

UNIT CONVERSIONS & FORMULAS

MEASUREMENT	CONVERSION	EXAMPLE
LENGTH	1 in. = 25.4 mm	12 in. x 25.4 = 304.8 mm
	1 in. = .0254 m	120 in. x .0254 = 3.05 m
	1 ft. = .3048 m	12 ft. x .3048 = 3.68 m
	1 mm = .0394 in.	100 mm x .0394 = 3.94 in.
	1 m = 39.37 in.	10 m x 39.37 = 393.7 in.
	1 m = 3.281 ft.	10 m x 3.281 = 32.81 ft.
VOLUME	1 gal = 3.785 l	10 gal x 3.785 = 37.85 l
	1 liter = .2642 gal	100 liters x 26.42 = 26.42 gal
WEIGHT	1 lb. = .454 kg	10 lbs. x .454 = 4.54 kg
	1 kg = 2.205 lbs.	10 kg x 2.205 = 22.05 lbs.
PRESSURE	1 psi = .06895 bar	40,000 psi x .06895 = 2,750 bar
	1 bar = 14.503 psi	2,750 bar x 14.503 = 40,000 psi
FLOW	1 gpm = 3.785 lpm	30 gpm x 3.785 = 113.55 lpm
	1 lpm = .2642 gpm	100 lpm x .264 = 26.42 gpm
FORCE	1 lb. = 4.448 N	100 lbs. x 4.448 = 444.8 N
	1 N = .2248 lbs.	900 N x .2248 = 202.32 lbs.
TORQUE	1 lb.-ft. = 1.3567 N-m	100 lb.-ft. x 1.3567 = 135.67 N-m
	1 N-m = .737 lb.-ft.	100 N-m x .737 = 73.7 lb.-ft.
POWER	1 hp = .7457 kW	50 hp x .7457 = 37.29 kW
	1 kW = 1.341 hp	50 kW x 1.341 = 67.05 hp

FORMULA	ENGLISH UNITS	METRIC UNITS
Power Requirements*	hp = gpm x psi / 1550	kW = lpm x bar / 540

*Formulas assume 90% mechanical efficiency

CONNECTION TYPES

Several connection types are available for use with Jetstream 40,000 psi products. The purpose of this section is to allow users to identify the connections needed and provide information on the features and proper use of each.

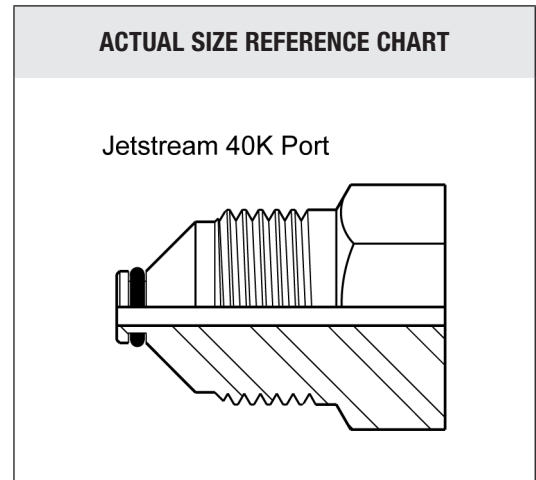
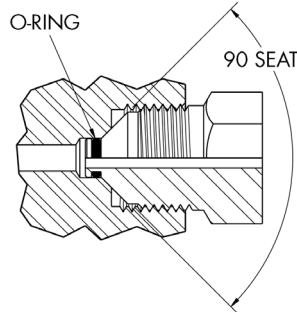


Note: Always apply thread lubricant (anti-seize) to male threads before assembling Jetstream 40K Port connections. See Fittings, page E-1, for thread lubricants available from Jetstream.

