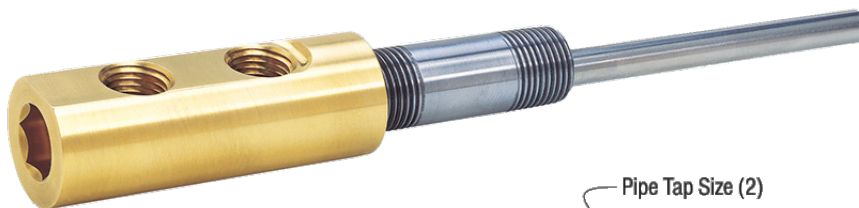
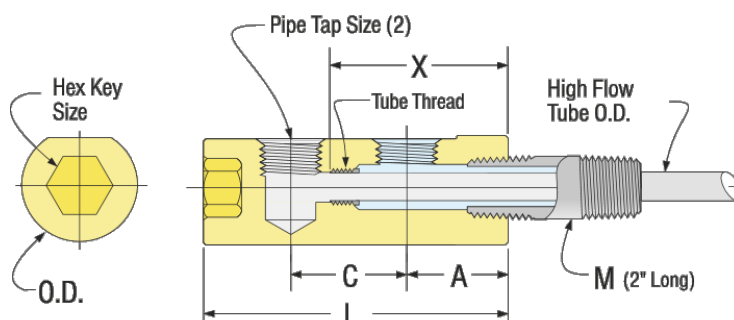


Hex Key Cascade Assemblies

**Features**

- Easy hex key assembly
- Compact design allows for minimum clearance installation
- 12" high flow stainless steel tube included
- 2" long stainless steel pipe nipple included


 Inch

ITEM NO.	PIPE TAP (NPT)	MOLD NIP- PLE (NPT) M	TUBE THREAD SIZE	HIGH FLOW TUBE INCLUDED	L	C	A	HEX KEY SIZE	NOMINAL CLEARANCE DRILL	AC- TUAL O.D.	TUBE END REF. X
E16N	1/16	1/16	10-32	HF125T-12	1.625	9/16	1/2	5/16	5/8	.610	.890
E16N-2	1/16	1/8	1/4-28	HF187T-12	1.687	9/16	9/16	3/8	3/4	.735	.980
E186N	1/8	1/8	1/4-28	HF187T-12	1.875	11/16	9/16	3/8	7/8	.860	1.000
E181N	1/8	1/8	1/4-28	HF187T-12	2.187	1	9/16	3/8	7/8	.860	1.200
E146N	1/8	1/4	5/16-24	HF250T-12	2.187	11/16	13/16	1/2	1	.985	1.320
E146N-4	1/4	1/4	5/16-24	HF250T-12	2.312	11/16	7/8	1/2	1	.985	1.380
E141	1/8	1/4	5/16-24	HF250T-12	2.500	1	13/16	1/2	1	.985	1.330
E141N-4	1/4	1/4	5/16-24	HF250T-12	2.625	1	7/8	1/2	1	.985	1.480
E381N-4	1/4	3/8	3/8-24	HF312T-12	2.625	1	7/8	1/2	1	.985	1.560
E121N-4	1/4	1/2	7/16-20	HF375T-12	2.812	1	1	1/2	1-1/4	1.235	1.730

Hex Key Cascades - Heads Only

 Inch
Features

- Brass construction
- All dimensions equal to the corresponding assembly item number
- For use with stainless steel high flow tubes



