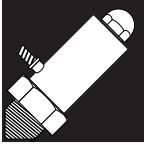


Machine Nozzle Technical Specifications

Machine Nozzle User Guide

All specifications are subject to change without notification.

Integrally Heated Machine Nozzles



These highly durable Machine Nozzles feature an integrally heated construction exclusive to Heaterwerks. This unique design concept eliminates the voids and air gaps which limit the performance of conventionally heated nozzle systems. The improved heat transfer characteristics of the Sensitip® Nozzle provide performance and reliability far superior to any existing nozzle designs.

Tip Options for the Machine Nozzle



General Purpose Tip –

This nozzle tip is designed to suit the specific characteristics of the resins belonging to the (PS) Polystyrene, (PE) Polyethylene, and (PP) Polypropylene families.



Full Taper Tip –

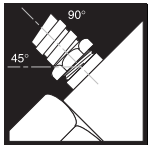
This nozzle tip is designed to suit the specific characteristics of the resins belonging to the ABS, (PMMA) Acrylic, and Polysulfone families.



Nylon Tip –

This nozzle tip is designed to suit the specific characteristics of the resins belonging to the Nylon and Acetal families.

Lead Options for the Machine Nozzle



90° (Standard) or 45° (Optional)–

Lead options are customized to meet your specific machine characteristics.

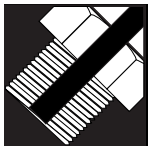
Thread Options for the Machine Nozzle



Three Standard Sizes –

Standard thread sizes include; (1 1/4 - 12 UNF), (1 1/2 - 12 UNF), and (1 3/4 - 8 UNF). For other thread options contact the Hot Runner Group at Heaterwerks. (Metric sizes are available upon request.)

Flow Diameters for the Machine Nozzle



.500" Diameter (Standard) –

Precise flow passage ensures a smooth melt transfer from machine barrel to mold.



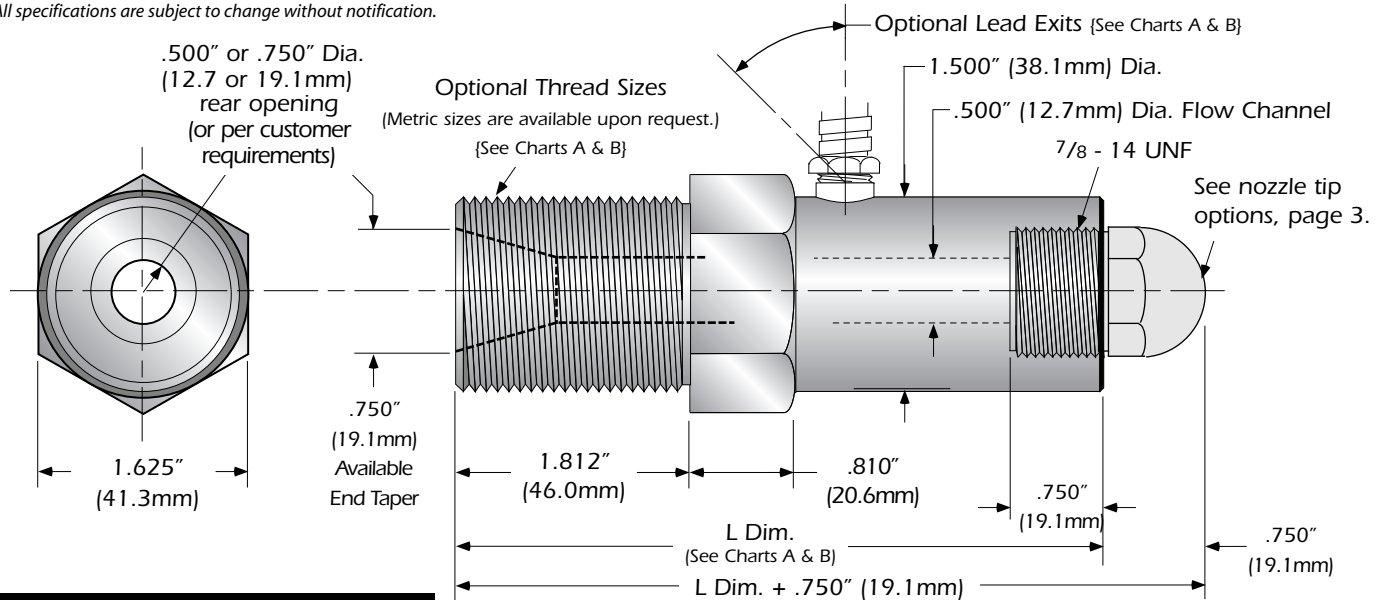
.750" End Taper Diameter Available –

A polished taper from .500" to .750" can be machined to suit customer machine specifications.

Machine Nozzle Technical Specifications

Nozzle Dimensions & Ordering

All specifications are subject to change without notification.