JETSTREAM 40K PORT

- Specially designed to prevent leakage and wear frequently associated with standard metal-to-metal seals by incorporating an o-ring with a metal-to-metal cone and seat backup.
- Repairing leaks requires only o-ring replacement, as opposed to standard high pressure connections which often require re-coning, or component replacement.
- Utilized in most Jetstream 40,000 psi products.

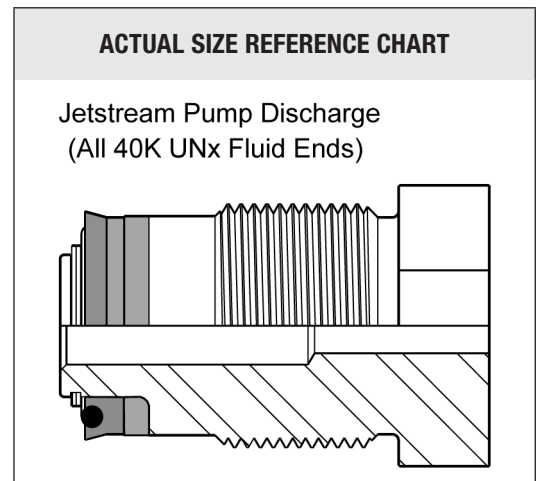
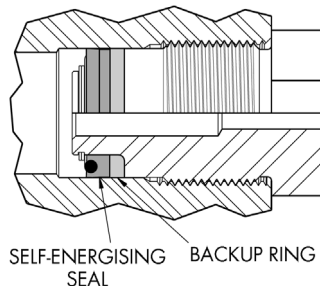
CONNECTION THREAD	RECOMMENDED TORQUE	
	ft-lbs	N-m
1" - 12UNF	75	102



JETSTREAM 40K PUMP DISCHARGE

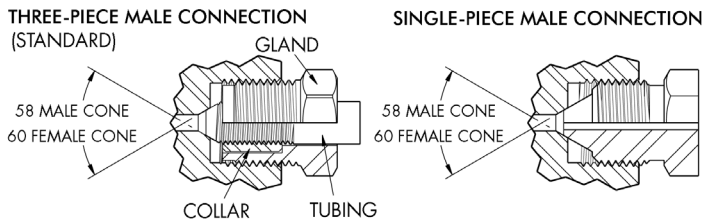
- Specially designed for use in all Jetstream 40,000 psi UNx manifold discharge ports.
- No metal-to-metal seals which can wear and require manifold replacement.

CONNECTION THREAD	RECOMMENDED TORQUE	
	ft-lbs	N-m
1 3/16" - 16 UN	75	102



HIGH PRESSURE (HP) CONNECTION TYPES

- Widely regarded as the industry standard connection for pressures from 30,000 to 60,000 psi (2,069 to 4,138 bar).
- Rated working pressure is dependent upon inner diameter bore size of tubing used. See HP Lance connection specs for rated working pressure of high pressure tubing.
- Connections exist in two different forms:
 1. Used to connect high pressure tubing with a conical male seat and left-handed threads to a female port using a gland nut and left-hand threaded collar.
 2. For many high pressure male fittings, the geometry of the gland, collar, and tubing is combined into one component that connects directly to a high pressure female port (Single Piece Style).
- Suitable for repetitive connection/disconnection.



SIZE	CONNECTION THREAD	COMMON NAME	TUBING THREAD* LEFT-HAND	RECOMMENDED TORQUE	
				ft-lbs	N-m
1/4" HP	9/16" - 18UNF	HP4	1/4" - 28UNF	25	34
3/8" HP	3/4" - 16UNF	HP6	3/8" - 24UNF	50	68
9/16" HP	1 1/8" - 12UNF	HP9	9/16" - 18UNF	75	102

*For three-piece connection styles only.