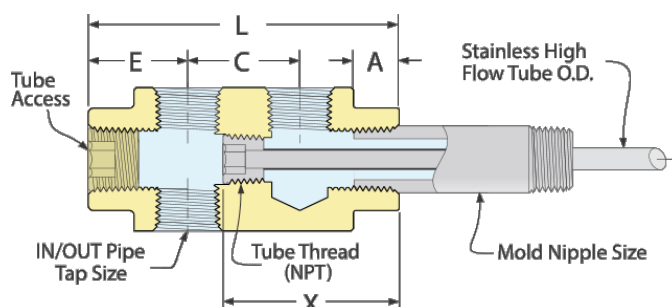
ITEM NO.	TUBE THREAD SIZE	STANDARD- HIGH FLOW TUBE NO.	ALTERNATE HIGH FLOW TUBE NO.
E16H	10-32	HF125T-	JHF093T-
E16H-2	1/4-28	HF187T-	JHF125T-
E186H	1/4-28	HF187T-	JHF125T-
E181H	1/4-28	HF187T-	JHF125T-
E146H	5/16-24	HF250T-	JHF187T-
E141H	5/16-24	HF250T-	JHF187T
E146H-4	5/16-24	HF250T-	JHF187T
E141H-4	5/16-24	HF250T-	JHF187T
E381H-4	3/8-24	HF312T-	JHF250T-
E121H-4	7/16-20	HF375T-	JHF312T-



Rear Load Nipple Type Cascade Assemblies

**Features**

- Allows for access to inner tube from the rear of the assembly
- High flow design for maximum cooling rates
- Positive adjustment of inner tube
- 12" high flow piston tube included
- 2" long stainless steel pipe nipple included
- 2 brass pipe plugs included

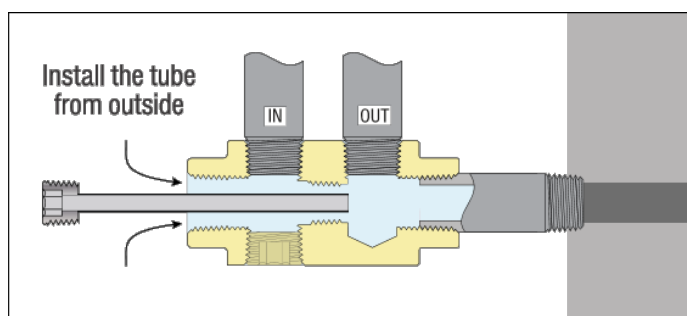

U Inch

ITEM NO.	IN/ OUT PIPE (NPT)	MOLD NIPPLE (NPT)	HIGH FLOW PISTON TUBE INCLUDED	HIGH FLOW TUBE O.D.	TUBE THREAD (NPT)	HEX SIZE	E	C	A	L	TUBE END REF. X	TUBE AC- CESS SIZE (NPT)
16N-RL	1/16	1/8	PT16-187-12	3/16	1/16	3/4	.500	5/8	9/32	1.625	.937	1/8
186N-RL	1/8	1/8	PT16-187-12	3/16	1/16	7/8	.609	11/16	9/32	1.906	1.080	1/8
181N-RL	1/8	1/8	PT16-187-12	3/16	1/16	7/8	.609	1	9/32	2.218	1.393	1/8
141N-4-RL	1/4	1/4	PT18-250-12	1/4	1/8	1	.781	1	7/16	2.562	1.437	1/4
381N-4-RL	1/4	3/8	PT14-312-12	5/16	1/4	1	.781	1	7/16	2.562	1.500	3/8

Rear Load Nipple Type Cascades - Heads Only

Features

- All dimensions equal to the corresponding assembly item number
- Use with high flow piston tubes
- 2 brass pipe plugs included
- Standard tube lengths of 12", 18", 24", 36", 48"


U Inch

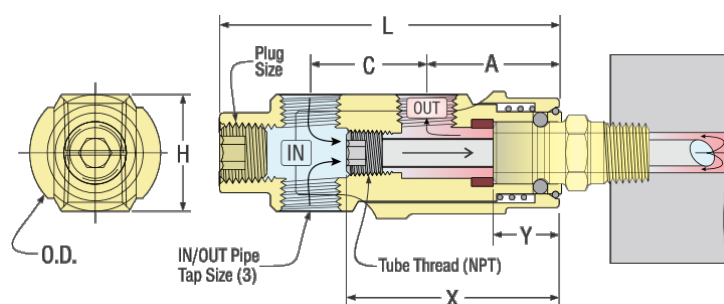
ITEM NO.	PISTON TUBE NO.	TUBE THREAD (NPT)	TUBE O.D.	TUBE I.D.
16H-RL 186H-RL 181H-RL	PT16-072-	1/16	.072	.060
	PT16-093-	1/16	.090	.076
	PT16-125-	1/16	.125	.109
	PT16-187-	1/16	.187	.167
141H-4-RL	PT18-125-	1/8	.125	.109
	PT18-187-	1/8	.187	.167
	PT18-250-	1/8	.250	.230
381H-4-RL	PT14-187-	1/4	.187	.167
	PT14-250-	1/4	.250	.230
	PT14-312-	1/4	.312	.288



