

# Accugate .197 Technical Specifications

## Accugate .197 User Guide

All specifications are subject to change without notification.

### Accugate .197 Hot Runner Bushings



The Accugate .197 Hot Runner system is an exclusive medium pitch, flat gate system with the ability to process engineering and glass-filled resins without deteriorating the tips. Acceptable for crystalline and amorphous materials, this system utilizes gate diameter, gate area cooling and temperature control at the tip to optimize the part quality.

Accugate .197 "flat gating" leaves a small mark on the molded part surface (gate vestige). The gate can be sunk into a round depression (referred to as a "recessed gate") so that the mark does not protrude above the part surface. The Accugate .197 is available with two different head styles and five gating options to suit a broad range of applications.

### Gating Options for the Accugate .197



#### Standard Pinpoint Tips –

Exclusive tip design exceeds minimum vestige requirements and tip life expectations. Color change capabilities are enhanced. Ideal for non-erosive commodity resins, these tips are available in 0.015" (0.40 mm), 0.030" (0.75 mm), and 0.050" (1.25 mm) tip flat diameters, to better maintain minimum vestige in parts up to 150 grams (see engineering charts 1, 2 & 3 on page 5).



#### Wear Resistant Pinpoint Tips –

Recommended for glass-filled and other aggressive engineering grade materials, these tips have an excellent heat profile and high wear resistance characteristics. The innovative design orients molecular flow of the material, glass fibers and fillers in a linear direction. This linear orientation reduces shear, which translates to longer tip and gate life. Available in 0.015" (0.40 mm), 0.030" (0.75 mm), and 0.050" (1.25 mm) tip flat diameters, to better maintain minimum vestige in parts up to 150 grams (see engineering charts 1, 2 & 3 on page 5).



#### Sprue Tips –

Tips can process all types of resins, from commodity to engineering grades, while maintaining optimal performance with minimal vestige. Ideal for retrofitting into existing molds that may have larger gates. Available in standard and wear resistant alloys, these tips are capable of processing up to 150 grams of low viscosity resin (see engineering charts 1, 2 & 3 on page 5).



#### Extra Stock Sprue Tips –

Identical to the Standard Sprue tip, except with .512" (13mm) of extra stock at the tip, which can be machined to meet customer specific requirements. Ideal for difficult access areas in the part, or for secondary runner applications. Available in standard and wear resistant alloys, these tips are capable of processing up to 150 grams of low viscosity resin and 75 grams of high viscosity resin (see engineering charts 1, 2 & 3 on page 5).



#### Extra Stock Sprue (Nylon) Tips –

Specially developed to process resins with narrow melt flow parameters, this tip design provides optimum control within the high temperature zones of the bushing. Ideal for materials such as nylon and acetal, where vestige is not critical. These wear resistant tips can process 75 grams of high viscosity resin (see engineering charts 1, 2 or 3 & page 5).

### Head Options for the Accugate .197



#### .500" Radius\* –

Provided with a 0.500" radius to mate in 0.500" radius machine bushings. Improved contact area for optimum strength and heat transfer.



#### .750" Radius\* –

Provided with a 0.750" radius to mate in 0.750" radius machine bushings. Improved contact area for optimum strength and heat transfer.

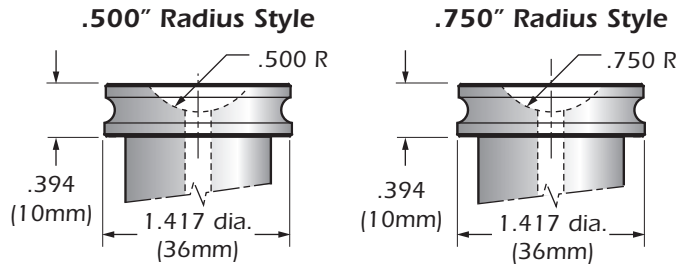
\*Different radius sizes are available by special request.

