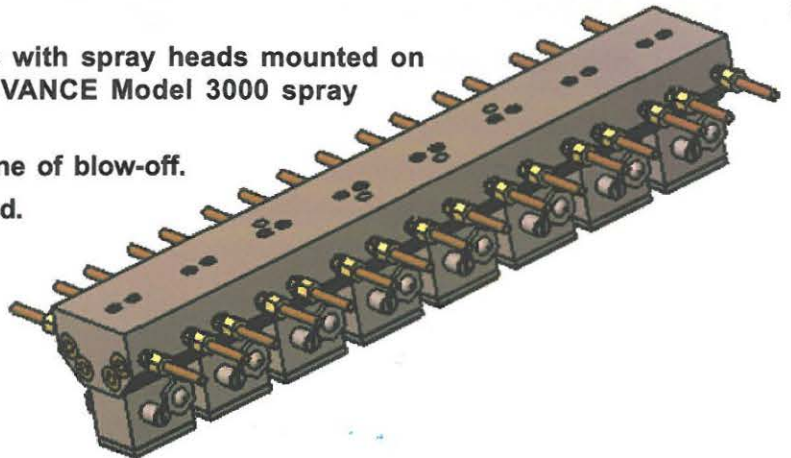
Your "Window to the World"® of Die Casting Automation and Consumable Products

Robotic 6 Axis Die Spraying



Spray Manifold, heads, etc.

- Standard and custom spray manifolds with spray heads mounted on 1, 2, 3, or 4 sides using standard ADVANCE Model 3000 spray heads.
- 2 zones of spray included and one zone of blow-off.
- Valve package, hoses, etc. are included.



Extracting Robots



Specifications are subject to change without notice.

ADVANCE AUTOMATION EQUIPMENT

ADVANCE manufactures a broad assortment of die casting peripheral equipment including ladlers, extracting robots, sprayers, die temperature control units, central lube systems, trim presses, casting cooler systems and consumable products.

ADVANCE can satisfy all of your die casting automation needs.

Advance

Advance Products Corporation - 2527 M-63 Benton Harbor, Michigan 49022
Phone (269) 849-1000 - Fax (269) 849-2200 - www.advanceproductscorp.com

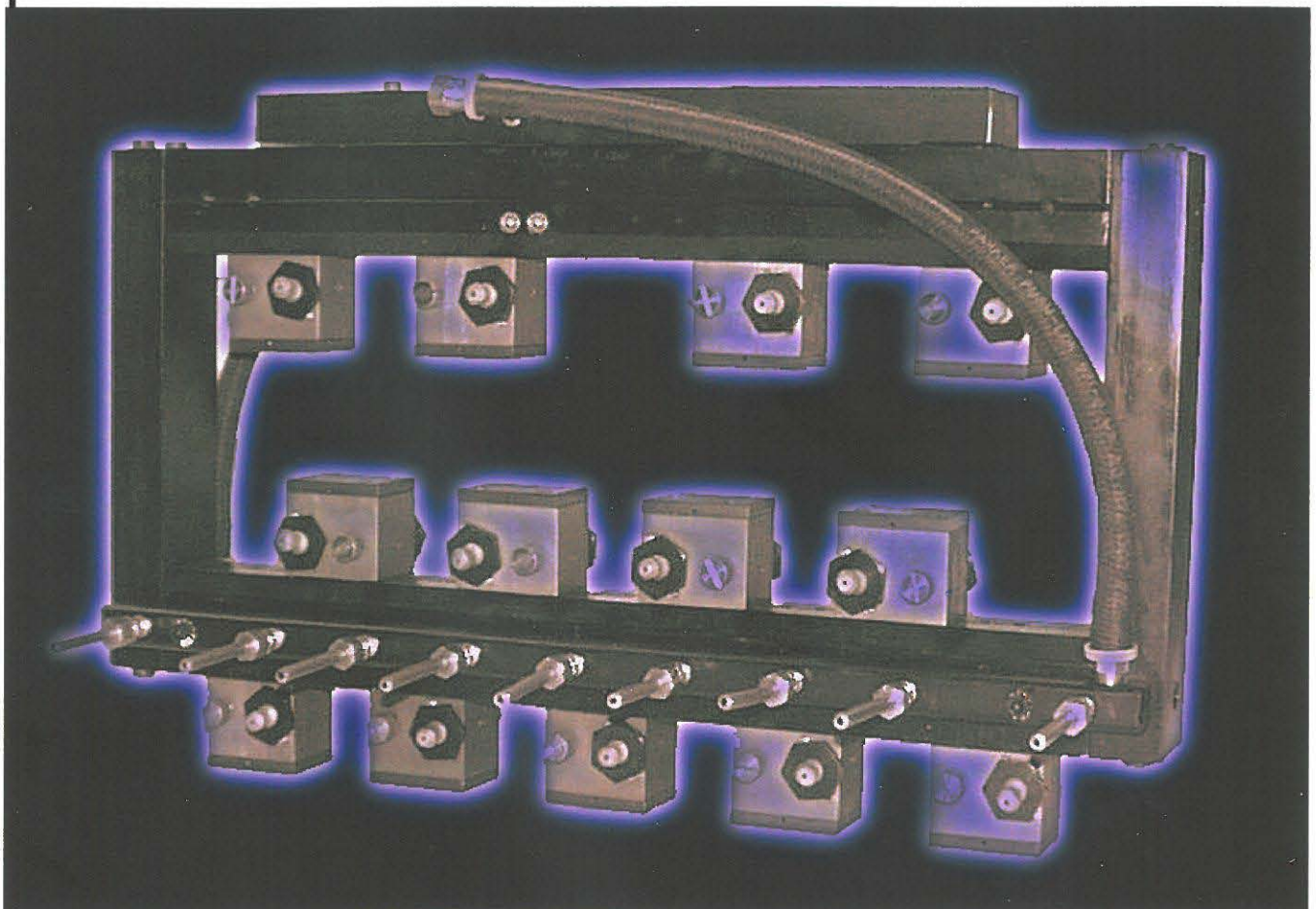


Digital Servo
Ladlers

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Advance[®] automation

Spraying Technology Manifolds, Spray Heads & Accessories



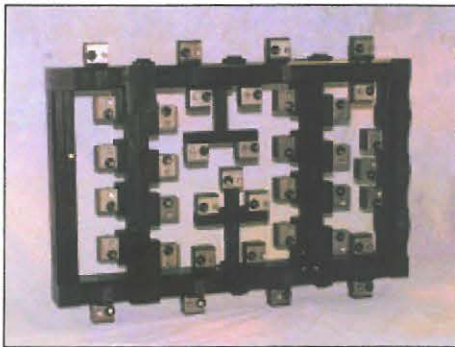
Advance Your Capabilities

Business Side

1 - Why Proper Manifolds and Accessories Are Important

Consistency, repeatability and efficiency - three things every die caster wants in their spraying system. To achieve all three, requires the proper spraying equipment. After selecting an automatic die spray system, the spraying package is the most important next step.

The **manifold** is the heart of the die casting spray system. Manifold selection, along with the choice of **spray heads** and **nozzles** are significant factors in achieving optimum die spraying.



Too often, little consideration is given to manifold design and usage. When you consider that spraying is the most time consuming part of the **total casting cycle**, it is important to select a manifold that will:

- A) **reduce cycle time**
- B) **give you a consistent, quality part**
- C) **reduce labor**
- D) **easy to maintain**
- E) **will not leak**

2 - Production Improvements - Cycle Time

As a rule of thumb, spraying should be less than 20% of total cycle time. Many die casters are spraying for 30-40% of the cycle time. This is a huge waste of time and adds to total cycle time. Many years ago, Advance devised a formula that has worked well in determining proper spraying time. The formula states you should spray one second for every 100 ton of the size of the die cast machine. Add one second per slide and one second for a second spray zone. For example, for an 800-ton DCM with two zones and two slides, your spray time is:

1 sec. x 8 + 1 (additional zone) + 2 (slides) = 11 seconds.

3 - Positioning Accuracy

Digital servo-control gives Advance reciprocators positioning accuracy within .020" This repeatability is important for maintaining control of the process.



4 - Quality Issues

How you spray determines the quality of your part.

Proper spraying:

- Produces more consistent, shippable parts
- Produces more presentable, shiny parts
- Reduces scrap
- Increases die life
- Increases machine up-time

It is important to understand that quality drives production schedules, which translates into MONEY. If you have consistent, quality parts, it is easier to calculate the number of shippable parts made per hour. This translates into better prediction of shipping schedules, which in turn, controls production schedules.

5 - Environmental and Safety Issues

In addition to producing more shippable parts and reducing labor, automatic spraying is safer than hand sprayers. It takes the operator away from the fumes and the opening and closing of the die casting machine versus hand spraying. This can reduce Worker's Compensation premiums and make for a safer plant environment.

Summary:

Proper automatic spraying with the right manifold, spray heads and nozzles will reduce cycle time and labor and give you more consistent, usable parts. It is this consistency, repeatability and efficiency of automatic spraying that make it so vital to your production and your bottom line.

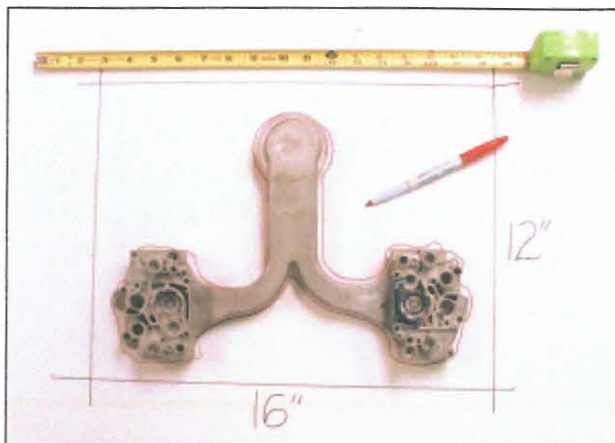
AUTOMATION MEANS

Consistency, Process Repeatability, Efficiency
More Safe Environment, More Shippable Parts
Better Scheduling, More Profits

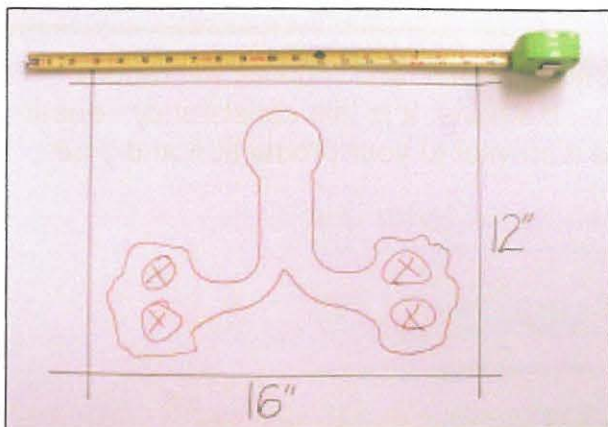
Manifold Design / Selection

How To Design Your Manifold

(1) Determine the relative size of the manifold. Use either the die layout drawing, actual casting size, etc.

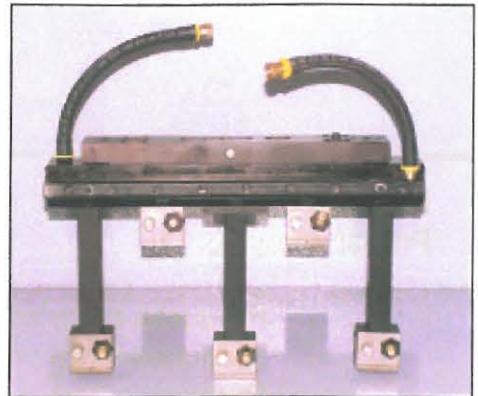


(2) Determine where you need to spray the die. Highlight the problem areas which may need more cooling.



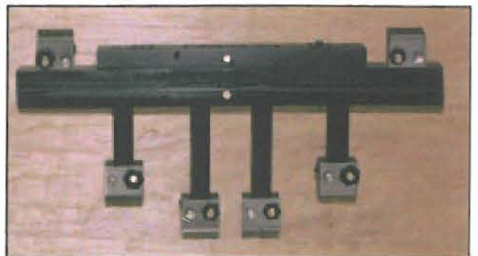
(3) Decide how you want to spray the die. For example, is a bar (sweep) manifold suitable or is a more complex Picture Frame® manifold needed? Do you want to spray with one or two zones of spray?

Single Bar,
Single
Spray Zone



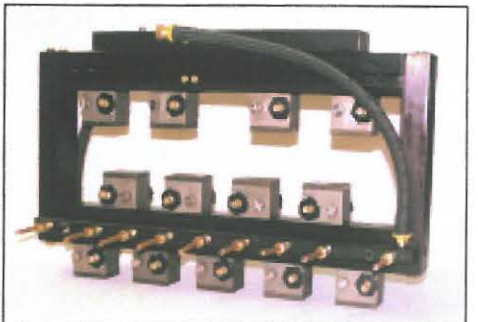
LGTH	PART#	LGTH	PART#
13"	9805	25"	9807
19"	9806	31"	9808

Single Bar,
Dual Spray
Zone



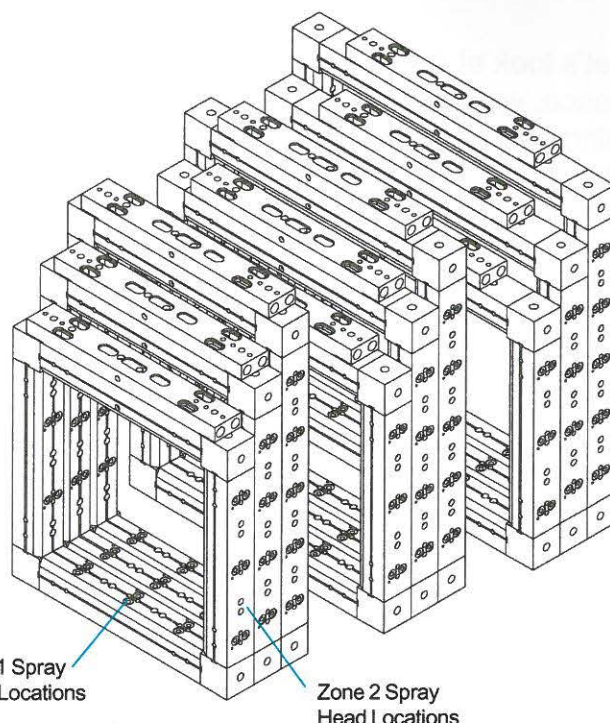
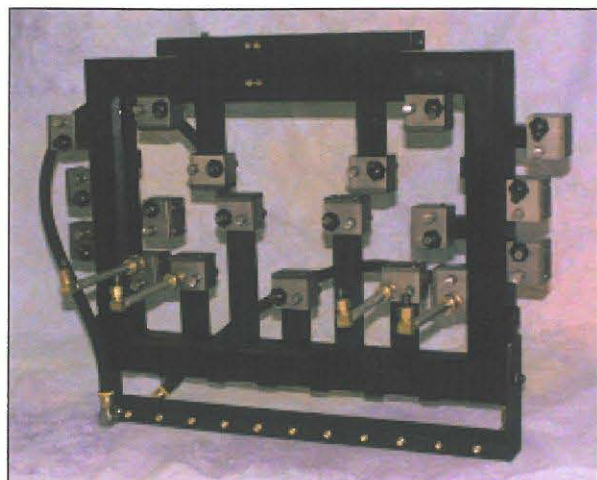
LGTH	PART#	LGTH	PART#
13"	not available	25"	9807
19"	9806	31"	9808

Dual Bar,
Dual Spray
Zone



LGTH	TOP	BTM	LGTH	TOP	BTM
13"	9805	9812	25"	9807	9816
19"	9806	9814	31"	9808	9818

Picture Frame® Manifolds



Picture Frame® Manifold Sizing Chart

If your die is more complex or you want to spray the die from one fixed point, a Picture Frame® Manifold may be suitable.