Rear Load Quick Coupler Cascade Assemblies

**Features**

- Allows for access to inner tube from the rear of the assembly
- High flow design for maximum cooling rates
- Positive adjustment of inner tube
- Use standard extension plugs and connectors
- 12" high flow piston tube included
- 2" long stainless steel pipe nipple included
- 2 brass pipe plugs included


U Inch

ITEM NO.	IN/ OUT PIPE (NPT)	SE- RIES	END OF CONN. Y	TUBE THREAD (NPT)	L	C	A	H	O.D.	TUBE END REF. X	TUBE AC- CESS SIZE (NPT)
SC186N-RL	1/8	200	.370	1/16	2.187	11/16	31/32	13/16	7/8	1.45	1/8
SC181N-RL	1/8	200	.370	1/16	2.500	1	31/32	13/16	7/8	1.54	1/8
SC141N-4-RL	1/4	300	.590	1/8	2.937	1	1-5/32	1	1-1/8	1.89	1/4
SC121N-4-RL	1/4	500	.730	3/8	3.687	1-1/4	1-3/8	1-1/4	1-3/8	2.25	1/2
SC121N-6-RL	3/8	500	.730	3/8	3.687	1-1/4	1-3/8	1-1/4	1-3/8	2.25	1/2

Rear Load Quick Coupler Cascades - Heads Only

U Inch
Features

- All dimensions equal to the corresponding assembly item number
- Use with high flow piston tubes
- 2 brass pipe plugs included
- Use extension plugs or connectors
- Standard tube lengths of 12", 18", 24", 36", 48"



ITEM NO.	PISTON TUBE NO.	TUBE THREAD (NPT)	TUBE O.D.	TUBE I.D.
SC186H-RL SC181H-RL	PT16-072-	1/16	.072	.060
	PT16-093-	1/16	.099	.076
	PT16-125-	1/16	.125	.109
	PT16-187-	1/16	.187	.167
SC141H-4-RL	PT18-125-	1/8	.125	.109
	PT18-187-	1/8	.187	.167
	PT18-250-	1/8	.250	.230
SC121H-4-RL SC121H-6-RL	PT38-312-	3/8	.312	.288
	PT38-375-	3/8	.365	.340
	PT38-437-	3/8	.427	.397

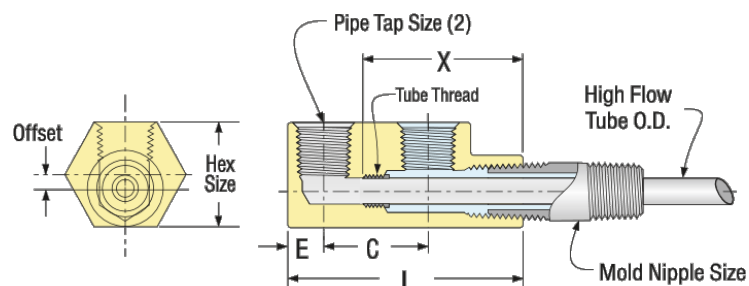


High Flow Cascade Assemblies



Features

- Increased inlet area allows for 35% -65% higher flow rates more that standard nipple type cascades
- Eliminates leaks with off set design and prevents flow restriction
- 12" high flow stainless steel tube included
- 2" pipe nipple included