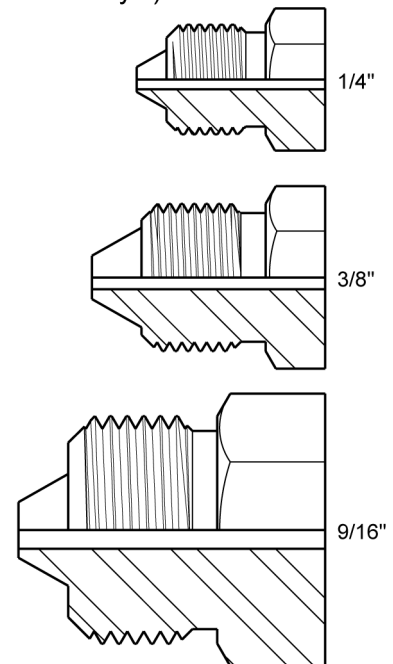
CONNECTION INSTRUCTIONS

1. 3 pc. Male Connection Style only—Liberally apply anti-seize to male tubing threads to prevent thread galling.
2. 3 pc. Male Connection Style only—Slide gland nut over tubing and thread collar (left-hand threaded) onto tubing until it is past the first one or two full threads of the tubing.
3. Both styles—Liberally apply anti-seize to male connection threads and male cone.
4. Both Styles—Install male connection into female port and tighten according to torque specification in chart above.

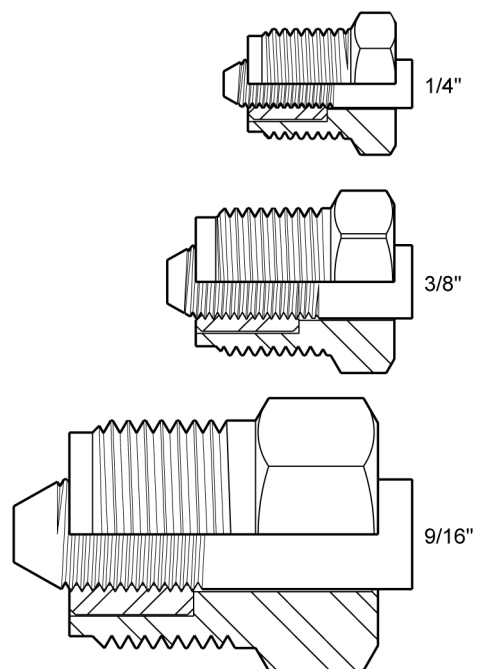
Note: Always apply thread lubricant (anti-seize) to male threads before assembling High Pressure connections to help prevent galling of threads. Coning and Threading tools available. See page I-8.

ACTUAL SIZE REFERENCE CHART

High Pressure (HP)
(Single Piece Style)

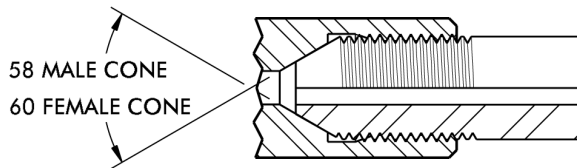


High Pressure (HP)
(Gland, Collar & Tubing)



HIGH PRESSURE LANCE (HP LANCE) CONNECTION TYPES

- This connection has the same geometry and threads as a standard high pressure tubing connection with the exception that right-hand threaded tubes are available.
- Male tubing is inserted directly into a female connection without the use of a gland and collar.
- Used in tube cleaning operations where standard connections are too large in diameter.



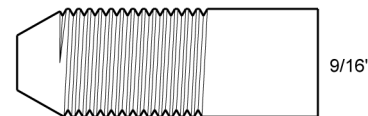
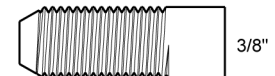
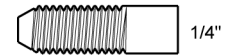
SIZE	CONNECTION THREAD	RECOMMENDED TORQUE	
		ft-lbs	N-m
1/4" HP Lance LH	1/4"-28UNF-LH	15	20
1/4" HP Lance RH	1/4"-28UNF-RH		
3/8" HP Lance LH	3/8"-24UNF-LH	20	27
3/8" HP Lance RH	3/8"-24UNF-RH		
9/16" HP Lance LH	9/16"-18UNF-LH	25	34
9/16" HP Lance RH	9/16"-18UNF-RH		