NOZZLES W/90° LEADS

All nozzles listed include 240 Volt rating (120 Volt is optional), Type "J" thermocouple, 24" (61 cm) Teflon® wrap, 600 Volt rated leads, and 18" (46 cm) square-lock stainless steel armor cable. Other thread sizes and rear openings are available. Consult Heaterwerks for details.

Chart A

L DIM. IN. MM	1 1/4 - 12 UNF		1 1/2 - 12 UNF		1 3/4 - 8 UNF		WATTS
	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	
5.000 (127.0)	HHN0000	HHN0001	HHN0002	HHN0003	HHN0004	HHN0005	635
6.000 (152.4)	HHN0006	HHN0007	HHN0008	HHN0009	HHN0010	HHN0011	800
7.000 (177.8)	HHN0012	HHN0013	HHN0014	HHN0015	HHN0016	HHN0017	965
8.000 (203.2)	HHN0018	HHN0019	HHN0020	HHN0021	HHN0022	HHN0023	1130
9.000 (228.6)	HHN0024	HHN0025	HHN0026	HHN0027	HHN0028	HHN0029	1295
10.000 (254.0)	HHN0030	HHN0031	HHN0032	HHN0033	HHN0034	HHN0035	1460
11.000 (279.4)	HHN0036	HHN0037	HHN0038	HHN0039	HHN0040	HHN0041	1625
12.000 (304.8)	HHN0042	HHN0043	HHN0044	HHN0045	HHN0046	HHN0047	1790
13.000 (330.2)	HHN0048	HHN0049	HHN0050	HHN0051	HHN0052	HHN0053	1955
14.000 (355.6)	HHN0054	HHN0055	HHN0056	HHN0057	HHN0058	HHN0059	2120

NOZZLES W/45° LEADS

All nozzles listed include 240 Volt rating (120 Volt is optional), Type "J" thermocouple, 24" (61 cm) Teflon® wrap, 600 Volt rated leads, and 18" (46 cm) square-lock stainless steel armor cable. Other thread sizes and rear openings are available. Consult Heaterwerks for details.

Chart B

L DIM. IN. MM	1 1/4 - 12 UNF		1 1/2 - 12 UNF		1 3/4 - 8 UNF		WATTS
	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	.500" DIA. (12.7 MM)	.750" DIA. (19.1 MM)	
5.000 (127.0)	HHN0200	HHN0201	HHN0202	HHN0203	HHN0204	HHN0205	635
6.000 (152.4)	HHN0206	HHN0207	HHN0208	HHN0209	HHN0210	HHN0211	800
7.000 (177.8)	HHN0212	HHN0213	HHN0214	HHN0215	HHN0216	HHN0217	965
8.000 (203.2)	HHN0218	HHN0219	HHN0220	HHN0221	HHN0222	HHN0223	1130
9.000 (228.6)	HHN0224	HHN0225	HHN0226	HHN0227	HHN0228	HHN0229	1295
10.000 (254.0)	HHN0230	HHN0231	HHN0232	HHN0233	HHN0234	HHN0235	1460
11.000 (279.4)	HHN0236	HHN0237	HHN0238	HHN0239	HHN0240	HHN0241	1625
12.000 (304.8)	HHN0242	HHN0243	HHN0244	HHN0245	HHN0246	HHN0247	1790
13.000 (330.2)	HHN0248	HHN0249	HHN0250	HHN0251	HHN0252	HHN0253	1955
14.000 (355.6)	HHN0254	HHN0255	HHN0256	HHN0257	HHN0258	HHN0259	2120

Machine Nozzle Technical Specifications

Tip Options & Ordering

All specifications are subject to change without notification.

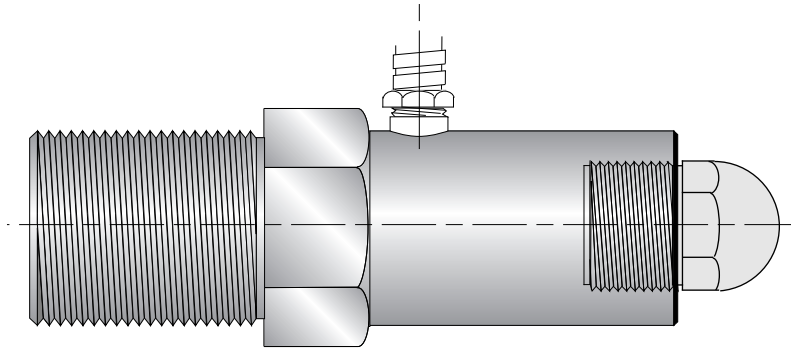
DESIGNED FOR ENGINEERING & COMMODITY GRADE RESINS

Each nozzle tip is designed to match the characteristics of a specific family of resins.

GENERAL PURPOSE tips can be used with polystyrene, polypropylene and polyethylene.

FULL TAPER tips perform best with ABS, acrylic and polysulfone.

NYLON tips were created specifically for nylon and acetal applications.



.500" (12.7mm) SPHERICAL RADIUS TIP

All nozzle tips are precision machined and hardened for maximum durability.