U Inch

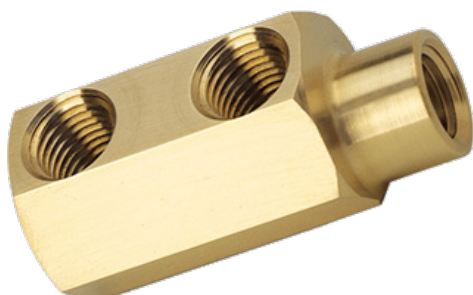
ITEM NO.	MOLD NIPPLE (NPT)	IN/OUT PIPE (NPT)	TUBE THREAD SIZE	HIGH FLOW TUBE INCLUDED	HEX SIZE	OFFSET	E	C	L	TUBE END REF. X
HF16N	1/16	1/16	10-32	HF125T-12	5/8	3/32	1/4	1/2	1-1/4	.88
HF186N	1/8	1/8	1/4-28	HF187T-12	3/4	3/32	5/16	11/16	1-5/8	1.14
HF181N	1/8	1/8	1/4-28	HF187T-12	3/4	3/32	5/16	1	1-15/16	1.15
HF146N-4	1/4	1/4	5/16-24	HF250T-12	1	5/32	11/32	11/16	1-7/8	1.3
HF141N-4	1/4	1/4	5/16-24	HF250T-12	1	5/32	11/32	1	2-3/16	1.55
HF381N-4	3/8	1/4	7/16-20	HF375T-12	1-1/8	1/8	11/32	1	2-1/4	1.64
HF121N-4	1/2	1/4	1/2-20	HF437T-12	1-3/8	1/8	3/8	1	2-3/8	1.77

High Flow Cascade - Heads Only

U Inch

Features

- Increased inlet area allows for 35% -65% higher flow rates more that standard nipple type cascades
- Eliminates leaks with off set design and prevents flow restriction
- 12" high flow stainless steel tube included
- 2" pipe nipple included



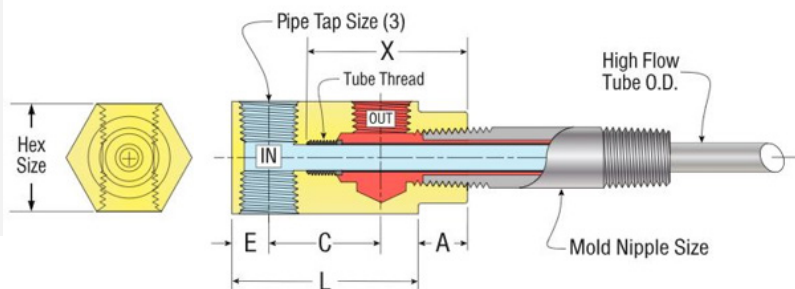
ITEM NO.	TUBE THREAD	STANDARD HIGH FLOW TUBE	ALTERNATE HIGH FLOW TUBE
HF16H	10-32	HF125T-	JHF093T-
HF186H	1/4-28	HF187T-	JHF125T-
HF181H	1/4-28	HF187T-	JHF125T-
HF146H-4	5/16-24	HF250T-	JHF187T-
HF141H-4	5/16-24	HF250T-	JHF187T-
HF381H-4	7/16-20	HF375T-	JHF312T-
HF121H-4	1/2-20	HF437T-	JHF375T-



Nipple Type Cascade Assemblies (with Brass Tubes)

**Features**

- Solid brass heads are precision machined for accurate assembly
- 12" Brass Tube included
- 2" Stainless steel pipe nipple included
- Brass Pipe plug included
- Custom pipe tap and tube combinations available


 Inch

ITEM NO.	IN/OUT-PIPE TAP SIZE (NPT)	MOLD NIPPLE SIZE (NPT)	TUBE O.D.	BRASS TUBE INCLUDED (12" OAL)	HEX SIZE	E	C	A	L	TUBE END REF. X
C130	1/8	1/8	3/16	187T-12	7/8	21/64	11/16	9/32	1-11/32	1.06
C130A	1/8	1/8	3/16	187T-12	7/8	21/64	1	9/32	1-21/32	1.18
C131	1/8	1/4	1/4	250T-12	1	21/64	11/16	7/32	1-11/32	1.05
C131A	1/4	1/4	1/4	250T-12	1	21/64	11/16	7/32	1-11/32	1.08
C132	1/8	1/4	1/4	250T-12	1	21/64	1	7/16	1-21/32	1.44
C132A	1/4	1/4	1/4	250T-12	1	21/64	1	7/16	1-21/32	1.44
C136A	1/4	3/8	5/16	312T-12	1	11/32	1	13/32	1-11/16	1.44
C138A	1/4	1/2	7/16	437T-12	1-1/4	13/32	1	9/16	1-13/16	1.80
C140A	3/8	3/4	5/8	625T-12	1-1/2	1/2	1-1/4	3/4	2-1/4	2.20
C140A	3/8	3/4	0.625	625T-12	1-1/2	1/2	1/14	3/4	2-1/4	2.20