ACTUAL SIZE REFERENCE CHART

High Pressure Lance

Left Hand Threads

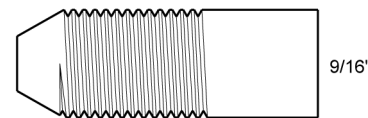
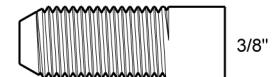
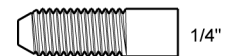
"HP Lance LH"



High Pressure Lance

Right Hand Threads

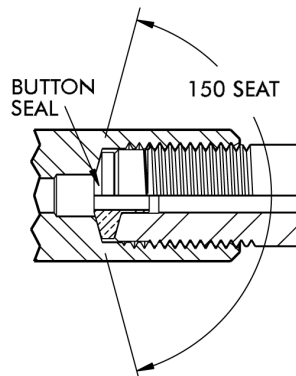
"HP Lance RH"



BUTTON SEAL

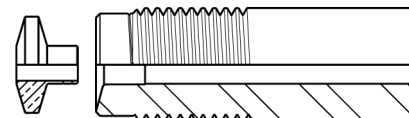
- Utilizes an inexpensive button-style seal which absorbs abuse and wear, preventing damage to the seating surfaces of more costly components.
- Used in the SP-40 Tornado Gun, Multi-Mode Valve, and in some automated lancing systems.