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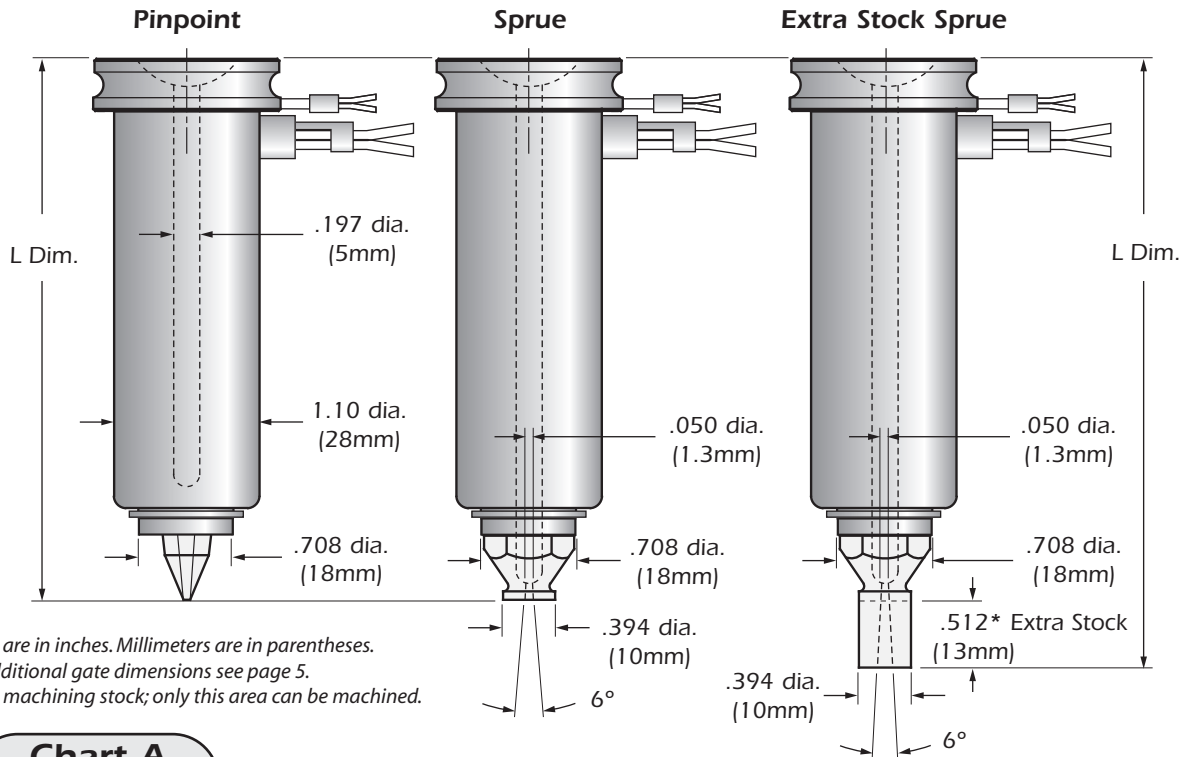
## Bushing Dimensions

All specifications are subject to change without notification.

### Head Options



### Gating Options / Bushing Dimensions



Dimensions are in inches. Millimeters are in parentheses.  
 Note: For additional gate dimensions see page 5.  
 \* Maximum machining stock; only this area can be machined.

**Chart A**

Complete Bushing (Includes subassembly & tip)	w/Pinpoint Tips		w/Sprue Tips		w/Extra Stock Sprue Tips	
	L Dimension		L Dim – Minimum		L Dim – Maximum	
.500 Radius	in	mm	in	mm	in	mm
HWA1900 + TIP	2.205	56	2.205	56	2.717	69
HWA1904 + TIP	2.913	74	2.913	74	3.425	87
HWA1908 + TIP	3.465	88	3.465	88	3.977	101
HWA1012 + TIP	4.173	106	4.173	106	4.685	119
HWA1016 + TIP	4.882	124	4.882	124	5.394	137
.750 Radius	in	mm	in	mm	in	mm
HWA1901 + TIP	2.205	56	2.205	56	2.717	69
HWA1905 + TIP	2.913	74	2.913	74	3.425	87
HWA1909 + TIP	3.465	88	3.465	88	3.977	101
HWA1913 + TIP	4.173	106	4.173	106	4.685	119
HWA1917 + TIP	4.882	124	4.882	124	5.394	137

DIRECT FEED APPLICATIONS

# Accugate .197 Technical Specifications

## Subassembly Ordering Numbers

All specifications are subject to change without notification.