Nipple Type - Heads Only (for Brass Tubes) Tubes

 Inch

ITEM NO.	TUBE THREAD SIZE	STANDARD BRASS TUBE	ALTERNATE TUBE
HC130	10-32	187T-	HF125T-
HC130A	10-32	187T-	HF125T-
HC131	1/4-28	250T-	HF187T-
HC131A	1/4-28	250T-	HF187T-
HC132	1/4-28	250T-	HF187T-
HC132A	5/16-24	250T-	HF187T-
HC136A	7/16-20	437T-	HF375T-
HC138A	7/16-20	437T-	HF375T-
HC140A	5/8-18	625T-	JHF500T-

Features

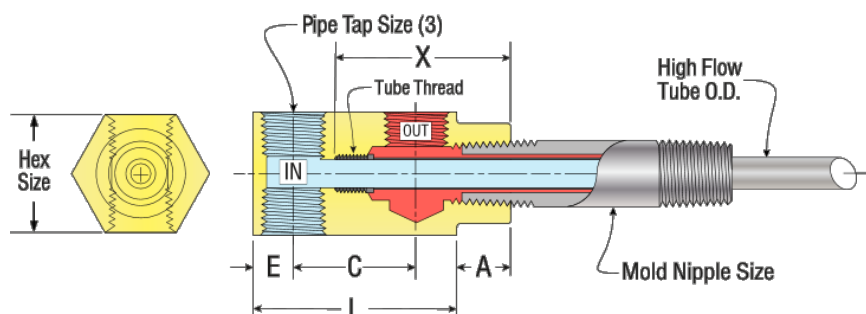
- Made from solid brass
- Brass pipe plug included
- All dimensions equal to the corresponding assembly item number
- Standard brass tube lengths from 12" to 36"
- Brass tubes over 36" available on request



Nipple Type Cascade Assemblies (with High Flow Tubes)

**Features**

- Solid brass heads
- Precision machined for accurate assembly
- 12" high flow stainless steel tube included
- 2" stainless steel pipe nipple included
- Brass Pipe plug included


U Inch

ITEM NO.	IN/OUT-PIPE TAP SIZE (NPT)	MOLD NIPPLE SIZE (NPT)	TUBE THREAD SIZE	TUBE O.D.	HIGH FLOW TUBE INCLUDED	HEX SIZE	E	C	A	L	TUBE END REF. X
16N-HFT	1/16	1/8	1/4-28	3/16	HF187T-12	3/4	7/32	1/2	9/32	15/16	.90
186N-HFT	1/8	1/8	1/4-28	3/16	HF187T-12	7/8	21/64	11/16	9/32	1-11/32	1.06
181N-HFT	1/8	1/8	1/4-28	3/16	HF187T-12	7/8	21/64	1	9/32	1-21/32	1.18
146N-HFT	1/8	1/4	5/16-24	1/4	HF250T-12	1	21/64	11/16	7/32	1-11/32	1.05
146N-4-HFT	1/4	1/4	5/16-24	1/4	HF250T-12	1	21/64	11/16	7/32	1-11/32	1.08
141N-HFT	1/8	1/4	5/16-24	1/4	HF250T-12	1	21/64	1	7/16	1-21/32	1.44
141N-4-HFT	1/4	1/4	5/16-24	1/4	HF250T-12	1	21/64	1	7/16	1-21/32	1.44
381N-HFT	1/8	3/8	3/8-24	5/16	HF312T-12	1	11/32	1	13/32	1-11/16	1.44
381N-4-HFT	1/4	3/8	3/8-24	5/16	HF312T-12	1	11/32	1	13/32	1-11/16	1.44
121N-4-HFT	1/4	1/2	1/2-20	7/16	HF437T-12	1-1/4	13/32	1	9/16	1-13/16	1.80