CONNECTION THREAD	RECOMMENDED TORQUE	
	ft-lbs	N-m
9/16" - 18UNF	40	54



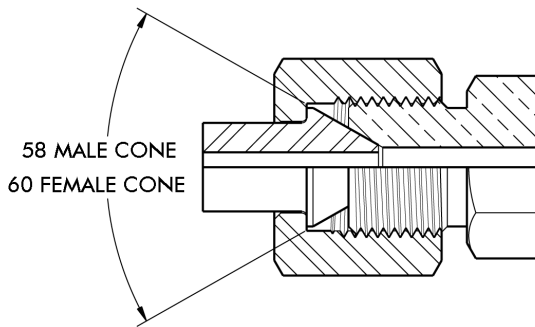
ACTUAL SIZE REFERENCE CHART

9/16" Button Seal

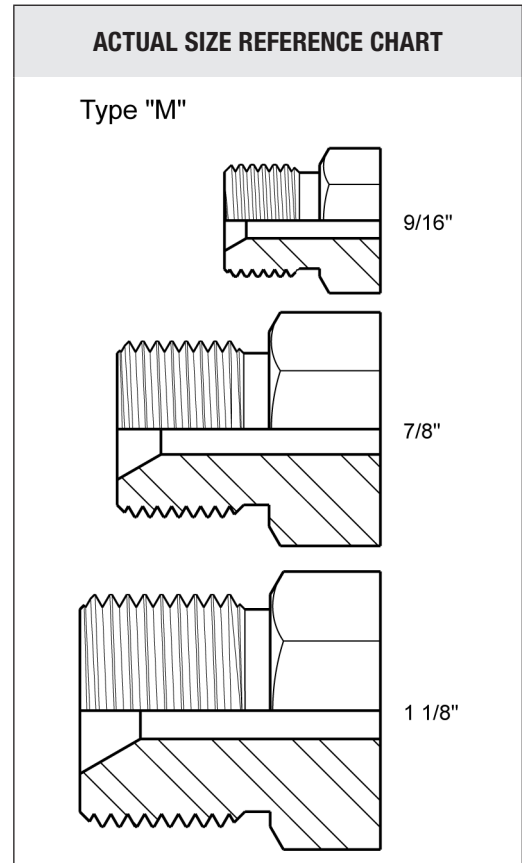


TYPE M CONNECTION TYPES

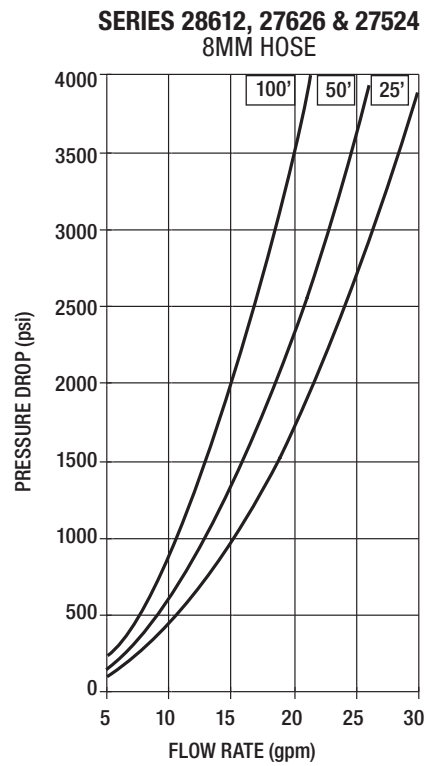
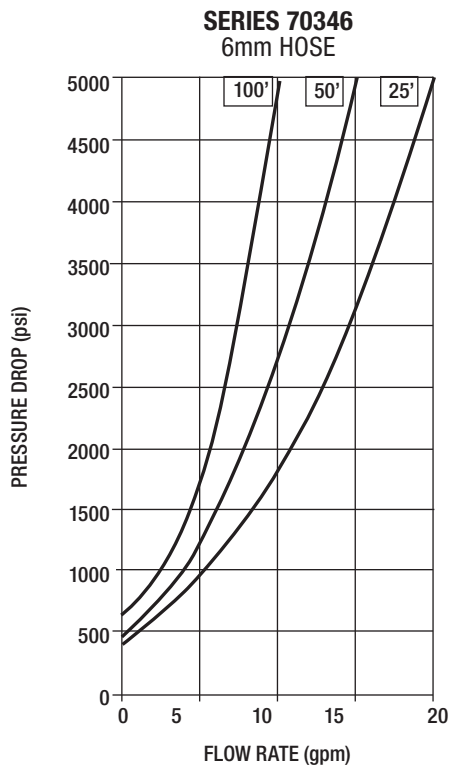
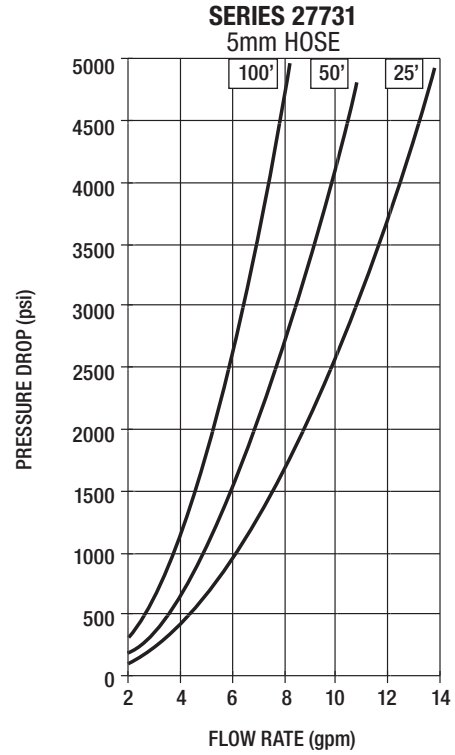
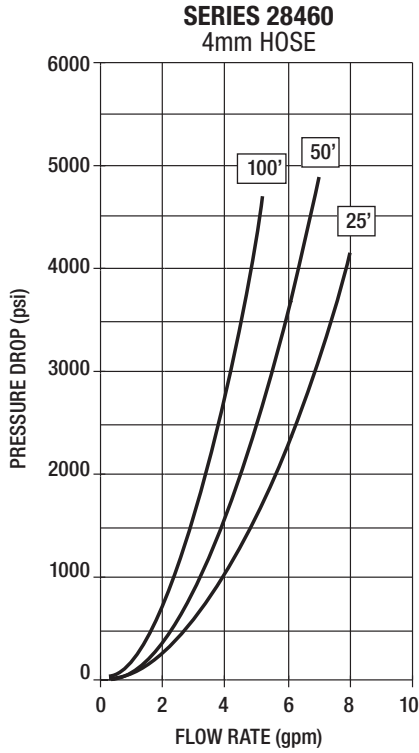
- Designed for fast, simple connection of waterblast hoses and lances.
- Male conical seat protected from damage by the hose swivel nut.
- Unlike high pressure connections, the seating surfaces do not rotate against each other when connections are made, resulting in a more reliable, longer lasting connection.