### Accugate .197 Body

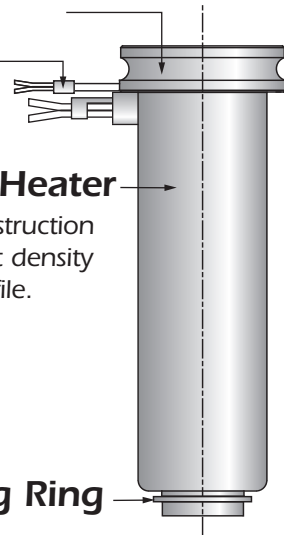
#### Thermocouple



#### Integral Sleeve Heater

Exclusive swaged construction provides a higher heat density and an ideal heat profile.

#### Retaining Ring



### Accugate .197 Hot Runner Bushings

The Accugate .197 has an all metric body style and a .197" (5mm) flow channel with replaceable sleeve heater and thermocouple. Made from pre-hardened steel for maximum high pressure resistance, the Accugate .197 has an optimum heat profile for a uniform flow.

Designed for medium pitches of 1.50" (38 mm), the Accugate .197 has minimal contact areas, reducing heat loss. It is available in 5 different nozzle lengths and 2 head styles.

The Accugate .197 Bushings are capable of handling up to 150 grams of resin per drop. (See chart 3 page 5 for more details.)

**Chart B**

Subassembly					
0.500" Radius	Body	Sleeve Heater	Watts	Thermocouple	Retaining Ring
HWA1900	AB19000	RH19000	285	TC00006	100101
HWA1904	AB19004	RH19001	370	TC00007	100101
HWA1908	AB19008	RH19002	435	TC00008	100101
HWA1012	AB19012	RH19003	520	TC00009	100101
HWA1016	AB19016	RH19004	605	TC00010	100101
0.750" Radius	Body	Sleeve Heater	Watts	Thermocouple	Retaining Ring
HWA1901	AB19001	RH19000	285	TC00006	100101
HWA1905	AB19005	RH19001	370	TC00007	100101
HWA1909	AB19009	RH19002	435	TC00008	100101
HWA1913	AB19013	RH19003	520	TC00009	100101
HWA1917	AB19017	RH19004	605	TC00010	100101

## Tip Ordering Numbers

### Accugate .197 Tip Options

The Accugate .197 has 11 interchangeable tip styles to accommodate most applications. Wear Resistant tips are constructed from a special tip alloy, exclusive to Heaterwerks.

**Chart C**

Alloy	Pinpoint .015"	Pinpoint .030"	Pinpoint .050"	Sprue	Extra Stock Sprue	Extra Stock Sprue Nylon
WR	HT050000	HT050002	HT050004	HT050101	HT050201	HT050300
STD	HT050001	HT050003	HT050005	HT050100	HT050200	