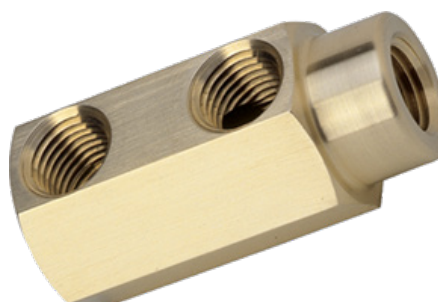
Nipple Type - Heads Only (for High Flow Tubes)

U Inch

ITEM NO.	TUBE THREAD SIZE	STANDARD BRASS TUBE	ALTERNATE TUBE
16H-HFT	1/4-28	HF187T-	JHF125T-
186H-HFT	1/4-28	HF187T-	JHF125T-
181H-HFT	1/4-28	HF187T-	JHF125T-
146H-HFT	5/16-24	HF250T-	JHF187T-
146H-4-HFT	5/16-24	HF250T-	JHF187T-
141H-HFT	5/16-24	HF250T-	JHF187T-
141H-4-HFT	5/16-24	HF250T-	JHF187T-
381H-HFT	3/8-24	HF312T-	JHF250T-
381H-4-HFT	3/8-24	HF312T-	JHF250T-
121H-4-HFT	1/2-20	HF437T-	JHF375T-
381H-4-HFT	3/8-24	HF312T-	JHF250T-
121H-4-HFT	1/2-20	HF437T-	JHF375T-

Features

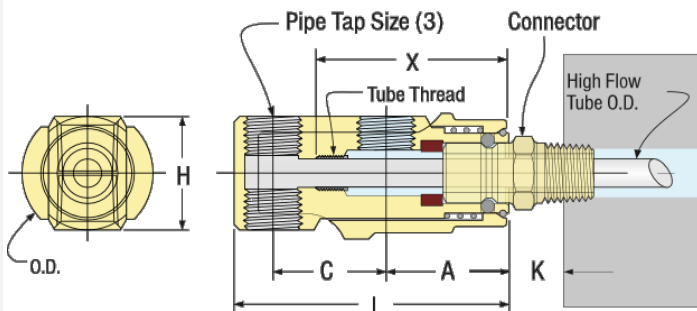
- Made from solid brass
- All dimensions equal to the corresponding assembly item number
- Use with standard high flow stainless steel tubes



Quick-Coupler Type Cascade Assemblies

**Features**

- Install and remove without disconnecting coolant lines
- High flow design provides maximum cooling rates
- 12" high flow stainless steel tube included
- Brass pipe plug included
- Viton Seals included


U Inch

ITEM NO.	PIPE TAP (NPT)	TUBE THREAD	HIGH FLOW TUBE INCLUDED	L	C	A	H	END OF TUBE REF. X	O.D.	ITEM NO.	CONN. ITEM NO.	MIN. K
SC186N	1/8	1/4-28	HF187T-12	1.937	11/16	31/32	13/16	1.45	7/8	SC186N SC181N	251	.32
SC181N	1/8	1/4-28	HF187T-12	2.250	1	31/32	13/16	1.54	7/8		252	.43
SC146N-4	1/4	5/16-24	HF250T-12	2.187	11/16	1-5/32	1	1.63	1-1/8		253	.49
SC141N-4	1/4	5/16-24	HF250T-12	2.500	1	1-5/32	1	1.70	1-1/8	SC146N-4 SC141N-4	351	.34
SC121N-4	1/4	1/2 - 20	HF437T-12	3.125	1-1/4	1-3/8	1-1/4	2.20	1-3/8		352	.42
SC121N-6	3/8	1/2 - 20	HF437T-12	3.125	1-1/4	1-3/8	1-1/4	2.20	1-3/8		353	.45
											354	.57
										SC121N-4 SC121N-6	553	.55
											554	.54
											556	.57

Quick-Coupler Cascades - Heads Only

Features

- Aids in quick & efficient assembly and disassembly of cooling circuit
- Constructed of heavy duty solid brass and stainless steel
- All dimensions equal to the corresponding assembly item number
- Viton seals are standard