They are our most popular manifolds and come in a multitude of standard sizes to fit most any application. (See chart at right).

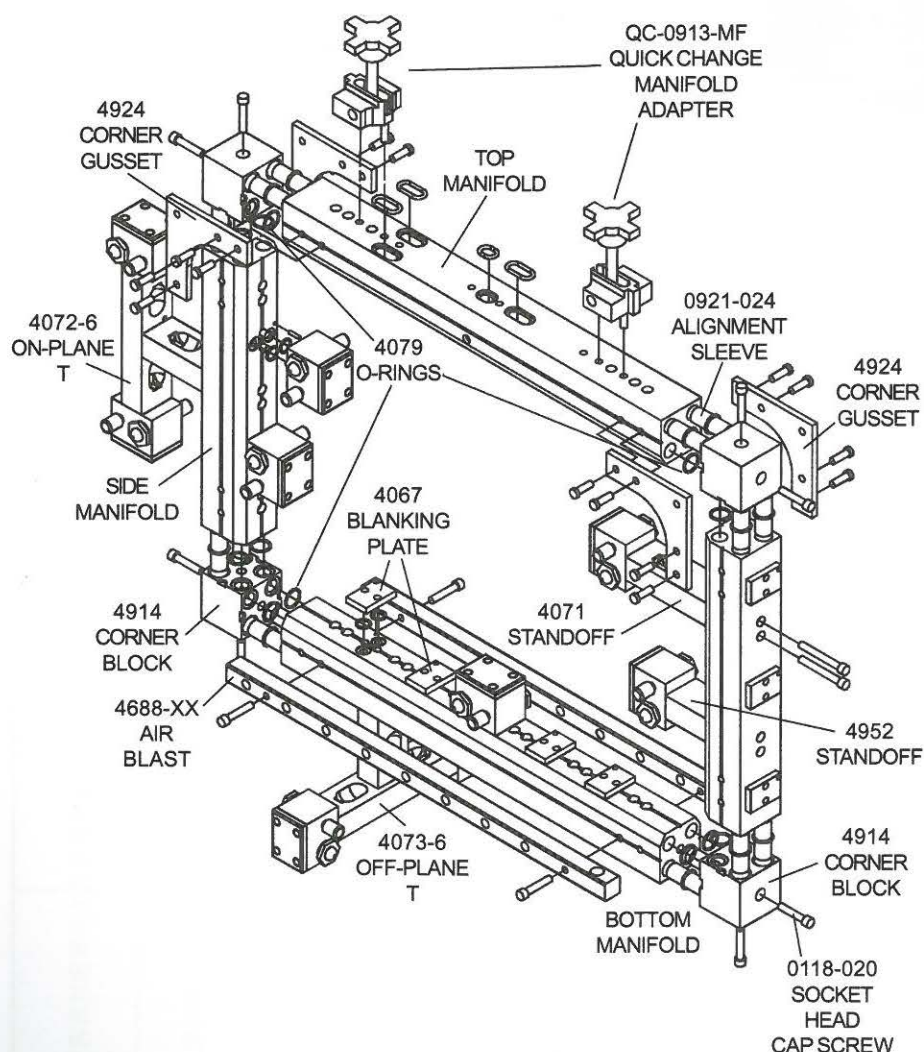
Picture Frame® Manifolds typically produce the shortest spray time. They are available in both single and dual zone capability.

Part #	Size Width x Height (Inches)	Components Required For Each Assembly			Available Spray Head Locations	
		Top Frame Part #	Bottom Frame Part #	Side Frame Part #	Zone 1	Zone 2
NPF-1711-D	17 x 11	9805	9812	9810	9	8
NPF-1714-D	17 x 14	9805	9812	9811	11	10
NPF-1717-D	17 x 17	9805	9812	9812	13	12
NPF-1720-D	17 x 20	9805	9812	9813	15	14
NPF-1723-D	17 x 23	9805	9812	9814	17	16
NPF-1726-D	17 x 26	9805	9812	9815	19	18
NPF-1729-D	17 x 29	9805	9812	9816	21	20
NPF-2311-D	23 x 11	9806	9814	9810	13	10
NPF-2314-D	23 x 14	9806	9814	9811	15	12
NPF-2317-D	23 x 17	9806	9814	9812	17	14
NPF-2320-D	23 x 20	9806	9814	9813	19	16
NPF-2323-D	23 x 23	9806	9814	9814	21	18
NPF-2326-D	23 x 26	9806	9814	9815	23	20
NPF-2329-D	23 x 29	9806	9814	9816	25	22
NPF-2332-D	23 x 32	9806	9814	9817	27	24
NPF-2911-D	29 x 11	9807	9816	9810	17	14
NPF-2914-D	29 x 14	9807	9816	9811	19	16
NPF-2917-D	29 x 17	9807	9816	9812	21	18
NPF-2920-D	29 x 20	9807	9816	9813	23	20
NPF-2923-D	29 x 23	9807	9816	9814	25	22
NPF-2926-D	29 x 26	9807	9816	9815	27	24
NPF-2929-D	29 x 29	9807	9816	9816	29	26
NPF-2932-D	29 x 32	9807	9816	9817	31	28
NPF-2935-D	29 x 35	9807	9816	9818	33	30
NPF-3511-D	35 x 11	9808	9818	9810	21	18
NPF-3514-D	35 x 14	9808	9818	9811	23	20
NPF-3517-D	35 x 17	9808	9818	9812	25	22
NPF-3520-D	35 x 20	9808	9818	9813	27	24
NPF-3523-D	35 x 23	9808	9818	9814	29	26
NPF-3526-D	35 x 26	9808	9818	9815	31	28
NPF-3529-D	35 x 29	9808	9818	9816	33	30
NPF-3532-D	35 x 32	9808	9818	9817	35	32
NPF-3535-D	35 x 35	9808	9818	9818	37	34

Manifold Parts

Let's look at some accessories that can help you in the placement of the spray heads. At Advance, we believe that permanent designed manifolds are better than extension tubes coming out of the head.

Hard manifolds do not go out of adjustment and make die change-over quick. Also, with Advance's straight-in-the-die travel, reciprocator die openings can be reduced. This produces greater die spraying efficiency and less over spray and run off. By reducing the die spray opening needed, faster cycle rates can be achieved.



QUICK CHANGE MANIFOLD ADAPTERS allow for fast manifold exchange without tools for quick and easy die setup.

STANDOFFS are available in 1-inch increments. Supplied with O-rings and bolts.

STANDOFFS

LENGTH	PART #
1-inch	4952-008
2-inch	4952-016
3-inch	4952-024
4-inch	4071-032
5-inch	4071-040
6-inch	4071-048
7-inch	4071-056
8-inch	4071-064

ON-PLANE T's can be attached to the end of the extension providing the availability of two spray heads from one spray head location. Comes complete with O-rings and fasteners.

OFF-PLANE T's attach to the end of the extension and are used to project two spray heads towards the die cavity. Comes complete with O-rings and fasteners.

OFF-PLANE T'S

LENGTH	PART #
6-inch	4073-6

ON-PLANE T'S

LENGTH	PART #
6-inch	4072-6

Spray Heads



MODEL SH-3000 SPRAY HEAD

After years of research and development, Advance, the industry leader in spraying technology, has developed the ultimate spray head for die spraying. It is the Advance Model SH-3000 spray head.

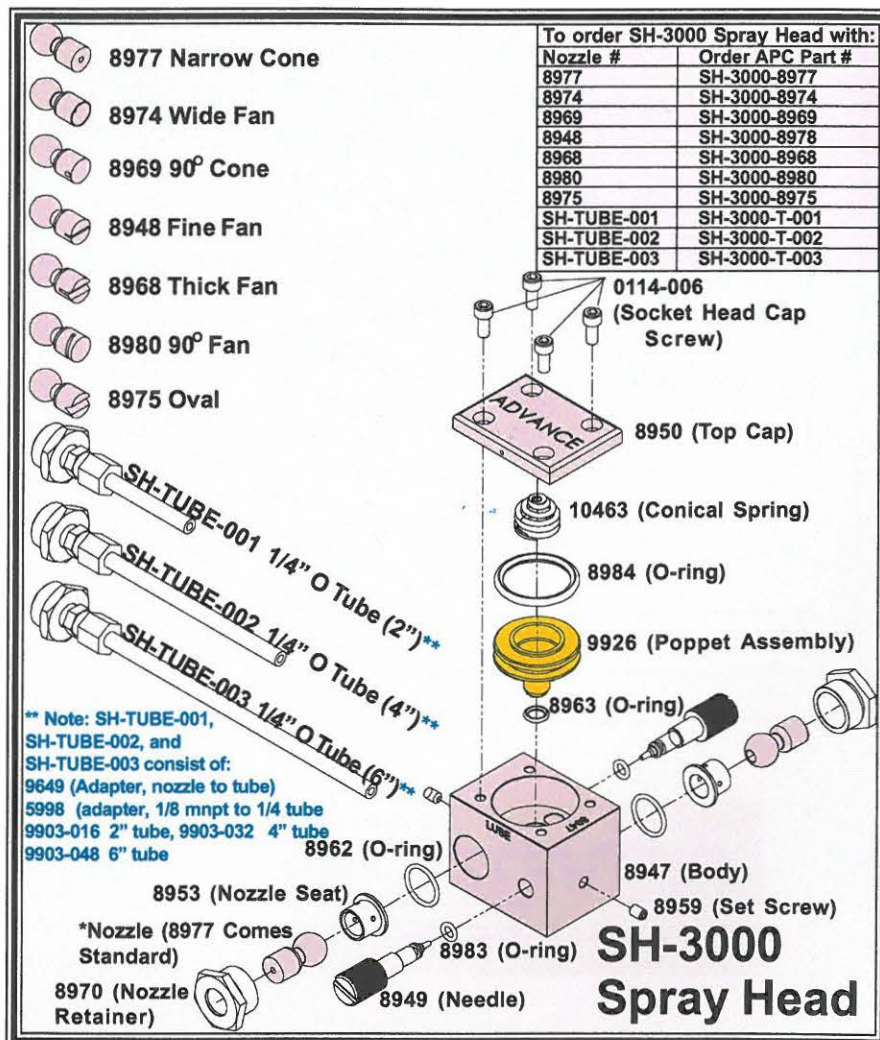
The Model SH-3000 has fewer parts and an improved design over previous Advance models. Adjustability is greatly improved with a full three-turn range compared to 1-1/2 on the Model 2000. There is also improved atomization consistency over a larger variation of air to lube pressure.

The Model SH-3000 offers a wide range of spray patterns with 9 interchangeable nozzles from ultra-fine mist to maximum output. Special nozzles are available that offer consistent flow/lube rates at a given pressure regardless of air pressure.

All internal parts are warranted for 1,000,000 cycles. The spray head body has a 10 year warranty.

FEATURES

- Wide range of spray volumes from ultra-fine mist to heavy dosing.
- Not dependent on the same air and lube pressures. In fact, the independent air and lube pressures can vary from 40 psi to 110 psi without affecting each other.
- .5 GPM per each nozzle outlet.
- No leak construction **GUARANTEED**. Advance's new positive shutoff doesn't permit leaking.
- Either internal or external mix nozzle outlets can be used on the same head. **An APC exclusive!**
- All internal parts are warranted for 1,000,000 cycles against leakage. Body warranted for 10 years.





DUAL NOZZLE SPRAY HEAD

Need more lube in a concentrated area. Try the new Advance Dual Nozzle spray head, ideal for ejector side.

The head features two nozzles on one side of the head. Comes with two nozzles of your choice.

AVAILABLE NOZZLES

SERIES	TUBE STYLE / LENGTH	NOZZLE
SH-3000 (Dual Outlet Opposed Side)	None* (SH-TUBE-000)	
	1/4" copper/2" (SH-TUBE-001)	
SH-3000DC (Dual Outlet Cover Side)	1/4" copper/4" (SH-TUBE-002)	
	1/4" copper/6" (SH-TUBE-003)	
SH-3000DE (Dual Outlet Ejector Side)	1/2" alum. straight/2" (SH-TUBE-004)	
	1/2" alum. straight/4" (SH-TUBE-005)	
	1/2" alum. straight/6" (SH-TUBE-006)	
	1/2" alum. 90°/2" (SH-TUBE-007)	
	1/2" alum. 90°/4" (SH-TUBE-008)	
	1/2" alum. 90°/6" (SH-TUBE-009)	

* No nozzle required with 1/4" copper tube



ADVANCE PRODUCTS CORP.

2527 M-63 North / Benton Harbor, MI 49022

PH: 269-849-1000 FAX: 269-849-2200

email: sales@advanceproductscorp.com

internet: www.advanceproductscorp.com

Advance[®] automation



DUAL OUTLET:
Ejector Side (SH-3000DE)
Cover Side (SH-3000DC)

MODEL 3000 SPRAY HEAD



STANDARD:
Double, Opposed

After years of research and development, Advance Products Corporation, the industry leader in spraying technology, has developed the ultimate spray head for die spraying.