Tip Alloy Reference: STD = Standard, WR = Wear Resistant

# Accugate .197 Technical Specifications

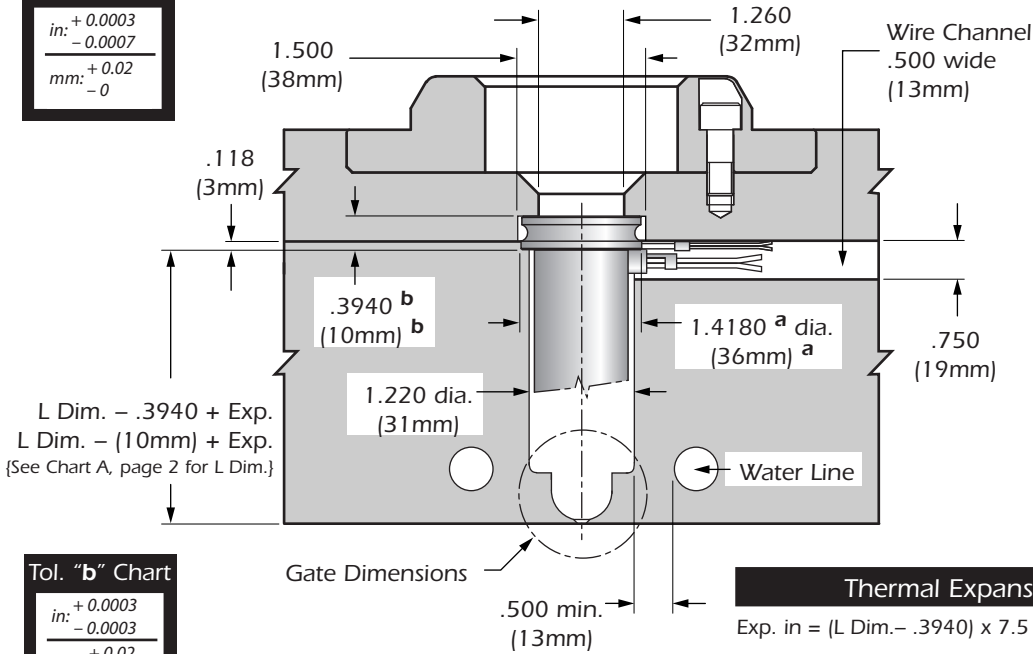
## Bore & Gate Dimensions

All specifications are subject to change without notification.

### Tol. "a" Chart

in:  $\frac{+0.0003}{-0.0007}$   
mm:  $\frac{+0.02}{-0}$

### Standard Bore



### Tol. "b" Chart

in:  $\frac{+0.0003}{-0.0003}$   
mm:  $\frac{+0.02}{-0}$

### Thermal Expansion (Exp.) Formulas

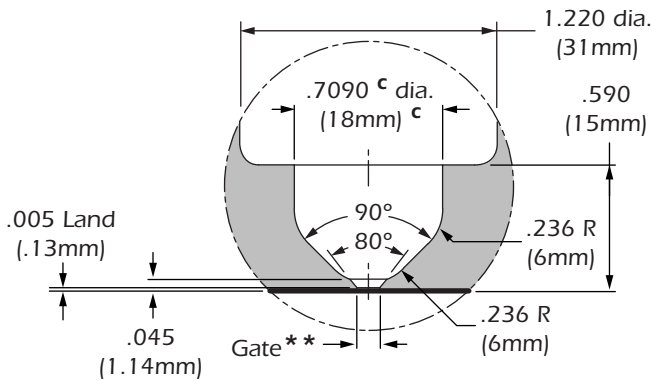
Exp. in = (L Dim. - .3940) x 7.5 x 10<sup>-6</sup> x (Processing Temp. - 70°F)

Exp. mm = (L Dim. - 10) x 13.5 x 10<sup>-6</sup> x (Processing Temp. - 21°C)