U Inch

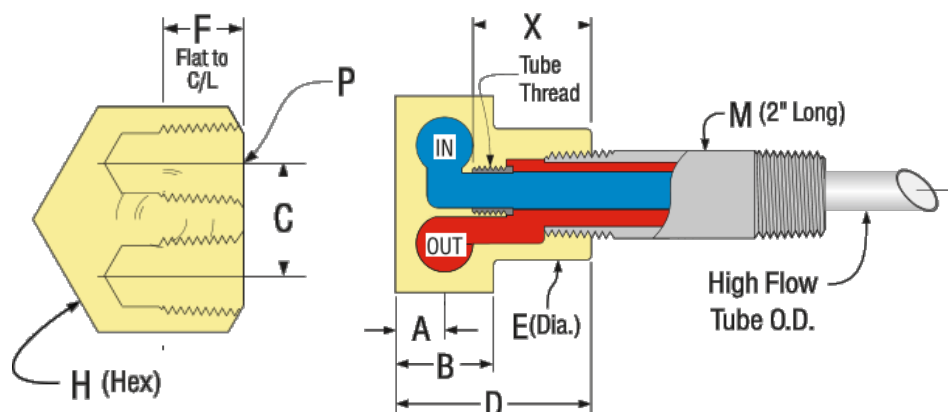
ITEM NO.	TUBE THREAD	STANDARD HIGH FLOW TUBE	ALTER-NATE HIGH FLOW TUBE
SC186H	1/4-28	HF187T-	JHF125-T
SC181H	1/4-28	HF187T-	JHF125-T
SC146H-4	5/16-24	HF250T-	JHF187T-
SC141H-4	5/16-24	HF250T-	JHF187T-
SC121H-4	1/2-20	HF437T	JHF375T-
SC121H-6	1/2-20	HF437T	JHF375T-



Compact Cascade Assemblies

**Features**

- Inlet/Outlet Connections are positioned sideways
- Mount in tight spaces or thin mold plates
- 12" high flow stainless steel tube included
- 2" pipe nipple included


U Inch

ITEMNO.	MOLD NIPPLE (NPT) M	IN/ OUT PIPE (NPT) P	TUBE THREAD SIZE	HIGH FLOW TUBE INCLUDED	HEX SIZE H	A	B	C	D	E	F	TUBE END REF. X
ET1816	1/8	1/16	1/4-28	HF187T-12	15/16	7/32	7/16	1/2	1	5/8	0.33	.60
ET1418	1/4	1/8	5/16-24	HF250T-12	1-1/4	5/16	5/8	11/16	1-1/4	3/4	0.41	.82
ET1414	1/4	1/4	5/16-24	HF250T-12	1-1/2	3/8	3/4	3/4	1-1/2	7/8	0.54	.90
ET3814	3/8	1/4	3/8-24	HF312T-12	1-1/2	3/8	3/4	3/4	1-1/2	1	0.54	.92
ET1214	1/2	1/4	7/16-20	HF375T-12	1-3/4	3/8	3/4	1	1-3/4	1-3/16	0.54	1.130
ET3438	3/4	3/8	9/16-18	HF500T-12	2	7/16	7/8	1-1/8	1-7/8	1-3/8	.625	1.210

Compact Cascades - Heads Only

Features

- Made from solid brass
- All dimensions equal to the corresponding assembly item number


U Inch

ITEM NO.	MOLD NIPPLE (NPT) M	IN/OUT PIPE (NPT) P	TUBE THREAD SIZE	STANDARD HIGH FLOW TUBE NO.	ALTERNATE HIGH FLOW TUBE NO.
ET1816H	1/8	1/16	1/4-28	HF187T-	JHF125T
ET1418H	1/4	1/8	5/16-24	HF250T-	JHF187T
ET1414H	1/4	1/4	5/16-24	HF250T-	JHF187T-
ET3814H	3/8	1/4	3/8-24	HF312T-	JHF250T-
ET1214H	1/2	1/4	7/16-20	HF375T-	JHF312T-
ET3438H	3/4	3/8	9/16-18	HF500T-	JHF437T-

