North American 8777 Non-Braided Flexible Pipe Nipples

Bulletin 8777

8777 Flexible Pipe Nipples

for low pressure air and natural gas

8777 flexible pipe nipples prevent damage to regulators, valves, blowers, burners, and piping by absorbing the stresses caused by vibration and thermal expansion. They also simplify and speed installation in cases of misaligned pipes.

8777 non-braided pipe nipples have low working pressures for use on low pressure air, natural gas and flue gases. For high pressure applications, 8773 braided hoses should be used.

The 8777 pipe nipples come in standard lengths with male NPT threaded connections. The standard lengths are sufficient for about 3/16" maximum vibration or about 3/4" static offset of misaligned pipes.

Several common variations are available: standard, high-temperature, cleaned-for-oxygen-service, and corrosion-resistant epoxy coated.

8777 pipe nipples can be special ordered in longer lengths, with different end types, or made from special materials for custom applications.

SPECIFICATIONS

Temperature Ratings

8777 (standard) series are for use from -50 F to 800 F.

8777-H (high temp) series are for use -50 F to 1500 F.

8777-E (corrosion resistant) epoxy coated series are limited for use -20 F to 400 F.

8777-C (cleaned for oxygen) series are for use -50 F to 800 F.

Pressure Ratings

Pressure ratings reduce as fluid and ambient temperatures rise. For temperatures in excess of 70°F, the tabulated maximum working pressures must be decreased in accordance with the "Pressure Reduction Factors" listed in the table below. (See table on page 3 for maximum working pressures).

Pressure Reduction Factors. Apply to pressure rating for elevated temperatures.

Temp.	Material	
F°	Stainless Steel	Steel
70	1.00	1.00
150	0.97	0.99
200	0.94	0.97
250	0.92	0.96
300	0.88	0.93
350	0.86	0.91
400	0.83	0.87
450	0.81	0.86
500	0.78	0.81
600	0.74	0.74
700	0.70	0.66
800	0.66	0.52
900	0.62	0.50
1000	0.60	-
1100	0.58	-
1200	0.55	-
1300	0.50	-
1400	0.44	-
1500	0.40	-

Materials of Construction

The 8777 and 8777-E nipples are made of corrugated 321 stainless steel tubing and have carbon steel male NPT nipple ends.

The 8777-E is coated with a high protection corrosion resistant epoxy.

The 8777-H high temperature and 8777-C cleaned for oxygen series nipples are made of corrugated 321 stainless steel tubing and have 304 SST male NPT nipple ends.

Service

8777 flexible pipe nipples are applicable for the majority of combustion systems and when installed and used properly can last many years. Life expectancy will vary by application and is dependent upon variables such as installation technique, temperature, pressure, movement, vibration, cycle count, external damage, fluid type, and the amount of corrosives in the fluid.

The corrosion resistance of the 321 SST material must be considered when exposure to "dirty" gases is possible. The products of combustion from fluxed aluminum melters contain water vapors, chlorides and fluorides and are known to attack the uncoated 321 SST flexes when used in such applications - for which the 8777E epoxy coated flexes are approporiate. Care should be taken not to compromise the epoxy coating during installation and handling.

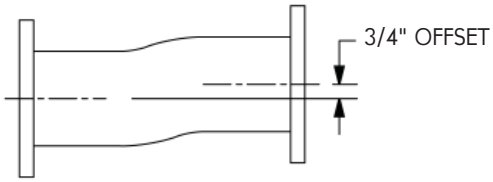
For applications that are highly corrosive with high service temperatures contact North American for potential availability of suitable corrosion resistant materials.

Ratings, Performance, Dimensions
8777 nipples are available in sizes 1/2" NPS through 6" NPS. Epoxy coating is only available on 1-1/2" pipe size and larger. *For pipe sizes larger than 6" see Bulletin 8782A Flanged Expansion Joints.*

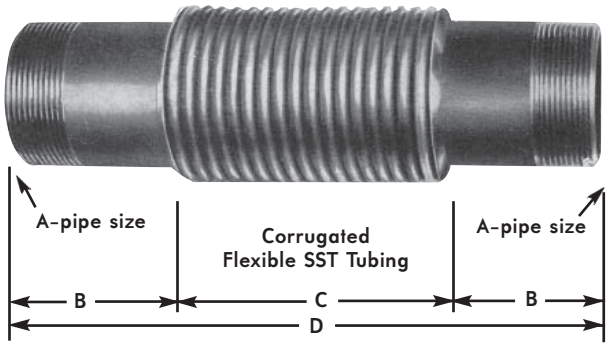
Pressure drop: Pressure drop through a corrugated metal hose is approximately three times that of comparable size standard steel pipe.

Standard lengths offered are the minimum lengths required for up to 3/16" maximum vibration and 3/4" static offset. They are not intended to be stretched or compressed at installation.

Velocity: 8777 unbraided hose are rated for a maximum velocity of 100 ft/sec gas (50 ft/sec liquid). When the hose is installed in a bent condition, these velocity values should be reduced by 50% for a 90° bend, 25% for a 45° bend, and so on, proportional to the angle of bend.



See table below for minimum bend radii, dimensions, and additional specifications.



Dimensions Table

Flexible Pipe Nipple 8777, 8777-H, 8777-E pipe size designation	A (male npt)	B (inches)	C (inches)	D (inches)	Minimum centerline bend radius (constant flexture) (inches)	Minimum centerline bend radius (permanent bend) (inches)	Maximum Working Pressure (PSI)	Weight (lb.)
-01	½	1½	4¼	7¼	10½	2	20	¾
-0	¾	1½	4¼	7¼	10½	2	20	¾
-1	1	2	5	9	12	3	20	1
-2	1¼	2	7	11	12	3½	15	1½
-3	1½	2	7	11	12½	4½	10	2
-4	2	2¼	9	13½	11	5	10	3½
-5	2½	2¼	10	14½	13	5½	6.5	4
-6	3	2¾	11	16½	15	6	4.5	5
-7	4	2¾	14½	20	23	11	2	10
-8	6	3	14½	20½	39	20	3.5	19

INSTALLATION

When used to connect misaligned pipes, the nipple should be approximately bent to the required shape before installation to avoid stress on burners or piping when unions or flanges are tightened. All movement, bend limitations, and minimum bend radii listed in the Performance Section should be respected. 8777 flexible nipples are not intended to be compressed or stretched during installation. If the nipple dœs not fit, adjust piping. Only wrench on the proper nipple area. Do not create sharp bends. Bend the corrugated section as close to the center as possible. Do not apply torsion.

STANDARD ORDERING EXAMPLES

(Refer to Dimensions for pipe size designation)

8777-0	3/4" flexible nipple
8777-4-H	2" high temperature flexible nipple
8777-6-E*	3" epoxy coated flexible nipple
8777-1-C	1" flexible nipple cleaned for oxygen service

**The epoxy coating process limits epoxy coating to 1-1/2" pipe size and larger*

Contact North American for special flexible nipple options. Special options include:

Flanged Ends: *ANSI class 150 drilling flat faced fabricated flanges.* Custom Over All Lengths (O.A.L.): When ordering state *"O.A.L." in inches (in 1.0" increments).*

Note: Special options may not be available in all sizes. Other end connection types, materials, and custom options may be available.

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CONTACT US:
Fives North American Combustion, Inc.
4455 East 71st Street - Cleveland, OH 44105 - USA
Tel: +1 216 271 6000 - Fax: +1 216 373 4237
Email: fna.sales@fivesgroup.com

www.fivesgroup.com