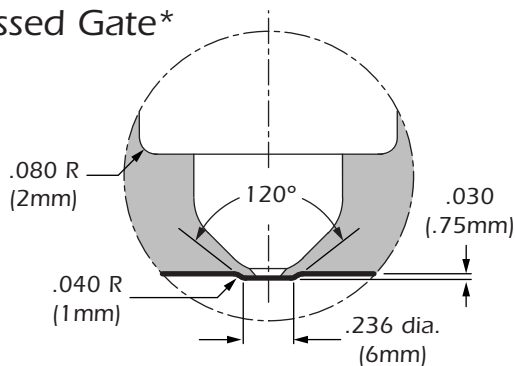
Ref: 10<sup>-6</sup> = 0.000001

## Pinpoint Gate

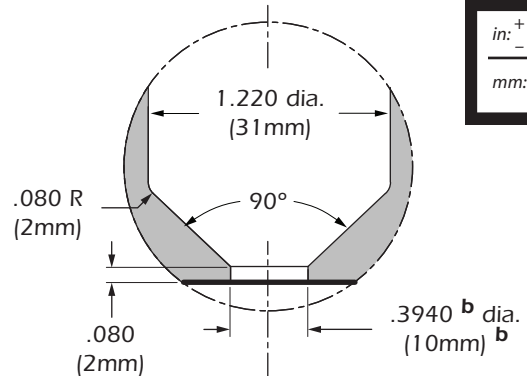
### Non-Recessed Gate\*



### Recessed Gate\*



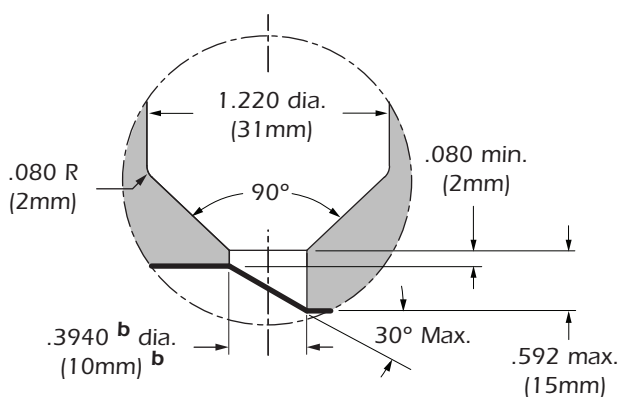
## Sprue Gate



### Tol. "c" Chart

in:  $\frac{+0.0005}{-0.0003}$   
mm:  $\frac{+0.02}{-0}$

## Extra Stock Sprue Gate



Dimensions are in inches. Millimeters are in parentheses.

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\*Dimensions are identical except in gate areas.

\*\*See Chart 2, page 5 for gate diameters.

# Accugate .197 Technical Specifications

## Engineering Charts

All specifications are subject to change without notification.

### Chart 1

Tip Alloy Reference: STD = Standard, WR = Wear Resistant

Resin Compatibility Chart					
Tip Style	Part No.	Alloy	Commodity Resin	Engineering Resin	Glass-Filled Resin
Pinpoint 0.015"	HT050000	WR	●	●	●
	HT050001	STD	●	●	●
Pinpoint 0.030"	HT050002	WR	●	●	●
	HT050003	STD	●	●	●
Pinpoint 0.050"	HT050004	WR	●	●	●
	HT050005	STD	●	●	●
Std. Sprue	HT050101	WR	●	●	●
	HT050100	STD	●	●	●
Extra Stock Sprue	HT050201	WR	●	●	●
	HT050200	STD	●	●	●

Reference: ● = Recommended

### Chart 2

Gate Diameters				
Part No. Pinpoint tips	Alloy	Resin Viscosity		
		High	Medium	Low
HT050000	WR	.077" to .109" (1.90mm to 2.80mm)	.055" to .077" (1.40mm to 1.90mm)	.035" to .055" (0.90mm to 1.40mm)
HT050001	STD			
HT050002	WR	.092" to .124" (2.30mm to 3.10mm)	.070" to .092" (1.80mm to 2.30mm)	.050" to .070" (1.30mm to 1.80mm)
HT050003	STD			
HT050004	WR	.132" to .164" (3.40mm to 4.20mm)	.110" to .132" (2.80mm to 3.40mm)	.090" to .110" (2.30mm to 2.80mm)
HT050005	STD			
Sprue tips	Alloy	High	Medium	Low
All Sprue Part Numbers	WR & STD	.050" to .080"* (1.30mm to 2.00mm)	.050" to .080"* (1.30mm to 2.00mm)	.050" to .080"* (1.30mm to 2.00mm)

Reference: High Viscosity = Melt Flow (0.02 – 6); Medium Viscosity = Melt Flow (7 – 16); Low Viscosity = Melt Flow (16 – up).  
The values expressed in grams are for reference purposes only. Part dimensions, wall thickness, mold condition, and molding parameters must also be considered.

\*Re-machine gate diameter if necessary for larger shot weights.