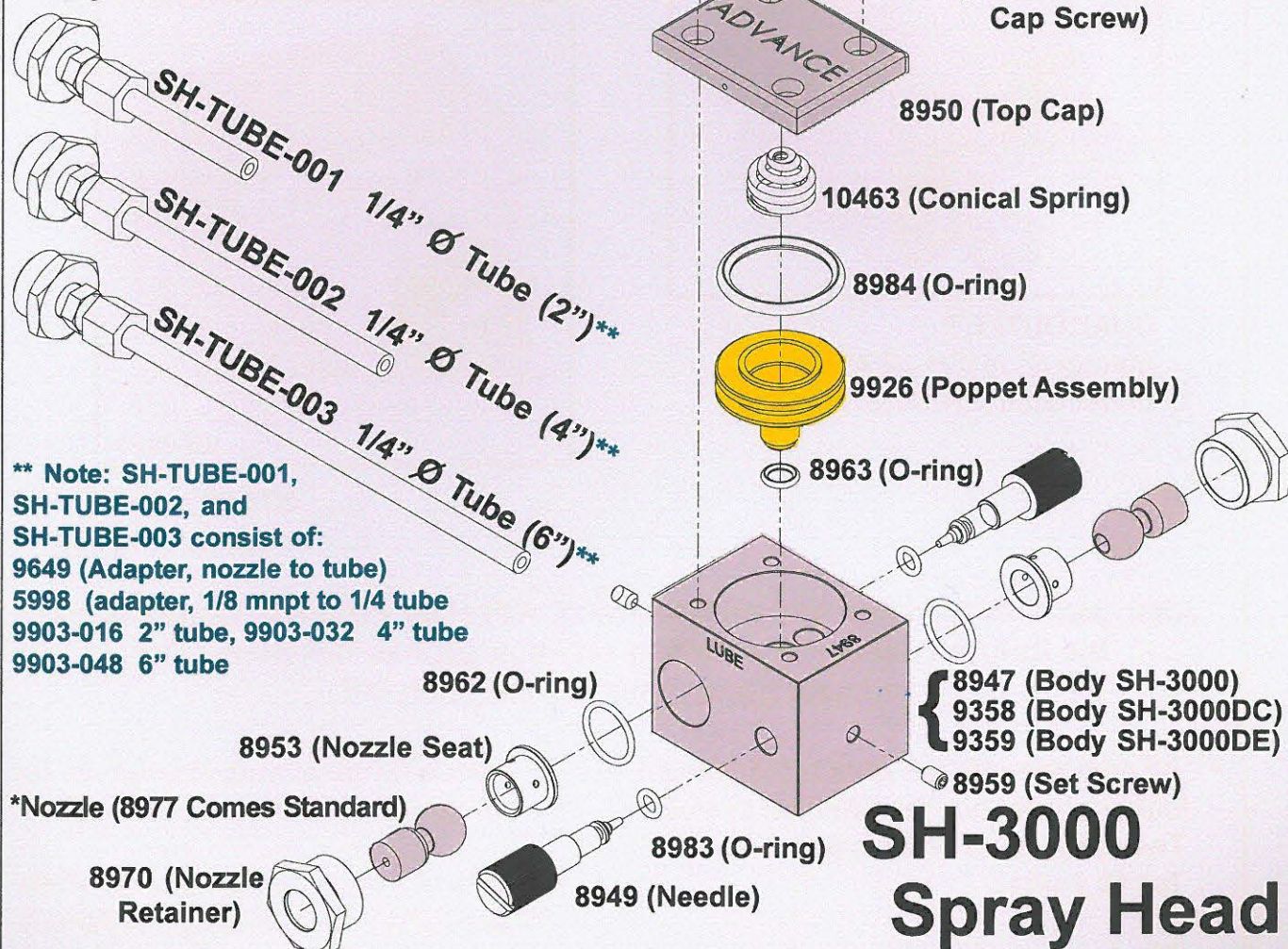
- All components are **guaranteed** for no leak performance for 1 million cycles. The spray head body is **guaranteed** for 10 years.
- The head operates at a wide range of 40 to 100 PSI air and lube pressure.
- A wide range of output volumes for ultra fine mist to maximum flow.
- Lots of nozzle combinations. Also see Advance Technology Brochure for more information about spray manifolds and other accessories.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products



To order SH-3000 Spray Head with specific nozzles, cross-reference to your desired spray head with the desired nozzle:

Nozzle design	SH-3000 Double Opposed Outlet (SH-3000)	SH-3000 Dual Outlet Ejector Side (SH-3000DE)	SH-3000 Dual Outlet Cover Side (SH-3000DC)
8977	SH-3000-8977	SH-3000DE-8977	SH-3000DC-8977
8967	SH-3000-8967	SH-3000DE-8967	SH-3000DC-8967
8969	SH-3000-8969	SH-3000DE-8969	SH-3000DC-8969
8948	SH-3000-8948	SH-3000DE-8948	SH-3000DC-8948
8968	SH-3000-8968	SH-3000DE-8968	SH-3000DC-8968
8980	SH-3000-8980	SH-3000DE-8980	SH-3000DC-8980
8975	SH-3000-8975	SH-3000DE-8975	SH-3000DC-8975
SH-TUBE-001	SH-3000-T-001	SH-3000DE-T-001	SH-3000DC-T-001
SH-TUBE-002	SH-3000-T-002	SH-3000DE-T-002	SH-3000DC-T-002
SH-TUBE-003	SH-3000-T-003	SH-3000DE-T-003	SH-3000DC-T-003



**** Note:** SH-TUBE-001, SH-TUBE-002, and SH-TUBE-003 consist of:
9649 (Adapter, nozzle to tube)
5998 (adapter, 1/8 mnpt to 1/4 tube)
9903-016 2" tube, 9903-032 4" tube
9903-048 6" tube

*Nozzle (8977 Comes Standard)

Specifications are subject to change without notice.

Advance

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Automation Ladlers

Automation Ladlers

- Ladlers
- Ladle Cups

Advance automation

Digital Servo Metal Ladling Systems



Your "Window to the World"® of Die Casting Automation and Consumable Products

Introduction

Welcome to Advance's World of Ladler Automation

Advance is your "Window to the World®" for digital automatic metal ladlers which are renowned worldwide for their ruggedness and reliability. Our ladlers have been proven to require less than \$300 per year in maintenance costs.

In-House Manufacturing Capability

Advance automation products are made in-house at our Benton Harbor, MI, facility. By taking charge of every step of the manufacturing process, we can assure process consistency.

Process consistency is the first step in achieving total quality. A reliable, consistent process

begins with reliable equipment. Parts are made by skilled craftsmen on state-of-the-art CNC machines.

Engineering is another critical part in the manufacturing process. Advance engineers design equipment with the latest 3-D solid modeling computer systems and can provide you with a detailed drawing showing how a specific product would work with your die casting machine.

Advance ladlers - proudly **MADE IN AMERICA**

by experienced craftsmen - are known for their durability, reliability, accuracy, ease of operation and low maintenance costs. This means a consistent, quality part at a world competitive price.



Let's Discuss How Shot Size Repeatability Saves You \$MONEY\$.

Independent customer testing has found that **Advance** ladlers have a repeatable accuracy higher than our advertised 99+%. This is achieved by our superior manufacturing process described in the following pages.

Advance designs its ladlers for the **highest repeatability** which means lower cost of operation. For example, let's compare a 60 second cycle operation for 5 days, 20 hours per day, using a 10 pound nominal pour. Now let's compare a competitor's ladler of 10% pouring repeatability against ADVANCE's 1% repeatability guarantee.

Competitor's ladler 10% repeatability for a 10 pound casting:
60 second shot X 20 hours X 5 days = 6000 shots per week or 60,000 pounds of aluminum. The shot weight variation would be from 60,000 pounds to 66,000 pounds (10 % maximum variation) or 6000 pounds too much. Let's say, however, the excess average is half of that or 3000 pounds of aluminum per week.

Now, compare to **Advance**'s 1% repeatability:
The average shot weight variance is 300 pounds per week.

The metal saving difference is **2700 pounds per week!**

At 50 weeks per year, that's equal to **135,000 pounds** of metal you've purchased, inventoried, and melted unnecessarily! **And these figures are only for a 10 pound casting!**

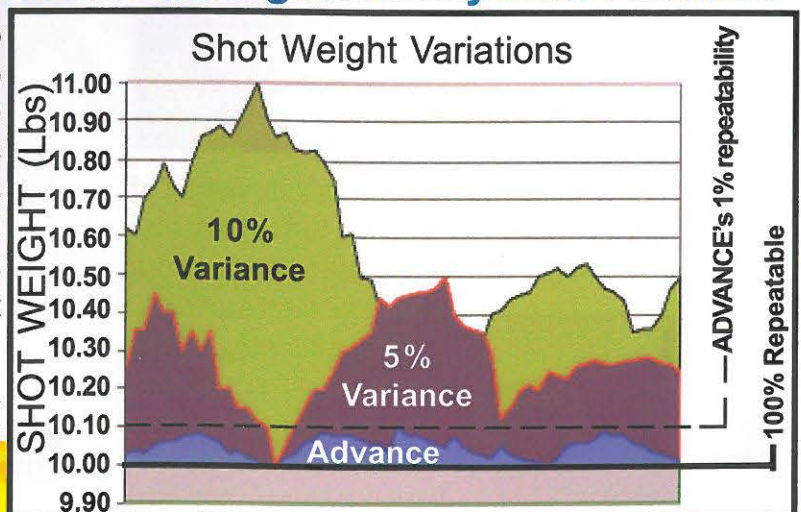
What is this costing your company!?!

One die caster has stated that *"a biscuit 1" longer than needed (on a 2 1/2" diameter sleeve) costs about \$50,000 a year (per machine) in remelt costs"*. You can't afford not to have the most accurate ladler in the industry!

How Does ADVANCE Achieve 99+% Pouring Accuracy in Its Ladlers?

The 99+% is achieved because the ladle cup "spill off angle" is controlled by the servo motor and servo drive. One revolution of the ladle cup is divided into almost 2 million parts (1,966,000 to be exact). What this means is that the cup "spill off angle" can be controlled to 2 millionth of its rotation and it's this repeatability of the "spill off angle" that achieves the ladlers' shot size repeatability.

Unlike other ladles, the **Advance** ladler achieves the same repeatability regardless of metal level draw down.



Ladler Features

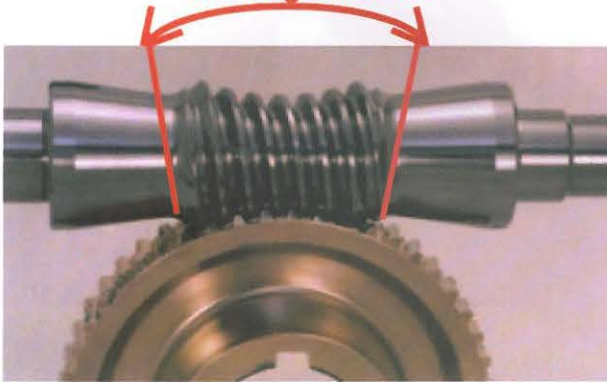
Advance's Design Capabilities Gives You Quality, Low Replacement Costs & Higher Up-Time

The average cost that companies spend with **Advance** per year on ladlers after the warranty period is under \$300 per year. Why is this so?

Well, **Advance** designs its products starting with 3-D solid modeling software. The design criteria set by our president is to "design the product so it never breaks down"! That's a tough goal, but the minimal amount of money that companies spend with us on replacement parts proves the ladlers are very well designed.

An example of this quality is **Advance's Direct-Drive System**.

Provides 9 times the tooth contact of normal gear boxes



The gear box in **Advance** ladlers is either a ground helical gear set or a Cone Drive double-enveloping gear set where the worm is manufactured in an hour-glass configuration and wraps around the worm wheel. Either provides low backlash and extremely long-life.

The brushless servo motors are directly coupled to the gearset reducing service drive train problems and improving mechanical response to the servo motors.

The output shaft of the ladler linkage arms is a large, one-piece shaft, which goes completely through the gear box. The positioning encoder, motor and gearbox are giving direct drive without use of pulleys, belts or cams.

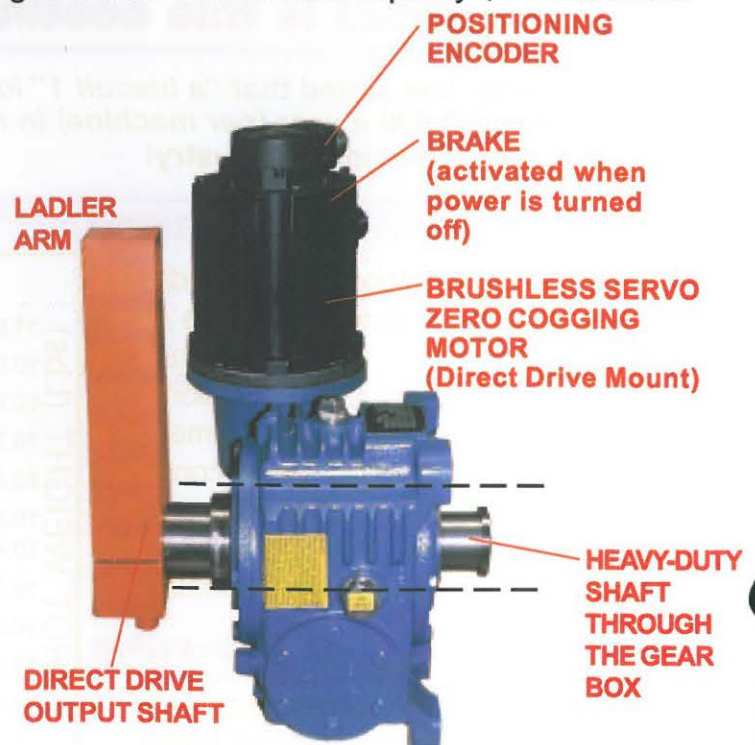
Heavy-Duty Arm Support

On SL-2000 and larger models (more than 50 pounds of metal) the entire arm assembly is supported by a large housing with double opposed Timken tapered roller bearings.



This housing assembly supports the total weight of the arm so there is no load applied to the gear box assembly, allowing very smooth arm travel without torque interruptions.

Without the weight of the arm being supported by the gearbox, the gear box works for many years of service.



"NO DUNKING" Smart Probe™ System

Advance has developed proprietary circuitry which prevents dunking. The smart probe remembers the furnace metal position from its last pour pickup. A back-up probe is activated if the primary probe fails. If both probes fail, the ladler is programmed to go no more than 1" lower than the previous metal pickup point. If it doesn't sense the metal, it goes to its home position and turns itself off. The ladler doesn't dunk, even if all the probe wires are broken.

The Advance Smart Probe™ System consists of three probes - standard, backup and smart. Should the standard probe fail, a backup probe takes over to prevent dunking of the arm into metal. Warning Lights flash on the Operator Interface Station signaling a probe failure.

Additionally, a smart probe remembers the last metal level detected and allows the probes to advance only 1" below the last metal level sensed. If the smart probe doesn't sense metal within 1", the ladler will dump all the metal in the cup back into the dipwell and return to the Home position before shutting itself off automatically!

**DOUBLE
INSULATED
WIRES FOR
EACH PROBE**

**THE PROBE ASSEMBLY CAN BE MOUNTED ON
EITHER SIDE OF THE ARM.**

**"SUPER" HIGH TEMPERATURE BEARINGS
REQUIRE NO LUBRICATION OR GRAPHITE
POWDER.**

**PROBE TIPS ARE EASILY REPLACEABLE
AND TREATED WITH ADVANCE'S
EXCLUSIVE "ADWEAR" TREATMENT
WHICH RESISTS ALUMINUM FOR MONTHS
AND SOMETIMES YEARS. THE PROBES DO
NOT REQUIRE A COATING.**

**50 POUND AND LARGER LADLER SIZES USE
INTERCHANGEABLE LADLE CUP ADAPTERS**

**ADVANCE LADLERS ARE
DESIGNED TO USE ADVANCE
QUICK-CHANGE LADLE CUPS**

Ladler Features

Electronic Platform, Construction and Features

Advance

uses standard Mitsubishi components. The human-machine interface, amplifier, and motor are all standard "off the shelf" Mitsubishi components. No special proprietary electronics with **Advance**. Mitsubishi is #1 worldwide in servo system reliability and **Advance** is proud to partner with them.

Computer Front End

The Advance Servo Ladler operator station uses an easy-to-read color 5.75" LCD.

Each program is easy to set up and is menu prompted so even operators with little or no previous programming experience can program the ladle. The unit stores up to 500 parts programs in NV RAM.