SIZE	CONNECTION THREAD	TUBING THREAD* LEFT-HAND	RECOMMENDED TORQUE	
			ft-lbs	N-m
9/16" Type M	M9	9/16"-18UNF	30	41
7/8" Type M	M14	7/8"-14UNF	60	81
1 1/8" Type M	M18	1 1/8" -12UNF	90	163

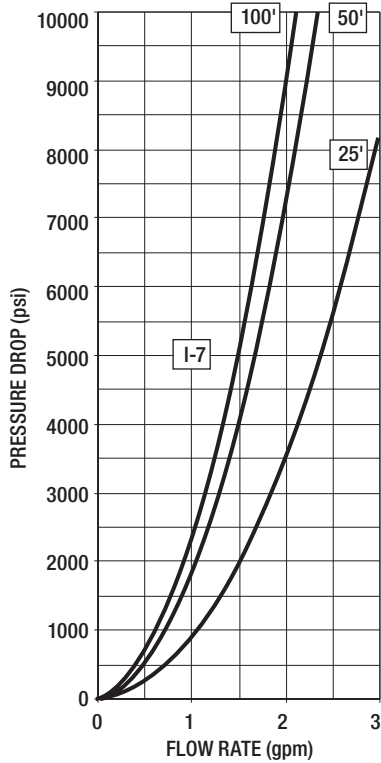


HOSE & FLEX LANCE
PRESSURE DROP DATA

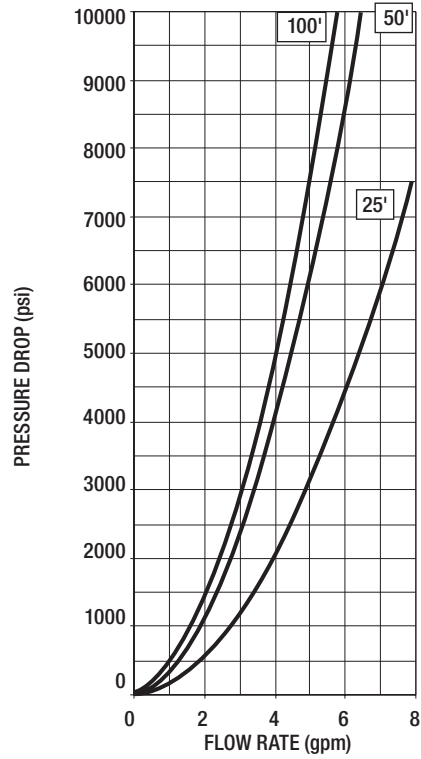


RIGID LANCE
PRESSURE DROP DATA

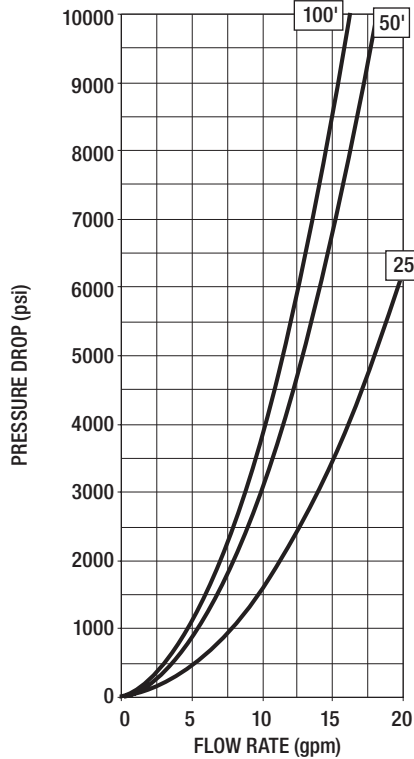
1/4" OD X .083" ID TUBING



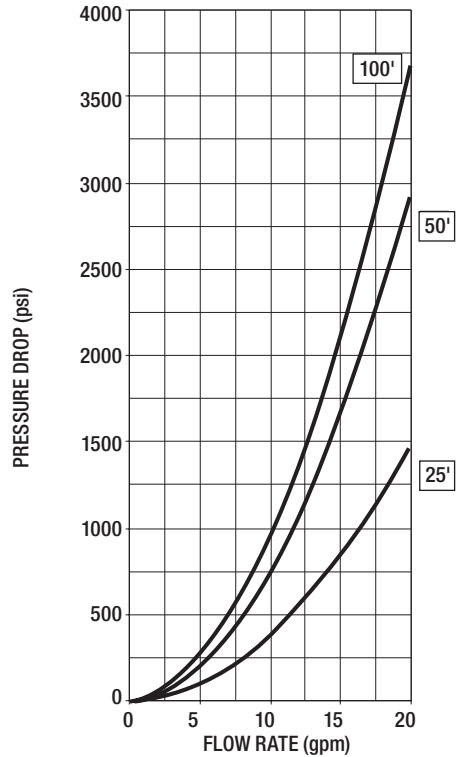
3/8" OD x .125" ID TUBING

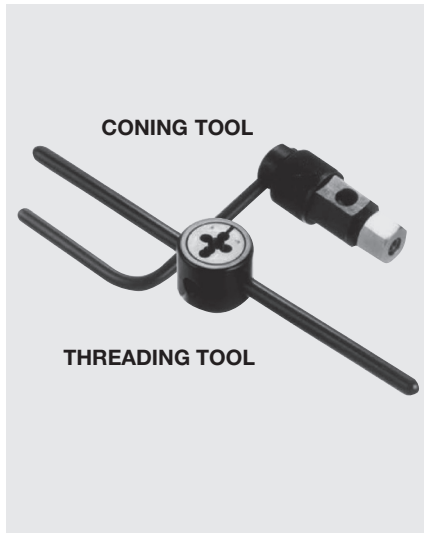


9/16" OD X .188" ID TUBING



9/16" OD X .250" ID TUBING





THREADING AND CONING TOOLS HP CONNECTIONS

- Coning tool assemblies include tool as well as cutter and collet specific to the connection size and type needed.
- Threading tool assemblies include tool (consisting of housing and handle) as well as die and guide bushing specific to connection size needed.

NOTE:

- 3/4" & 3/8" coning tools use the same tool with differing cutters & collets.
- 9/16" coning tools use the same tool with differing cutters.
- All threading tool assemblies include LH die and all use the same handle and housing.

CONING

CONNECTION TYPE	CONING TOOL AY	CONING CUTTER	CONING COLLET
1/4" HP	71079	71085	71088
3/8" HP	71080	71086	71089
9/16" HP	71081	71087	71090

THREAD

CONNECTION TYPE	THREATH TOOL AY	LH DIE	RH DIE	BUSHING
1/4" HP	71091	70192	71095	71097
3/8" HP	28783	71093	71096	71098
9/16" HP	28872	71094	28873	71099