### Chart 3

Maximum Shot Weights in Grams					
Tip Style	Part No.	Alloy	Resin Viscosity		
			High	Medium	Low
Pinpoint 0.015"	HT050000	WR	20g	25g	35g
	HT050001	STD			
Pinpoint 0.030"	HT050002	WR	70g	90g	110g
	HT050003	STD			
Pinpoint 0.050"	HT050004	WR	125g	150g	185g
	HT050005	STD			
Std. Sprue	HT050101	WR	150g	225g	300g
	HT050100	STD			
Extra Stock Sprue	HT050201	WR	150g	225g	300g
	HT050200	STD			

Consult Heaterwerks Hot Runner Dept. when exceeding max. shot weight in Sprue style tips.

DIRECT FEED APPLICATIONS

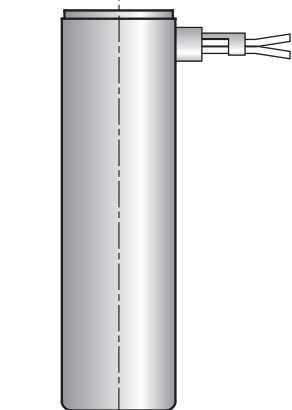
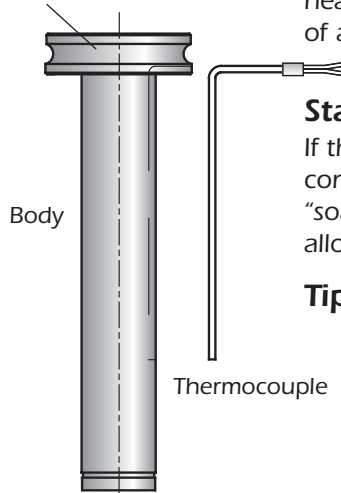
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DIRECT FEED APPLICATIONS

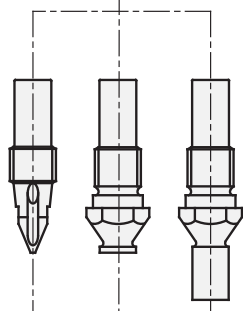
## Operating/Service Instructions

All specifications are subject to change without notification.

(2) Head styles



Retaining Ring



(11) Tip Styles

### Operating & Servicing Instructions

The Accugate .197 body designs are identical in diameter, and differ only in length and head style. The Accugate .197 features a replaceable sleeve heater, Type "J" thermocouple, and choice of eleven tip styles for a broad range of applications.

### Start-up/Operating Procedures

If the temperature controller does not utilize "soft start" technology, set the controller to 200°F (93.3°C) in automatic or 10% in manual. Allow bushing to "soak" for 15 minutes before increasing to processing temperature. This step will allow the unit to dissipate any moisture and prolong heater life.

### Tip Removal/Installation

#### Removal

- 1) Place bushing in "V" block and secure it firmly at the bushing head.
- 2) Use a standard 1/4" Allen socket for Pinpoint tips, or 15mm socket for Sprue tips, and turn counter-clockwise to loosen.

#### Installation

- 1) Place bushing in "V" block and secure it firmly at the bushing head.
- 2) Apply anti-seize sparingly onto male threads of tip.  
Note: excess anti-seize may contaminate the resin being processed.
- 3) Use a standard 1/4" Allen socket for Pinpoint tips or 15mm socket for Sprue tips and install tip by turning clockwise.
- 4) **Torque to 30 ft./lbs. (41 Newton-Meters)**

### Component Disassembly/Assembly

#### Disassembly

- 1) Remove "Retaining Ring" using Retaining Ring Pliers.
- 2) Remove heater by hand.
- 3) Remove thermocouple by sliding it out of the T/C slot on the body.


#### Assembly

- 1) Insert pre-bent thermocouple into T/C slot until thermocouple reaches the end of the slot.
- 2) Slide heater over T/C and body by hand, making sure to place heater wires in the same position as the thermocouple wires.
- 3) Install "Retaining Ring" using Retaining Ring Pliers.

### Power Requirements

- 240 Volts AC – 15 amp fuse
- Grounding – Heaterwerks bushings do not require any additional grounding wire. The bushings are grounded through the bodies of the components.

\*WARNING\*

There must be a ground  present between the Mold "Hot Half" and the temperature control system or damage may occur to the nozzle, thermocouple and/or temperature control system.