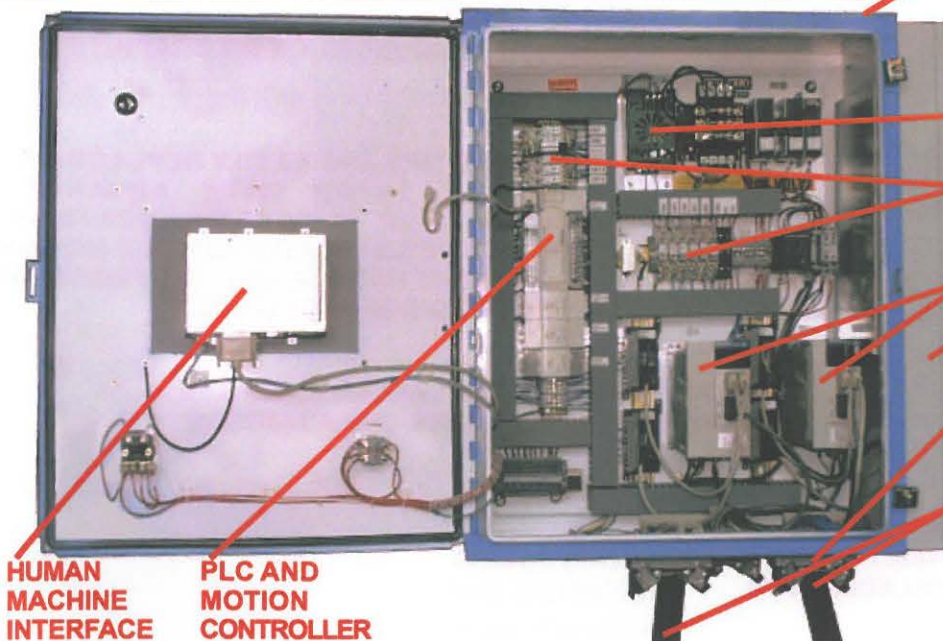


Operator Interface Station

The Operator Interface Station allows the operator to monitor the status of the ladler, the metal level in the furnace, and, also, control all basic ladler functions. Warning lights signal probe failures, low metal levels, and aborted cycles. Indicators signal the mechanism position and ladle cup status. The Operator Interface Station size is: 9"H x 13"W x 4.38"D.

Controls can be set to Manual or Auto by turning a selector switch. A selector switch increases or decreases the shot size.

Main Control Box



SIMPLICITY IN CONTROL BOX DESIGN. HARD WIRED FOR EASY TROUBLESHOOTING. STANDARD CONTROL BOX SIZE IS: 30" H x 24" W x 15.37" D.

24 VOLT POWER SUPPLY

ISOLATION RELAYS

AMPLIFIERS

HEAT EXCHANGER IS STANDARD

DOUBLE CLAMPING PLUGS ON BOTH ENDS OF THE CABLES

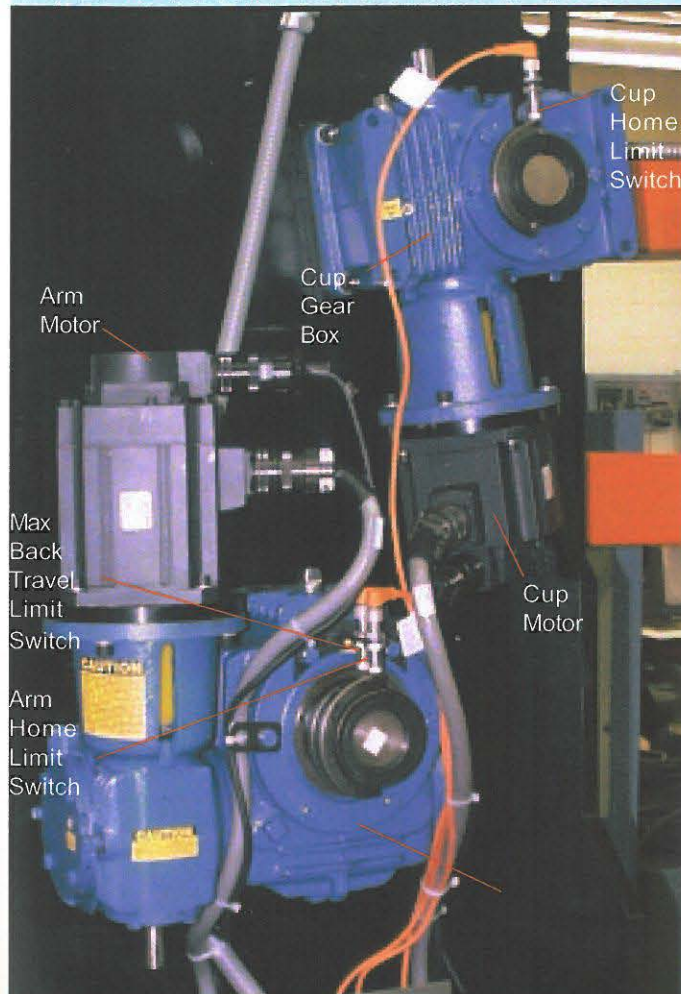
SEPARATE CABLES FOR POWER AND COMMUNICATION (30' CABLE SETS IN SEALTITE COME STANDARD WITH EACH LADLER)

HUMAN MACHINE INTERFACE

PLC AND MOTION CONTROLLER

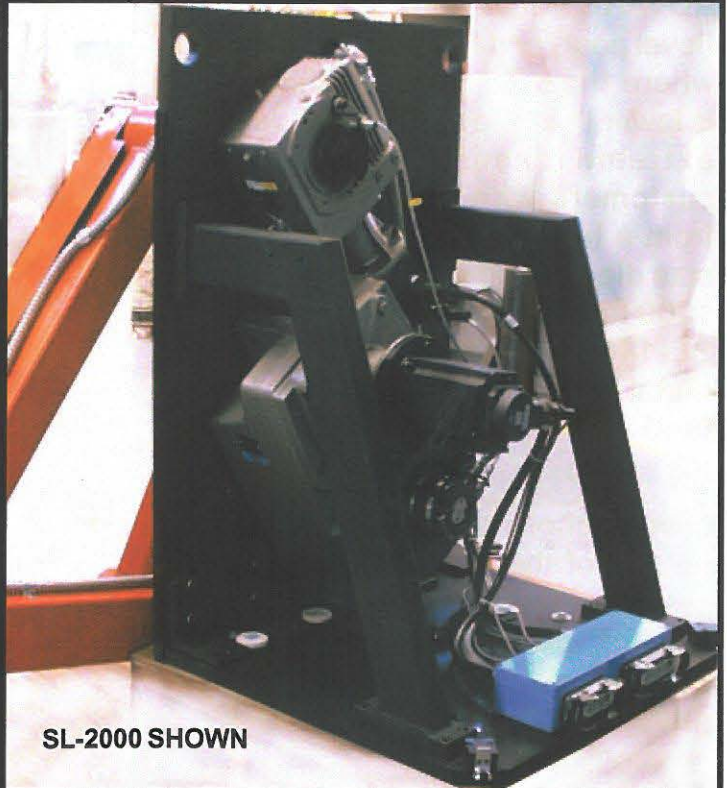
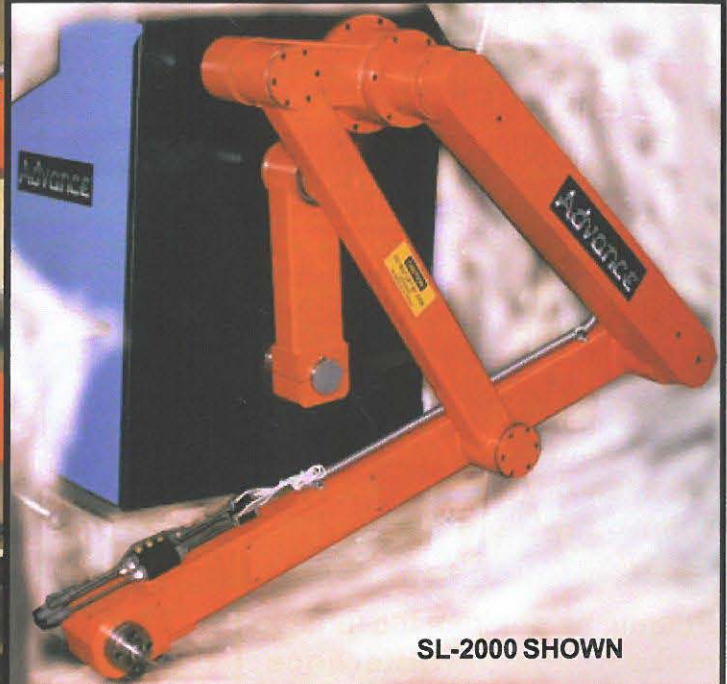
Mechanical Photos

LADLER MAJOR PARTS SL-650 / SL-1200 / SL-1500



**Direct Drive
Systems with
Servo Motor and
Encoder Mounted
Directly to the
Gear Box**

**Massive Arm Links with
Timken Tapered Roller
Bearings at Each Joint**



Features And Specifications

Sizing Your Ladler Needs

QUICK REFERENCE LADLER SIZING MATRIX										
400T	600T	800T	1000T	1200T	1400T	1600T	2000T	2500T	3000T	3500T
SL-650										
	SL-1200									
	SL-1500									
				SL-2000						
						SL-3000				
									SL-4000	
Advance makes an SL-1400 for 800-1400T DCM with launder systems.										

How do I know what ladler size is the correct one for my application? The Quick Reference Ladler Sizing Matrix chart will get you to the general area.

Now determine what your maximum shot size is.

15# _____
25# _____
50# _____
100# _____
175# _____

ADVANCE ladlers come in several live metal capacities, so check the one that matches your requirements. Now,

determine the stroke you need. The drawings on the next 2 pages give you the stroke. Here's where our planning sheet comes in handy. Just fill out a few dimensions, and we'll submit a 3-D drawing for your review.

Pouring height from the furnace makes a difference. ADVANCE has both standard (level pour) and low pour ladlers where the metal pour position is lower than the metal level. In extreme cases, for those customers who want to pour from a ladler system to larger size die casting machines, say 1200 ton, ADVANCE offers the SL-1400 ladler which has a metal height range of almost 5 feet!

ADVANCE offers several choices of tilting bases as part of the ADVANCE ladler system. The tilt bases allow for easy pouring position adjustment. See the section on pedestals and tilts for more information.



Advance Products Corporation - 2527 M-63 Benton Harbor, Michigan 49822
Phone (268) 845-1000 - Fax (268) 849-2300 - www.advanceproductscorp.com

LADLER - PLANT SURVEY

Return to Sales Department:
Date: _____

Company Name: _____

Contact Person: _____

Address: _____ City: _____

State/Zip: _____

Phone: _____ Fax: _____

E-mail Address: _____

DCM Manufacturer: _____

DCM Model: _____ DCM Tonnage: _____

Approx. max. shot size (weight): _____

Plant Voltage (circle one): 208 230 380 440 460 480 575 other: _____

DCM I/O signal voltage: 24vdc ☐ 120Vac ☐

Cable Length: (Power & Control) 30' Standard. Cable Length (Power & Control) Nonstandard length: _____
Note: (Additional cable length may incur extra charge.)
Remote Operator Cable Length is Standard at 30'. Consult sales department if you need a special cable length.

Which side of DCM is the dip well on: Operator ☐ Helper ☐

Are there any obstructions between the dip well and DCM? _____

Please add additional pertinent information below and fill in the dimensions highlighted with red arrows on the back side of this form. Thanks!

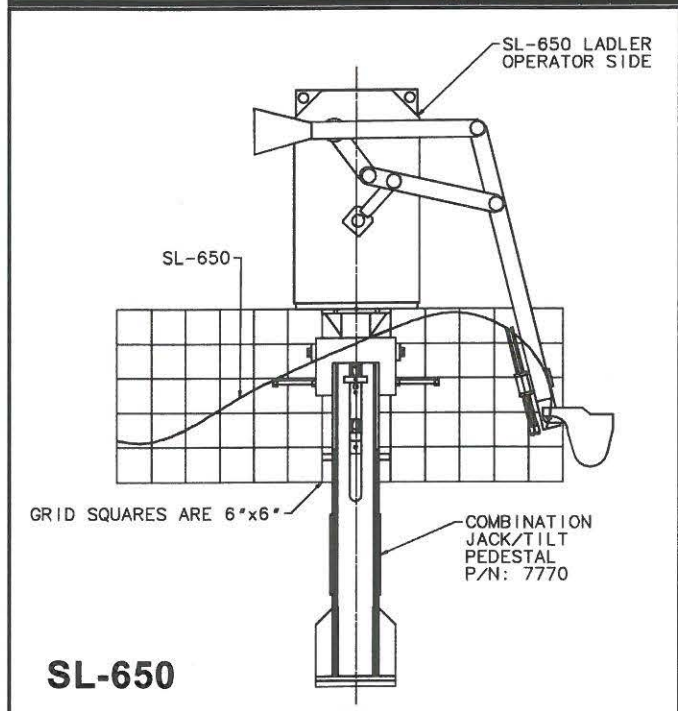
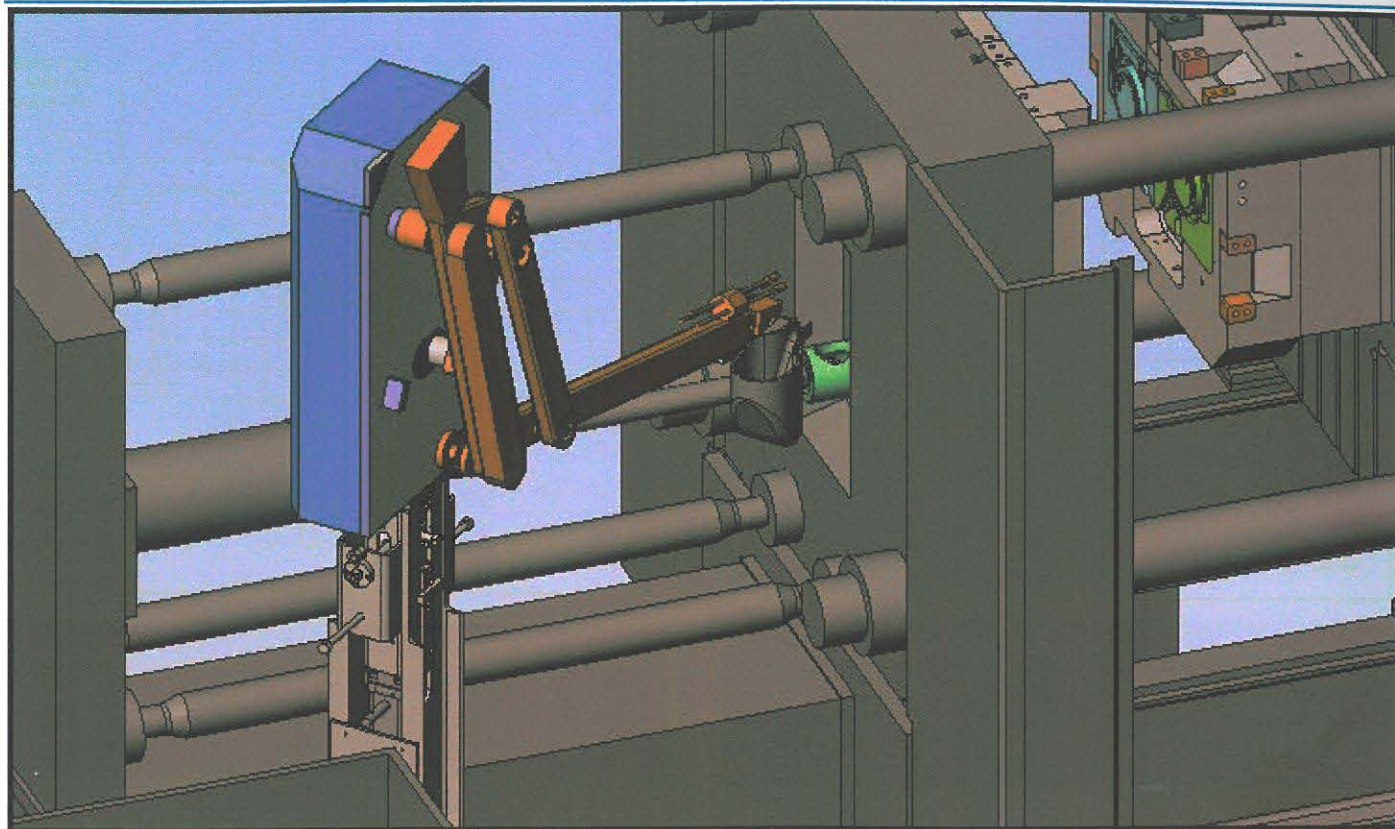


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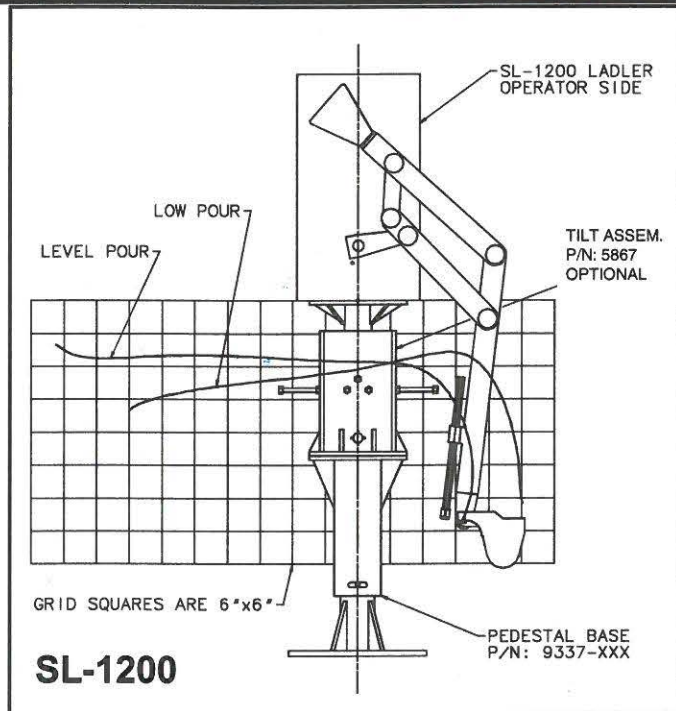
Layout And Specifications

3-D Views of Typical Ladler Layouts We Do For You!