Chart C

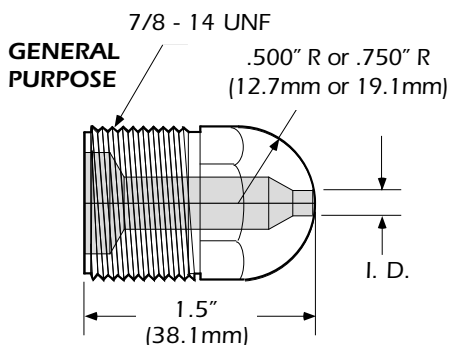
TYPE	1/8" ID (3.2mm)	3/16" ID (4.8mm)	1/4" ID (6.4mm)
GENERAL PURPOSE	NT00000	NT00001	NT00002
FULL TAPER	NT00006	NT00007	NT00008
NYLON	NT00012	NT00013	NT00014

.750" (19mm) SPHERICAL RADIUS TIP

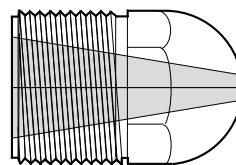
Three styles are available to choose from, depending upon your resin requirements.

Chart D

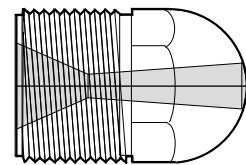
TYPE	1/8" ID (3.2mm)	3/16" ID (4.8mm)	1/4" ID (6.4mm)
GENERAL PURPOSE	NT00003	NT00004	NT00005
FULL TAPER	NT00009	NT00010	NT00011
NYLON	NT00015	NT00016	NT00017



FULL TAPER



NYLON



External dimensions and 7/8" hex apply to all tips.

Dimensions are in inches. Millimeters are in parentheses.

Machine Nozzle Technical Specifications

Operating/Service Instructions

All specifications are subject to change without notification.

Operating & Servicing Instructions

Refractory insulating material is swaged into place to allow maximum heat transfer. The resulting efficiency allows for a lower energy consumption when compared to more conventional heating. A type "J" thermocouple is placed near the flow passage to give an accurate temperature reading.

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 the machine nozzle to "soak" for 15 minutes before increasing to processing temperature. This step will allow the unit to dissipate any moisture and prolong heater life.

Nozzle Removal / Installation

Removal

- 1) Move the injection unit back as far as possible from the mold to allow enough room to remove the machine nozzle.
- 2) Use a standard 1 $\frac{5}{8}$ " open-end wrench and turn counterclockwise to loosen.

Installation

- 1) Move the injection unit back as far as possible from the mold to allow enough room to remove the machine nozzle.
- 2) Apply anti-seize sparingly onto male threads of the nozzle.
Note: excess anti-seize may contaminate the resin being processed.
- 3) Use a standard 1 $\frac{5}{8}$ " open-end wrench and install tip by turning clockwise.
- 4) **Torque to 350 ft./lbs. (475 Newton-Meters)**

Tip Removal / Installation

Removal

- 1) Place machine nozzle in "V" block and secure it firmly at the nozzle head.
- 2) Use a standard $\frac{7}{8}$ " box-end wrench and turn counterclockwise to loosen.


Installation

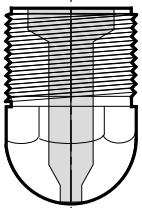
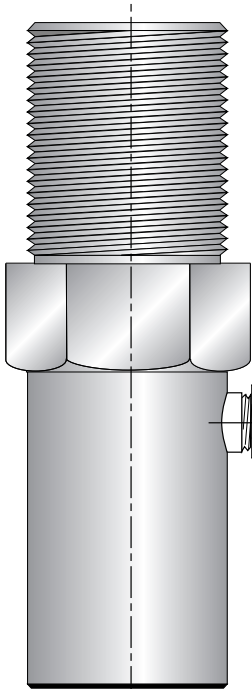
- 1) Place machine nozzle in "V" block and secure it firmly at the nozzle head.
- 2) Apply anti-seize sparingly onto male threads of tip.
Note: excess anti-seize may contaminate the resin being processed.
- 3) Use a standard $\frac{7}{8}$ " box-end wrench and install tip by turning clockwise.
- 4) **Torque to 150 ft./lbs. (203 Newton-Meters)**

Power Requirements

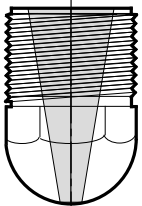
- 240 Volts AC – 15 amp fuse
- Grounding – Heaterwerks machine nozzles do not require any additional grounding wire. The machine nozzles are grounded through the bodies of the components.

WARNING

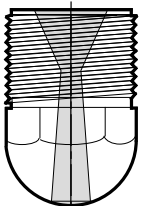
There must be a ground  present between the Mold "Hot Half" and the temperature control system or damage may occur to the nozzle, thermocouple and/or temperature control system.



GENERAL
PURPOSE



FULL TAPER



NYLON