SL-650

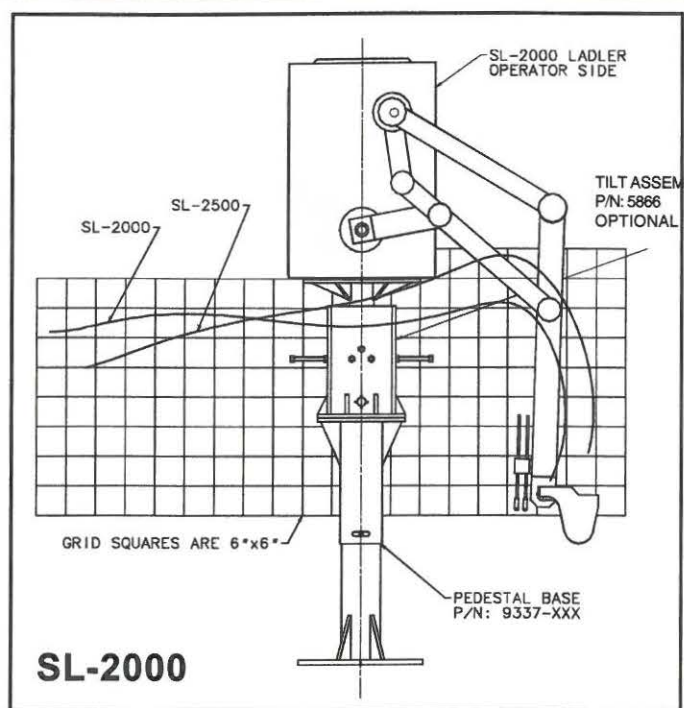
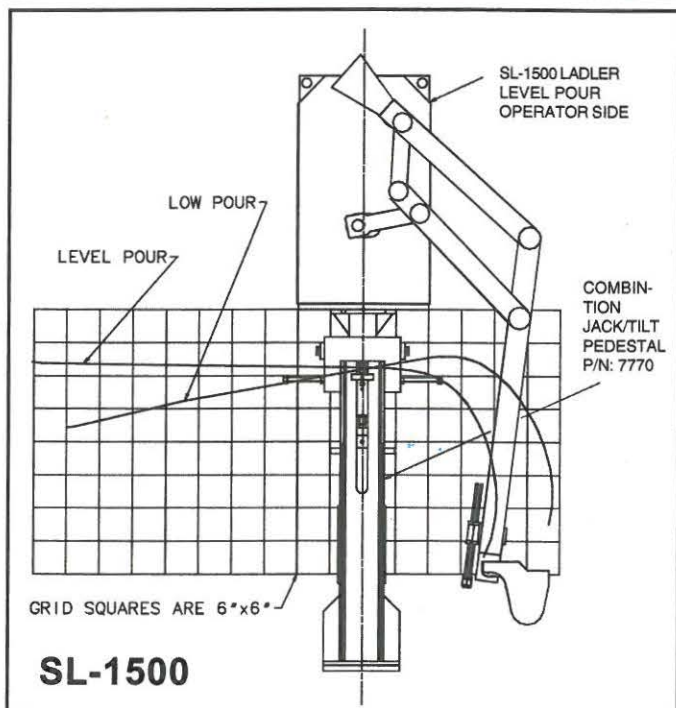
Total Stroke - Max.	69.2 in. (176 cm)
Forward Stroke - Max.	35.5 in. (90 cm)
Live Weight Metal	15 lb. (6.8 Kg)
Reach Back (Furnace)	33.7 in. (86 cm)



SL-1200

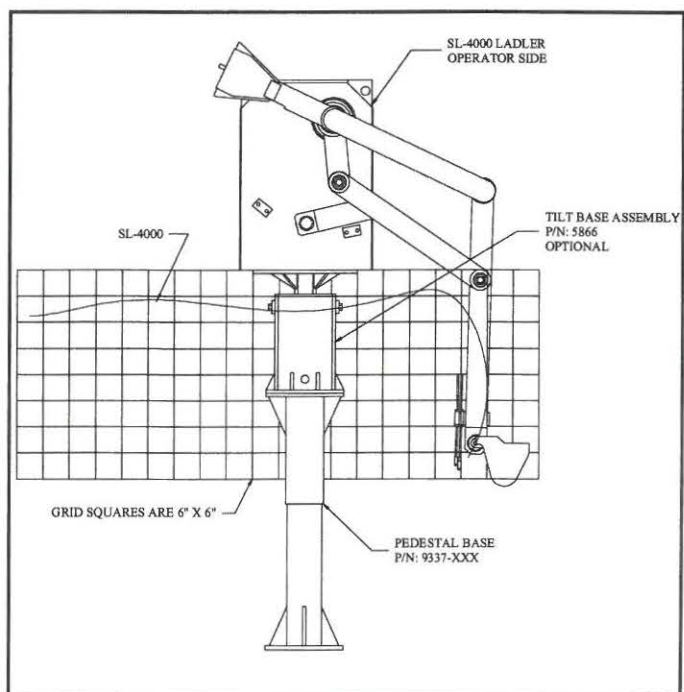
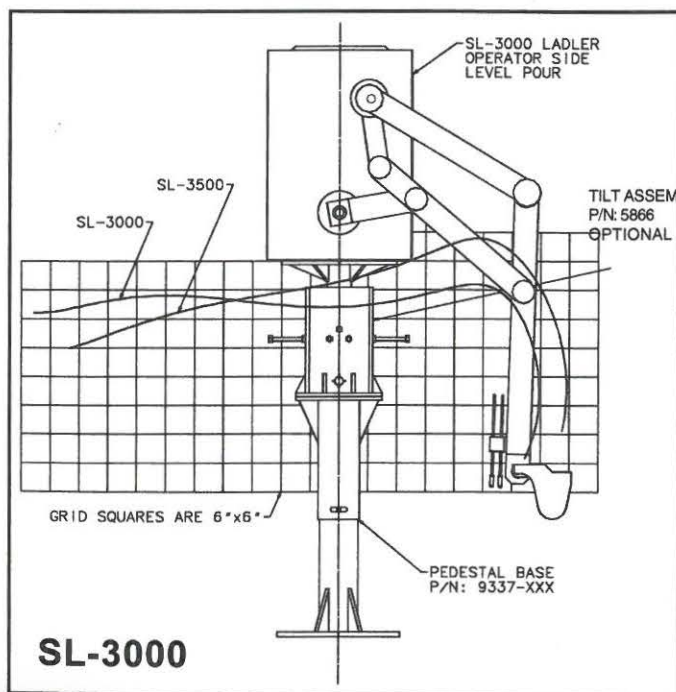
	LEVEL POUR	LOW POUR
Total Stroke - Max.	71 in. (180 cm)	72 in. (183 cm)
Forward Stroke - Max.	50 in. (127 cm)	42 in. (107 cm)
Live Weight Metal	25 lb. (10 Kg)	25 lb. (10 Kg)
Reach Back (Furnace)	21 in. (53 cm)	30 in. (76 cm)

Specifications



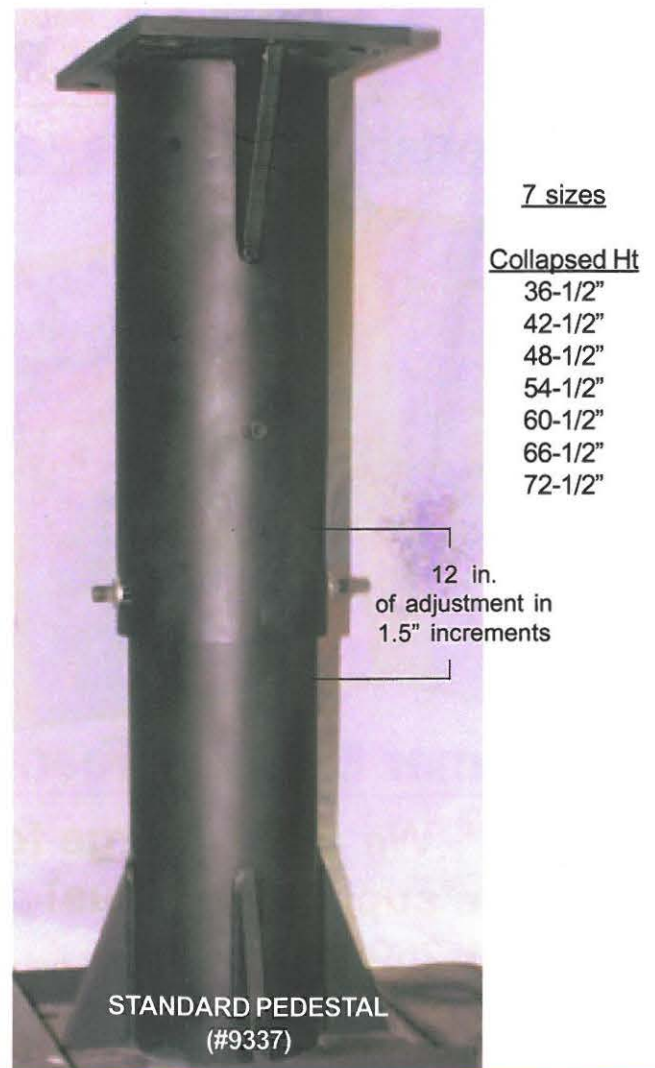
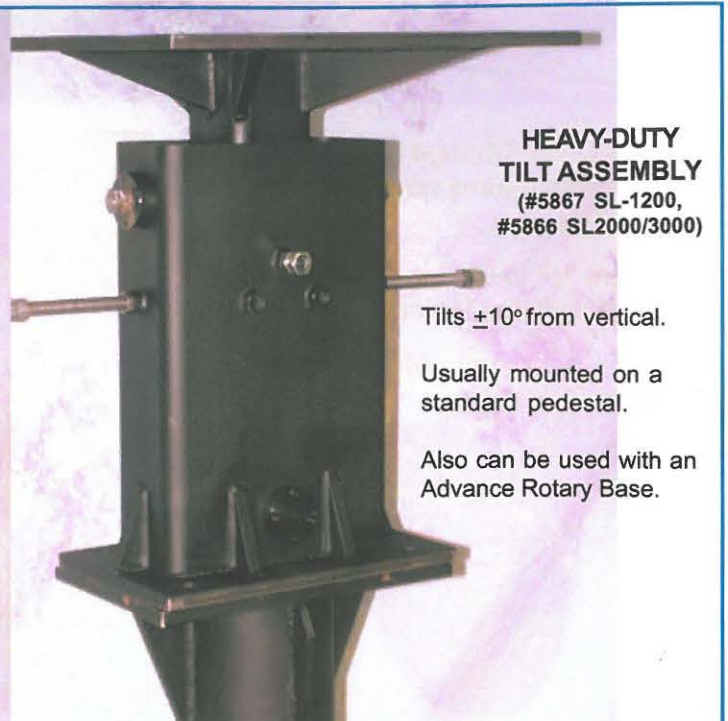
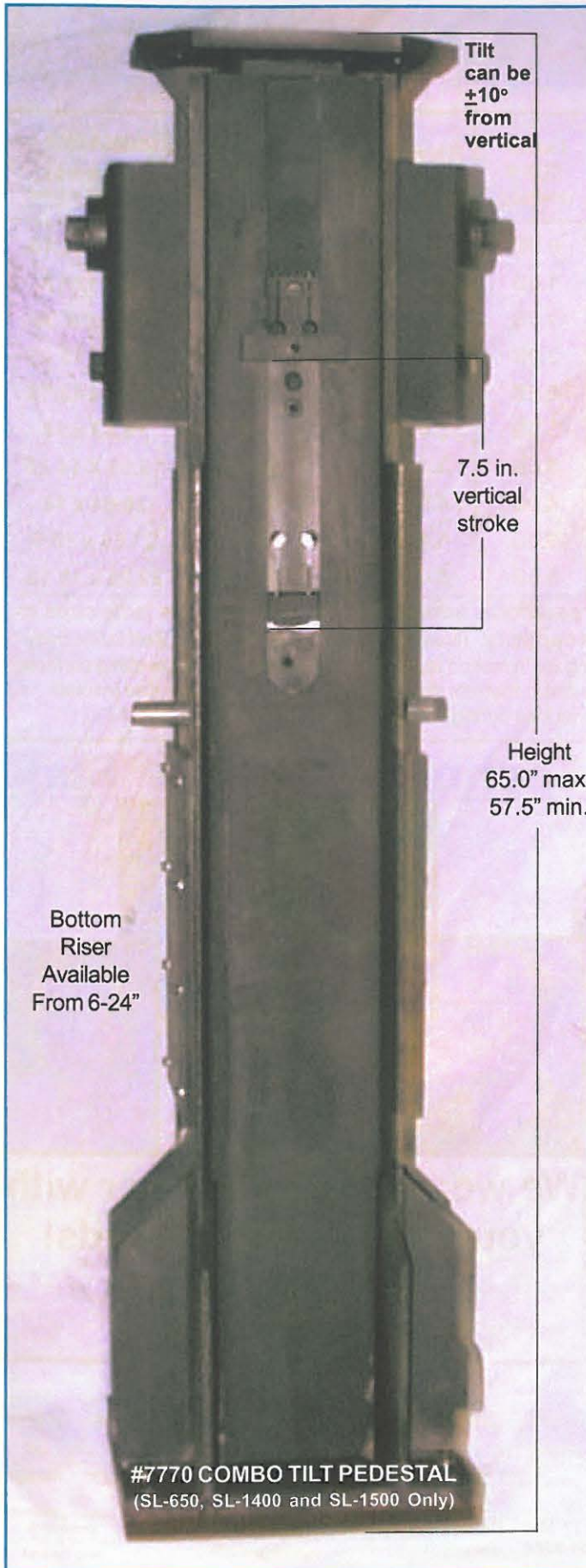
	LEVEL POUR	LOW POUR
Total Stroke - Max.	88.5 in. (225 cm)	92 in. (234 cm)
Forward Stroke - Max.	63 in. (160 cm)	56 in. (142 cm)
Live Weight Metal	25 lb. (10 Kg)	25 lb. (10 Kg)
Reach Back (Furnace)	25.5 in. (65 cm)	36 in. (91 cm)

MODEL NUMBER	SL-2000 (Lev)
Total Stroke - Max.	104.8 in. (266 cm)
Forward Stroke - Max.	63 in. (160 cm)
Live Weight Metal	50 lbs. (23 Kg)
Reach Back (Furnace)	41.8 in. (106 cm)



MODEL NUMBER	SL-3000 (Lev)	SL-3500 (Low)
Total Stroke - Max.	104.8 in. (266 cm)	102.5 in. (260 cm)
Forward Stroke - Max.	63 in. (160 cm)	55.5 in. (141 cm)
Live metal weight	100 lbs. (45 Kg)	100 lbs. (45 Kg)
Reach back into furnace	41.8 in. (106 cm)	47 in. (119 cm)

MODEL NUMBER	SL-4000 (Lev)
Total Stroke - Max.	104.8 in. (266 cm)
Forward Stroke - Max.	63 in. (160 cm)
Live Weight Metal	175 lbs. (80 Kg)
Reach Back (Furnace)	41.8 in. (106 cm)



Technical Support

Ladle Cups

Advance Quick-Change Ladle Cups' pin-mount design means no tools are needed for changing cups.

Ladles are 1/4 to 5/16-inch thick, heat-treated cast iron for long life.



Made in the USA.

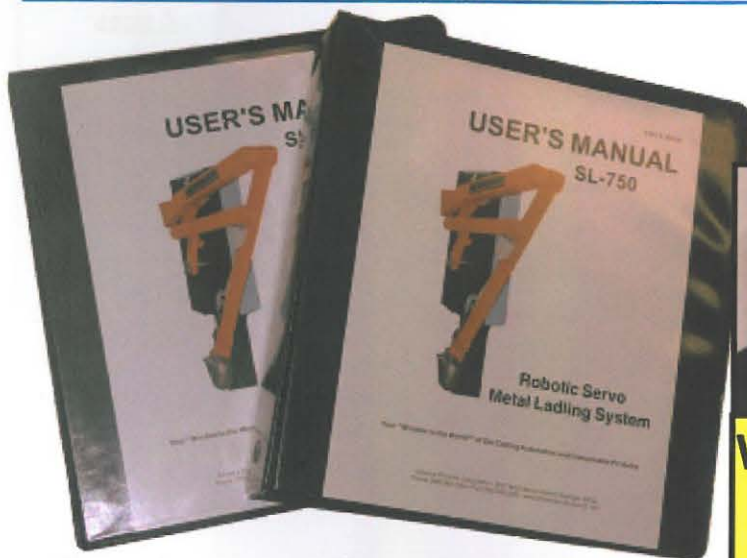
Sizes are available in both operator or helper side.

LADLE CUP # (Operator)	LADLE CUP # (Helper)	Rated Capacity in Kg In Lbs.		Minimum Furnace Size	
				(Round) 45° Angle of Entry	(Square) 45° Angle of Entry
0.5A	0.5B	0.5	1.1	17.25"	17.13 x 11.75
1.0A	1.0B	1.0	2.2	18.31"	18 x 12.13
1.5A	1.5B	1.5	3.3	18.75"	18.5 x 12.34
2.0A	2.0B	2.0	4.4	19.6"	19.25 x 13.25
2.5A	2.5B	2.5	5.5	19.75"	19.32 x 13.18
3.0A	3.0B	3.0	6.6	20"	19.69 x 14
3.5A	3.5B	3.5	7.7	20.45"	19.69 x 14.25
4.0A	4.0B	4.0	8.8	21.45"	20.84 x 16
6.0A	6.0B	6.0	13.2	22.5"	21.68 x 16.9
8.0A	8.0B	8.0	17.6	23.25"	22.28 x 18.13

Call us for additional information for new laminate ladle cups to 100# metal capacity. (New large cups are made with a steel fabric body that has a long life in molten aluminum. The cups have non-wetting surfaces that are resistant to thermal shock and breakage. The cups also insulate metal from heat loss during the delivery cycle for uniform product.)

Extensive Manuals

Technical Service Staff



Customer Support Team

We would like to partner with you on your ladler needs!
Give us a call!
1-269-849-1000

It's free! - We don't charge for phone support. Call us!
1-269-849-1000

Advance

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Automation

Misc.

Automation Misc.

- Kawasaki Robots
- Kawasaki "D" Controller
- Robot Grippers
- Mini-Max Reclaimers
- Central Lube Systems
- Tool Temp Oil Temperature Control Units
- Electronic Bacteria Killers
- Stationary Casting Coolers
- Vertical C-Frame Trim Press
- Safety Signage

Advance[®] automation

Die Cast Extractor - Kawasaki ZX165 Industrial Robot

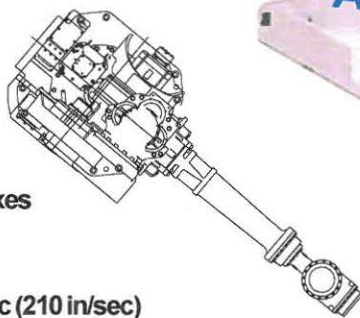
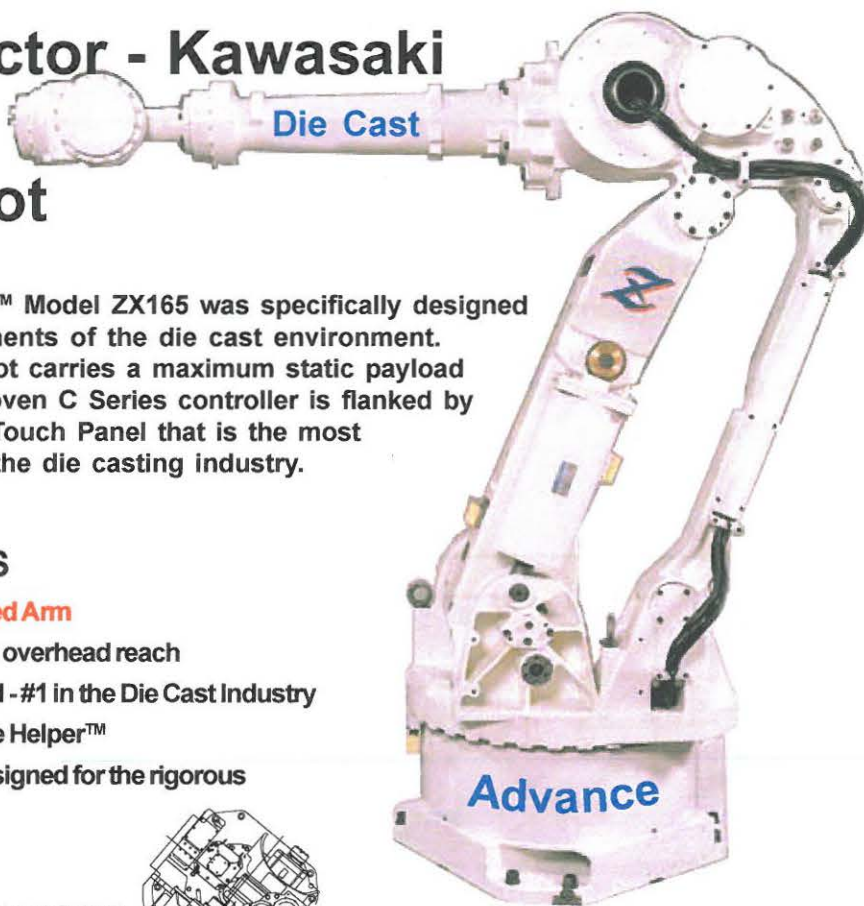
The Kawasaki Die Cast Extractor™ Model ZX165 was specifically designed to meet the challenging requirements of the die cast environment. The six-axis servo controlled robot carries a maximum static payload of over 300 lbs. The industry proven C Series controller is flanked by a hand held LCD Multifunctional Touch Panel that is the most user-friendly panel of its type in the die casting industry.

DIE CASTING FEATURES

- IP-67 rated wrist and IP-65 rated Arm
- Unique Hybrid Link for greater overhead reach
- 165 kg (363 lbs.) static payload - #1 in the Die Cast Industry
- Special Die Cast Software - Die Helper™
- Special seals and bearings designed for the rigorous Die Cast environment

MECHANICAL SPECIFICATIONS

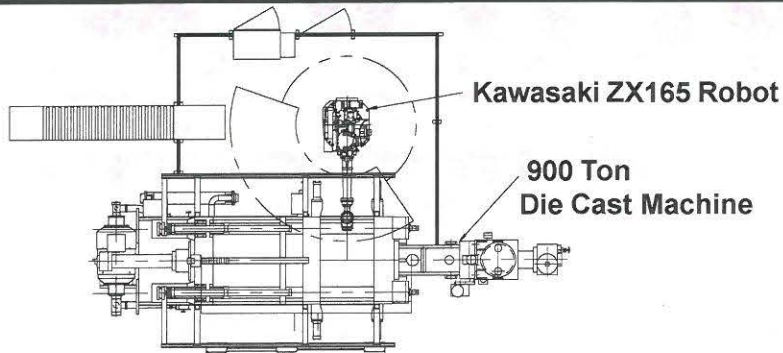
• Model Type	ZX165
• Servo Axis	6 revolute axes
• Wrist Rating	IP67
• Arm Rating	IP65
• Maximum Rotary Velocity	5000 mm/sec (210 in/sec)
• Maximum Static Payload	165 kg (363 lbs.)
• Maximum Reach	2879 mm (113 in)
• Repeatability	+/- .30 mm (.012 in)
• Positioning Feedback	Absolute Encoder
• Drive Motors	Brushless AC Servo Motors
• Machine Weight	1500 kg (3300 lbs.)



**DIE CAST
EXTRACTOR**

Your "Window to the World"® of Die Casting Automation and Consumable Products

Automated Die Cast Workcells

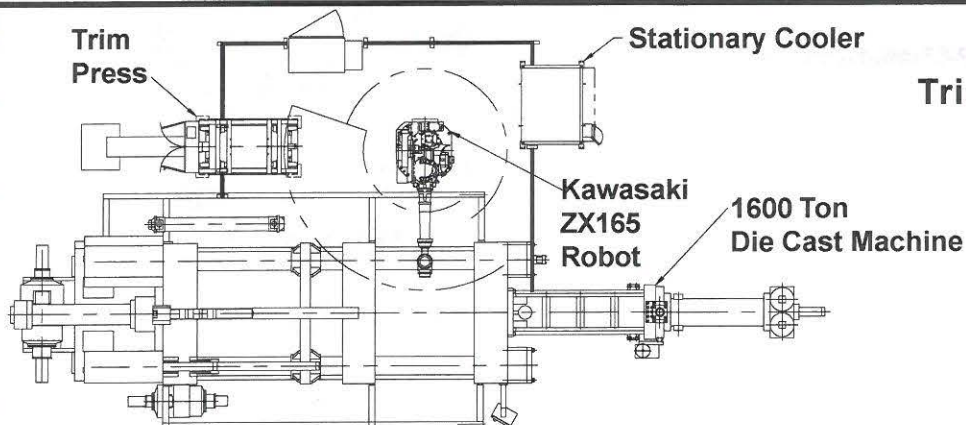
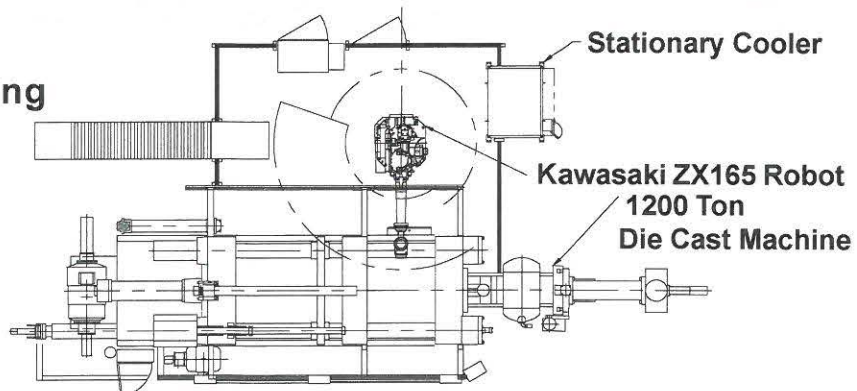


Simple Extraction

- ZX165 Robot
- Safety Equipment
- Output Conveyor
- Integration

Extraction With Cooling

- ZX165 Robot
- Safety Equipment
- Output Conveyor
- Air Casting Cooler
- Integration



Trim Cell

- ZX165 Robot
- Safety Equipment
- Output Conveyor
- Air Casting Cooler
- Programmable Trim Press
- Integration



Digital Servo
Reciprocating
Sprayers

Specifications are subject
to change without notice.

ADVANCE AUTOMATION EQUIPMENT

ADVANCE manufactures a broad assortment of die casting peripheral equipment including ladlers, sprayers, die temperature control units, central lube systems, trim presses, casting cooler systems and consumable products.

ADVANCE can satisfy all of your die casting automation needs.

Advance

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Digital Servo
Ladlers

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Advance[®] automation

ON-LINE DIE LUBE RECLAIMING SYSTEM



MINIMIZE

- OPERATING COSTS
- DIE LUBE OVERHEAD
- DIE LUBE DISPOSAL COSTS
- SHOP HAZARDS

MAXIMIZE

- PRODUCTION TIME
- EQUIPMENT LIFE
- DIE LUBE LIFE
- SAFETY

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

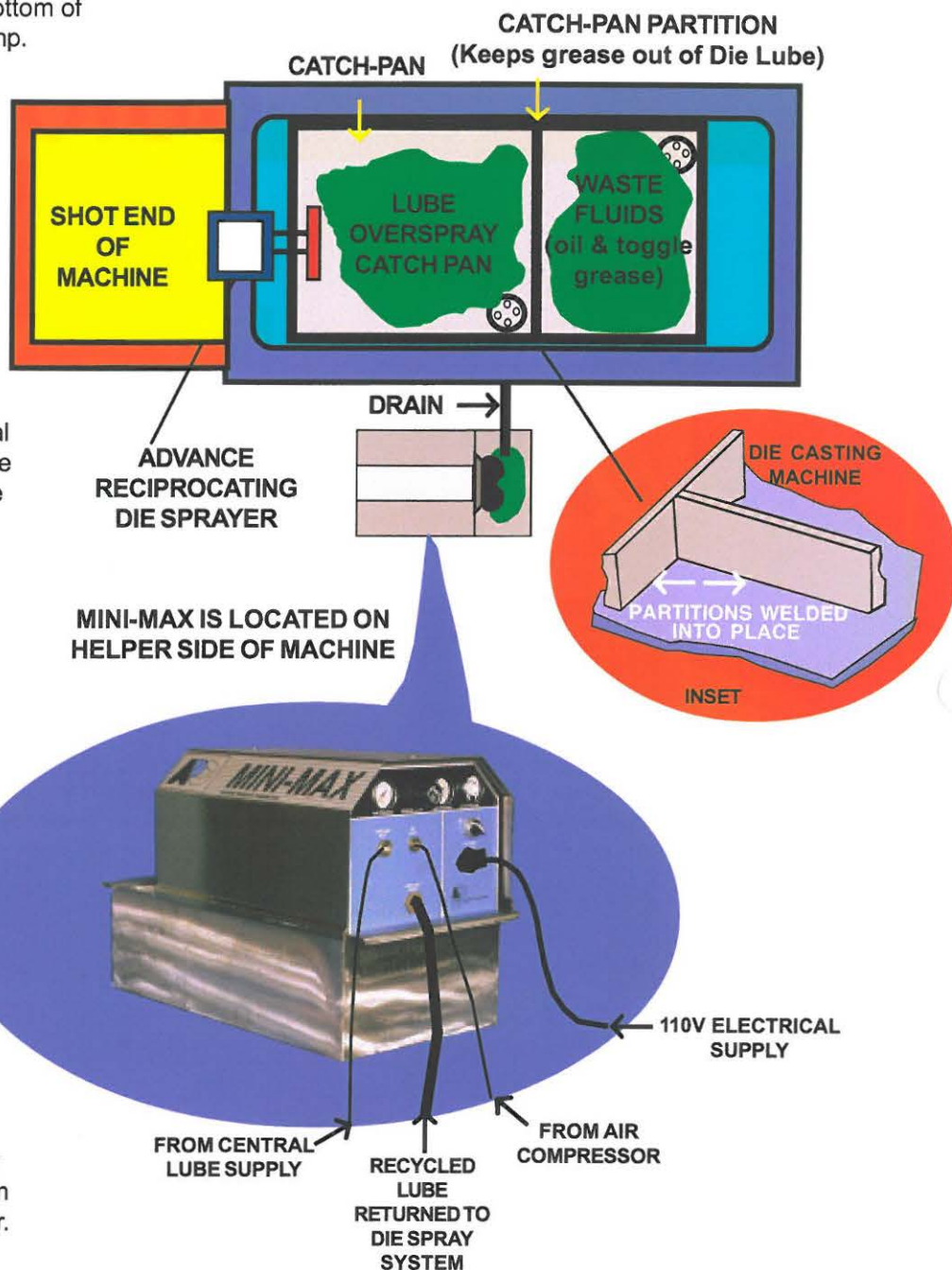
Tests have shown that only half of the spray die lube ever reaches the die itself. This wasted die lube, instead of doing its intended job, settles onto the base of the die-casting machine, where it mixes with the accumulated grease, spit metal, flash, and other contaminants.

The reclaimer catches the used die lube as it drains from the die-casting machine. Before the die lube drains into the holding tank, it passes through a metal catch-pan that keeps larger spit metal from entering the tank. A fine-mesh filter screen at the inlet to the diaphragm pump prevents sludge, and other debris that has settled in the bottom of the holding tank, from entering the pump.

The circulating die lube flows through two spin-on-type filters that remove suspended particles from the liquid. This filtering action is continuous, even while the sprayers are turned off.

*"The **Mini-Max Reclaimer** is the most useful piece of equipment to come along in years" say many of our customers. If you want to increase die lube life, save up to 40% of your die lube costs, reduce disposal costs, reduce frustrating down time due to clogged spray heads and premature equipment wear, it makes sense to purchase the Advance "Mini-Max Reclaiming System"*

The Advance Products "Mini-Max Reclaiming System" is an efficient and unique recycling unit that collects virtually all of the sprayed die lube, filters out the impurities, and pumps it back into the lube system for use. It consists of a 15-gallon stainless steel tank that acts as a reservoir to hold the collected die lube, a specially-designed diaphragm pump that pressurizes and circulates the die lube, and a 3-stage filtration system that continually cleans the circulating liquid. The system operates from a standard 110 VAC, 60 Hz line, and is space-efficient, measuring only 30"LX16"W x 21"H. The diaphragm pump is driven by a shop air compressor.



Typical Shop Setup Using A Die Casting Machine Catch-Pan

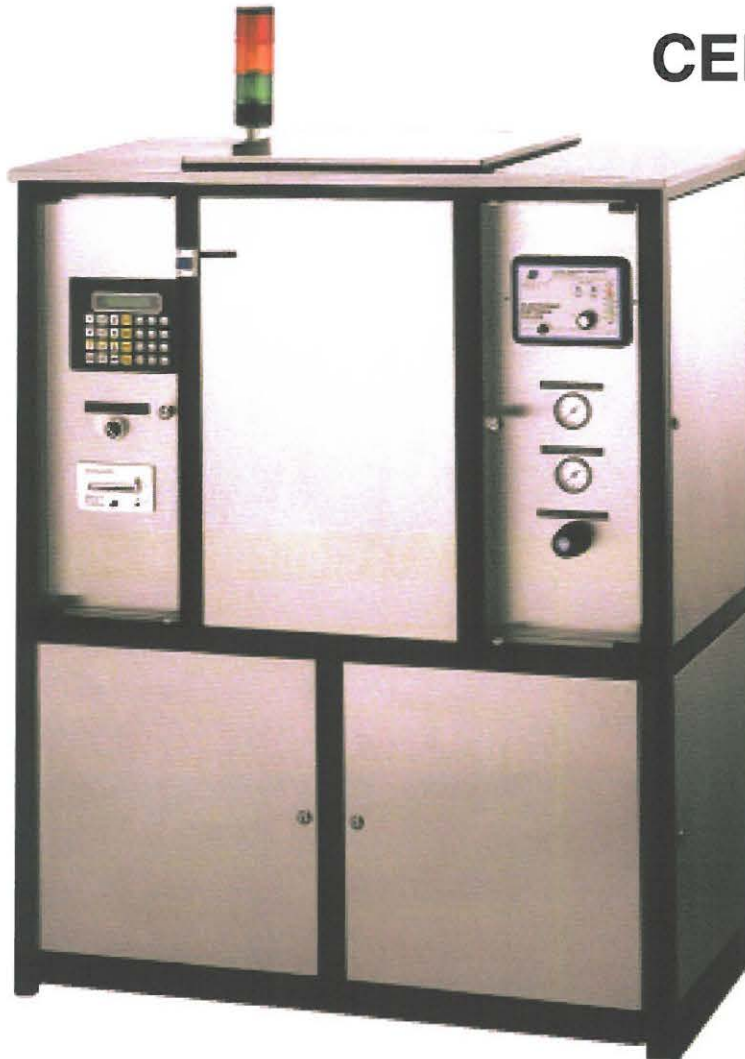
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Advance[®] automation

CENTRAL LUBE SYSTEMS



- A closed loop delivery system with batch blending.
- 500 gallons per hour mixing capacity and flow rates of 25 gpm to 115 gpm.
- Automatic pumping from tote or drum with digital display of the inventory.
- Two diaphragm pumps as standard with automatic switching valves.
- Backlit display indicates mixing ratio, inventory, flow rates and error messages.
- Stainless steel construction with PVC and brass components.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Features



Float Switches

Stainless Steel floats control the blending process and verifies proper tank levels.

Bacteria Killer

Optional Electronic Bacteria Killer.



Dual Air Diaphragm Pumps

Closed loop circuit provides continuous circulation to the network of machines. Dual pumps allow pump maintenance during system operation.

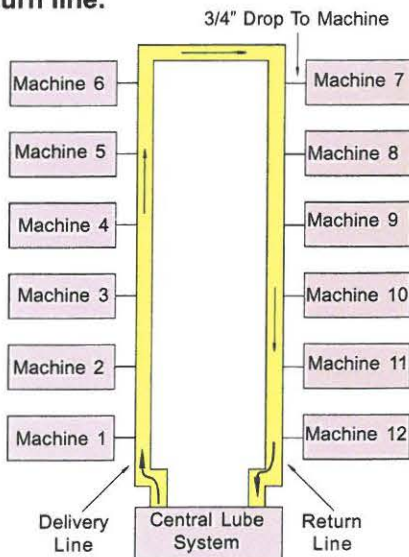


Metering Pump

Stainless Steel metering pump dispenses desired ratio of lube concentrate to the required amount of water with digital accuracy.

Sample Plant Layout

NOTE: For a closed loop delivery system, we suggest the use of PVC, Copper or Stainless Steel for the lines. The minimum size is 1-1/2" NPT for the delivery line and 3/4" NPT for the return line.



Technical Specifications

Model:	45PE	90PE	150PE	300PE
Tank Capacity	45 gal.	90 gal.	150 gal.	300 gal.
Diaphragm Pumps	1" ARO	1-1/2" ARO	1-1/2" ARO	2" ARO
Max Pump Pressure	110 psi	110 psi	110 psi	110 psi
Max Flow Rate	25 gpm	90 gpm	90 gpm	115 gpm
Max Blending Rate	500 gph	500 gph	500 gph	500 gph
Mixing Ratio (Std)	20-100:1	20-100:1	20-100:1	20-100:1
(Opt)	5-20:1			
(Opt)	100-300:1			

System Dimensions

Length	43"	43"	64"	72"
Depth	24"	24"	34"	44"
Height	53"	53"	61"	73"

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Advance[®] automation



TT-380 Single Zone

- **Swiss Quality - The largest European manufacturer of temperature control units**
- **Single and dual zone units**
- **High temperature pump designed for 400°C (752°F)**

TOOL TEMP DIE TEMPERATURE CONTROL



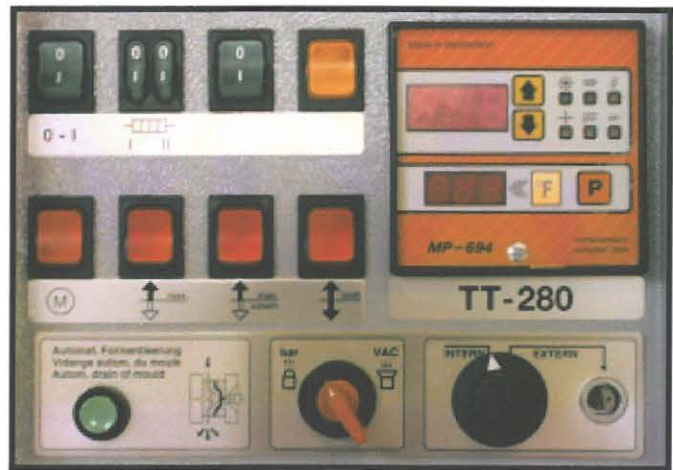
TT-380/2 Dual Zone

- **High temperature design, working oil temperatures to 360°C (680°F)**
- **Microprocessor control standard**

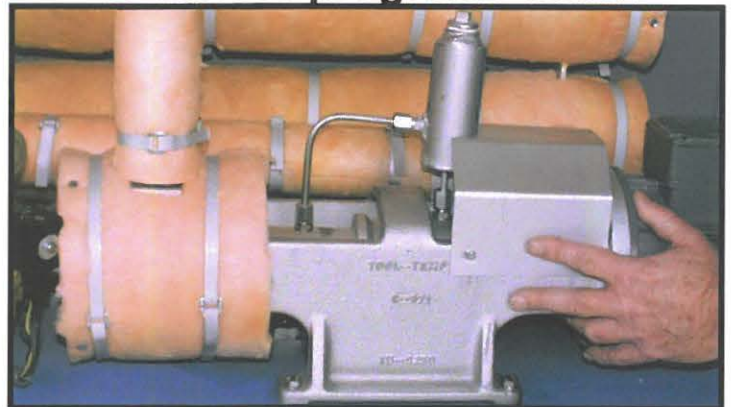
Your "Window to the World"[®] of Die Casting Automation and Consumable Products



**Expansion tank,
Heat exchanger,
and four
heating elements**



**Easy programmer.
It almost programs itself!**



**Unique high temperature no leak pump
system - NO flow monitor needed!**

TECHNICAL DATA	TT-280	TT-280/2	TT-380	TT-380/2
Operating Temperature	250°C 485°F	250°C 485°F	360°C 680°F	360°C 680°F
Heating Capacity Per Zone	8 kw	8 kw	16, 24, 32 kw	16, 24 kw
Cooling Capacity Per Zone	47 kw 160,000 BTU at 392°F 40,000 KCal/hr. at 200°C	47 kw 160,000 BTU at 392°F 40,000 KCal/hr. at 200°C	47 kw 160,000 BTU at 392°F 40,000 KCal/hr. at 200°C	47 kw 160,000 BTU at 392°F 40,000 KCal/hr. at 200°C
Pump Capacity Per Circuit	72 psi 18.5 gal/min	72 psi 18.5 gal/min	72 psi 18.5 gal/min	72 psi 18.5 gal/min
Expansion Tank	3.2 gal 12 liters	5.55 gal 21 liters	5.5 gal 20 liters	9.5 gal 35 liters
Oil Line Sizes	3/4" female thread	3/4" female thread	3/4" female thread	3/4" female thread
Waterline Sizes	1" male thread	1" male thread	1" male thread	1" male thread
Dimensions	38"L, 15.5"W, 43"H	46"L, 26"W, 51"H	44"L, 17"W, 59"H	45"L, 26"W, 51"H
Weight	285#	573#	435#	728#
Voltage Requirements	380TT 24kw @ 480VAC 32Amp			
Examples:	380TT/2 24kw @ 480 VAC = 64 Amps. Call for further information			

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Advance[®] automation

ELECTRONIC BACTERIA KILLER



REDUCE

- Clogged sprayheads due to bacteria growth
- Chemical additives that produce health and safety hazards
- Odors from untreated water and die lube
- Maintenance costs due to premature machine deterioration

PRODUCE

- **BACTERIA-FREE DIE LUBE**
- **A CHEMICAL-FREE ENVIRONMENT**
- **LOWER OPERATING COSTS**
- **GREATER SAVINGS**

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

The Main Problem

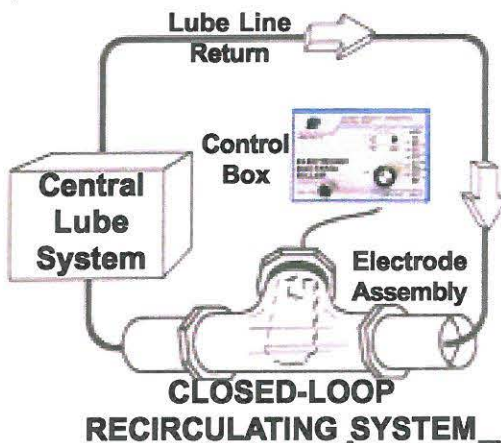
Most die-casting companies know that biodegradable lubricants are a fine substitute for the older, chemical types, which caused both environmental and health safety problems. But, while the switch to biodegradable die lubes has helped solve these types of problems for the die-casting industry, it has also presented another problem: the growth of bacteria. All biodegradable die lubes are a good medium for supporting bacteria growth. As experience has shown us, when bacteria grows unchecked, sprayheads become clogged, filters become plugged, lube valves become sluggish, and unpleasant odors build. As these problems increase, so do the costs for downtime maintenance to flush out central lube systems and for adding new die lube. And the cycle only starts all over again. Up to now, there was not much that could be done to solve the problem. Not until Advance Products Corporation developed the "Electronic Bacteria Killer."

Space-Age Technology

The Advance Electronic Bacteria Killer is a state-of-the-art system that is designed to eliminate bacteria from its liquid environment and keep it from reforming. Originally developed for the entire water system in NASA's space shuttle program, (including the Astronaut's drinking water), the system also eliminates and prevents the further growth of bacteria in die lube.

How it Works

The heart of the Electronic Bacteria Killer consists of a high-quality electrode assembly that mounts to a galvanized steel, of PVC T-fitting. When the assembly is inserted into the return-flow line of your lube system (must be a closed-loop recirculating system) and electrical current is supplied to the electrodes, the die lube flowing over them becomes charged ("ionized"). This destroys the existing bacteria and prevents new growth from forming. The Electronic Bacteria Killer is the ideal product to use in quench-tanks and central coolant systems for secondary machining where bacteria, and its ever-present odors, are always a problem.



It's So Easy To Install And Use

The Electronic Bacteria Killer's control box easily mounts on any wall. It houses an 8-position electrical switch that you can use to regulate the amount of current flowing through the electrodes for just the right degree of control. An LCD (liquid-crystal display) shows you the amount of ionization that is occurring in the lube. You can translate the ion reading into a high, medium, or low bacteria level, using a chart that is provided in the User's Manual.

The control box measures 7-1/4"W x 4-5/8"H x 2-3/8"D, and operates from a standard 110/220 VAC, 50/60 Hz power source. The electrode assembly fits into a 2-3/8" T-fitting. A threaded PVC T-fitting and two 1-7/8" to 2-3/8" PVC reducers are provided with the unit.

The Ideal Product

The Electronic Bacteria Killer is an ideal product for any shop that uses die lube. It will pay for itself in a very short time by eliminating bacteria and preventing its return. Thus, you save money because machinery runs more efficiently, and shop personnel remain safer. You will find that not only will die lube last longer, but the spray manifold nozzles, lube valves, and filters will remain cleaner. Isn't it time you installed one in your lube supply system?

Here are some customer comments we've received about our Electronic Bacteria Killer.

"The terrible smell from bacteria growth is finally gone."

"We have 3000 gallon water pits under our die casting machines. After one day we could already see that bacteria growth was being reduced."

"We've finally eliminated the bacteria problem that was clogging sprayheads in our reciprocator spray system. The Bacteria Killer has also reduced problems with plugged filters and lube valves."

"Our company is becoming more environment-conscious. The Bacteria Killer has helped us eliminate health and safety problems associated with chemicals in our shop."

"Our Advance Bacteria Killer has been in operation for two weeks and we've already eliminated the slime build-up and terrible odors that were so common in our shop's central lube system."

"We use the Electronic Bacteria Killer with our Advance Reclaimer and cycle the recharged die lube through it, thereby eliminating any smell in the Reclaimer system itself."

Note: This product is not suitable for conditions of very hard water. The Bacteria Killer will perform well if the lube system has a filter which will remove the dead bacteria growth and keep the die lube fresh. The Electronic Bacteria Killer is also a nice option on our Central Lube Systems. If you are considering upgrading your Central Lube Systems, you should also consider incorporating the Advance Electronic Bacteria Killer into the system.

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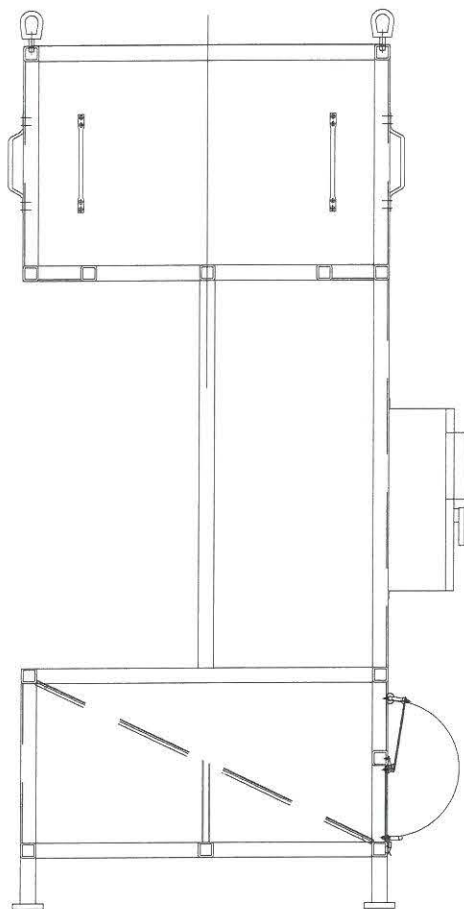
Advance[®] automation

STATIONARY CASTING COOLER



Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Specifications and Additional Information



	<i>English Units</i>
<i>Overall Size</i>	69.00" x 59.00" x 118.50"
<i>Weight</i>	2450 lbs.
<i>Part Cooling Area</i>	61.00" x 40.00" x 51.00"
<i>Drive System</i>	(2) 1.5 HP, 1750 RPM Motors
<i>Blower System</i>	(6) 2650 CFM Delivery Each
<i>Exhaust / Intake Panels</i>	Included
<i>Scrap Cleanout Access Gate</i>	Included
<i>Motor Starter and Disconnect</i>	Included

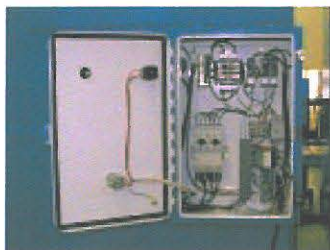
Standard Available Options:

- *Preengineering Services (Cooling Study & Demonstration)*
- *Part Hangers*
- *Part Present Sensors*
- *Pneumatic Grippers w/ Valving and Open/Close Sensors*



Digital Servo Ladlers

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Casting Cooler Control Panel

Advance

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Digital Servo Reciprocating Sprayers

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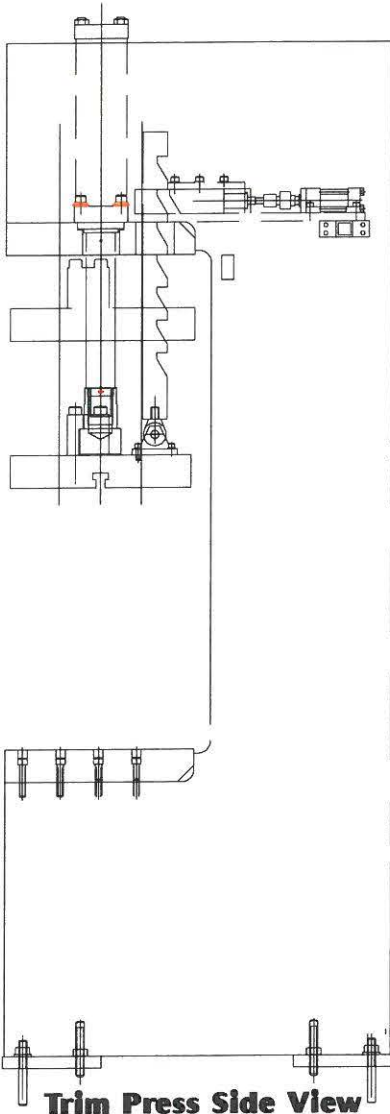
40 TON VERTICAL C-FRAME TRIM PRESS



**Trim Press
Operator Interface**

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Specifications and Additional Information



	<i>English Units</i>
<i>Trimming Capacity</i>	40 Ton
<i>Overall Size</i>	55" x 61" x 146"
<i>Spacing Between Tie Bars</i>	N/A
<i>Tie Bar Diameter</i>	3.75"
<i>Stationary Platen Size</i>	3-3/4" x 30" x 48"
<i>Movable Platen Size</i>	3-3/4" x 30" x 48"
<i>Work Surface Height</i>	39"
<i>Die Stroke</i>	24.00"
<i>Die Opened Height</i>	56.00"
<i>Die Closed Height</i>	32.00"
<i>Die Approach Speed(High)</i>	12"/Second
<i>Die Trimming Speed(Low)</i>	1"/Second
<i>Die Retract Speed</i>	12"/Second
<i>Machine Weight</i>	21,500 lbs.
<i>Hydraulic System</i>	30.6 Gallon/Minute, 2000 PSI
<i>Motor Output</i>	30 HP @ 1200 RPM

Standard Available Options:

- Automatic Bearing Lubrication
- Blowoff Utilities
- Core Cylinder Valving
- Interlocked Guarding
- Scrap Chutes
- Linear Transducer and Proportional Valve Control
- Touch Screen Programming



Digital Servo Ladlers



**Digital Servo
Reciprocating Sprayers**

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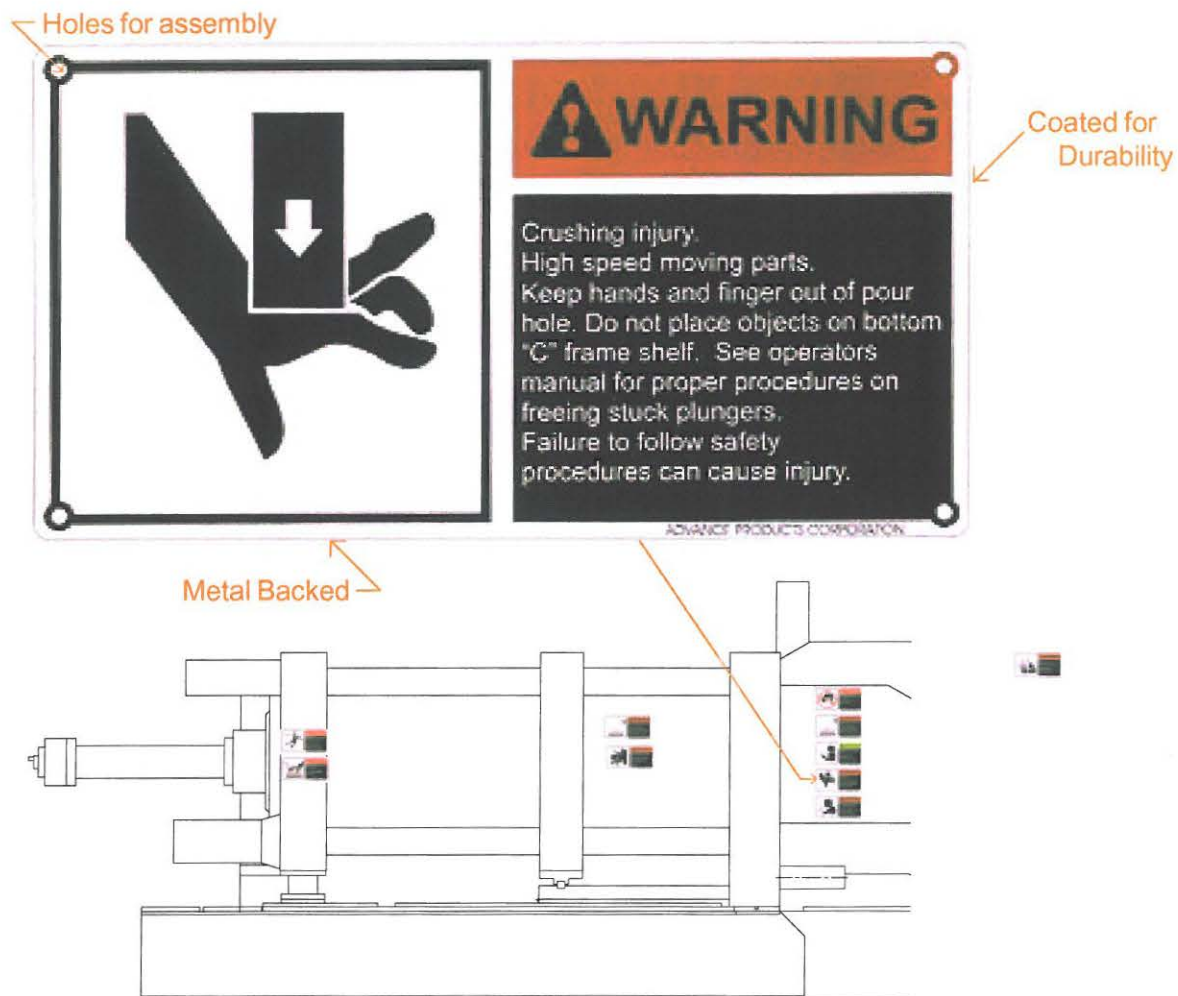
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Advance[®]

consumables

SAFETY SIGNAGE



Die casting machine **SAFETY SIGNS** with metal backing meets **2004 safety requirements.*** Comes complete with all 16 required label and suggested mounting areas.

*OSHA safety requirements as defined by NADCA.

Your "Window to the World"[®] of Die Casting Automation and Consumable Products

Standard Package of 16 SAFETY SIGNS

SAFETY SIGN	SUGGESTED LOCATION
Danger - High Voltage	Electrical Cabinet and Door
Danger - High Speed Moving Parts	Gate, Guard or Machine Frame
Danger - High Voltage	Near Hot surface
Warning - High Temperature	Near Hot Surface
Caution - High Speed Moving Parts	DCM and Ancillary Equipment
Caution - Complex Machine w/ Hazards	DCM and Ancillary Equipment
Warning - Crushing Injury	DCM and Ancillary Equipment
Warning - Crushing Injury	Shot End
Warning - High Speed Moving Parts	Die Area and Die Space
Warning - High Pressure Accumulator	Shot End
Warning - High Speed Moving Machine(s)	Robot Operating Space
Warning - High Speed Moving Part In Molten Material	Shot End
Warning - High Speed Moving Robot	Robot Operating Space
Warning - Robot May Drop Load	Overhead Automation - All
Warning - High Speed Moving Robot	Safeguarded Space
Caution - Vapors and Fumes	Die Casting Workcell



Signs shown smaller than actual size of 3 3/4" x 7"
ADVANCE Part #10331 for a complete set of 16 SAFETY SIGNS

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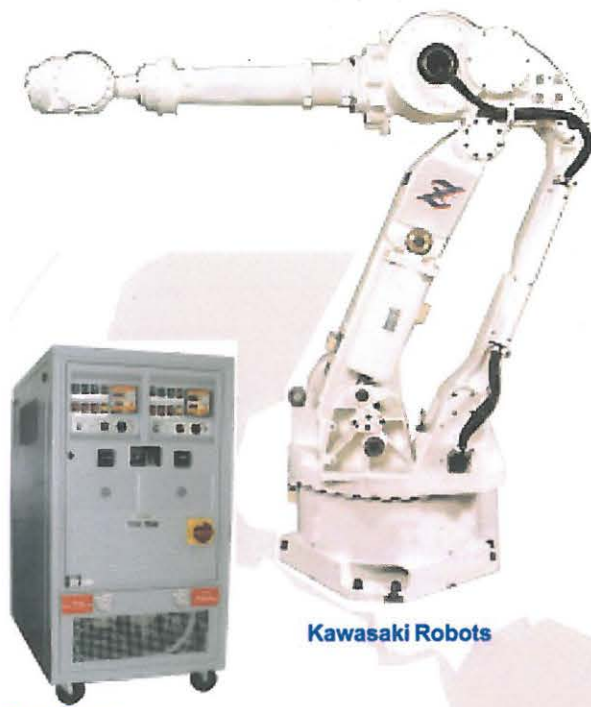
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Automation

- Digital Servo Sprayers
- Digital Servo Ladlers
- Central Lube Systems
- Tool Temp Oil Temperature Units
- Die Lube Reclaimers
- Kawasaki Robots
- Bacteria Killers

Consumables

- Shot Sleeves
- Plunger Rods, tips
- Die Clamps
- Ladle Cups
- Hand Spray Guns
- Fountain Water Junctions



Kawasaki Robots



Tool-Temp
Temperature
Control Unit



Digital Servo
Ladlers



Mini-Max Die
Lube Reclaimer



Digital Servo
Reciprocating
Sprayers

