

ANSUL® JET-X High-Expansion Foam Generators

Features

- UL Listed and CE Marked
- FM Approved models available
- LNG specific models available
- Water-powered so no electrical power is required
- Foam capacities of up to 29,900 cfm (847 cmm)

Application

ANSUL® JET-X High-Expansion Foam Generators are intended for use in total flooding or local application high-expansion foam systems. Total flooding high-expansion foam systems are commonly used to protect the following hazards:

- Flammable liquid storage areas
- Hazardous waste storage areas
- Ship holds
- Engine rooms

Local application foam systems are commonly used to protect aircraft hangars. High-expansion foam systems are also frequently used to protect LNG facilities. These systems are typically used to control the vaporization rate of LNG spills or reduce the intensity of LNG fires by controlling the rate of vapor release.

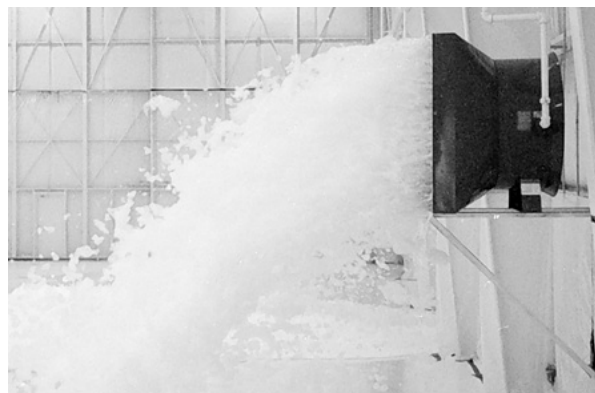
Note: High-expansion foam generators used in LNG applications typically require expansion ratios of approximately 500:1.

Description

ANSUL JET-X High-Expansion Foam Generators produce large volumes of foam by coating a stainless steel perforated metal screen with high-expansion foam solution and expanding it with airflow generated by a water-powered fan. When used with ANSUL JET-X 2% or JET-X 2.75% High-Expansion Foam Concentrates, these generators are capable of producing finished foam with expansion ratios from 450:1 up to 987:1, depending on the model and operating pressure.

Protective Coatings

All generator models are painted using a Corrosion Resistant Epoxy (Epoxy CR) paint system on the housings, supports, and guard screens. Fans are painted using a powder paint system to ensure adherence and paint durability. Both paint systems have been subjected to and passed a minimum of 3,000 hours in salt spray corrosion testing and are suitable for marine and offshore use. The stainless steel foam screens are not painted to avoid inhibiting foam production.



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Approvals and Certifications

UL Listed

ANSUL High-Expansion Foam Generators are UL Listed for use with either the ANSUL JET-X 2% High-Expansion Foam Concentrate or ANSUL JET-X 2.75% High-Expansion Foam Concentrate.

FM Approved

The JET-X 5A, JET-X 15A, and JET-X 27 models are FM Approved for use with ANSUL JET-X 2% High-Expansion Foam Concentrate.

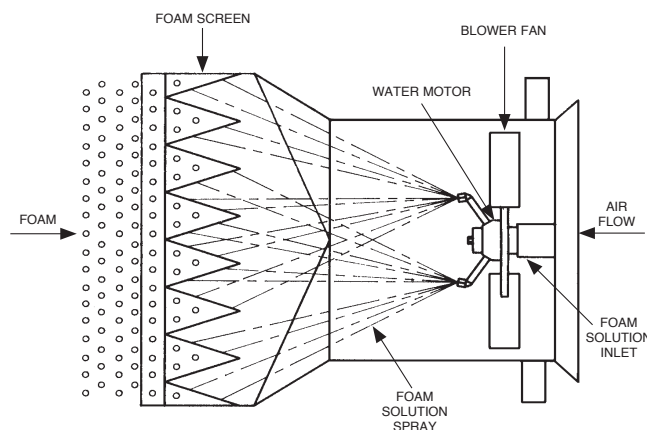
CE Marked

All models are CE Marked in conformance with the Machinery Directive 2006/42/EC.

Operation and Maintenance

Refer to the ANSUL JET-X High-Expansion Foam Generator Operation and Maintenance Manual for detailed procedures on installation, operation, and maintenance. A printed copy of this manual is included with every generator.

Foam Generator Components



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Materials of Construction

ANSUL JET-X High-Expansion Foam Generators are manufactured from a combination of carbon steel, stainless steel, and brass components. For materials of construction of the major components, see the following table:

Component	Material		
Model	Standard Models: JET-X 2A, JET-X 5A, JET-X 15A, JET-X 20	Standard Models: JET-X 27	LNG Models: JET-X 2A LNG, JET-X 5A LNG, JET-X 15A LNG, JET-X 20 LNG
Housing	Galvanized Steel	Galvanized Steel	316L SS, Pickled and Passivated
Foam Screen	201, 302, or 304 SS	201, 302, or 304 SS	316 or 316L SS
Fan	Carbon Steel*	Carbon Steel*	Carbon Steel*
Water Motor	Brass	Cast Iron/Bronze	Brass
Nozzle(s)	Brass	Brass	Brass

*Carbon Steel fans are powder painted with a durable, marine-grade paint system for corrosion resistance.

Performance Data

UL Listed Performance (JET-X 2%)										
Generator Model		Part Number	UL Listed Orientation	Inlet Pressure		Flow Rate		Foam Output		Expansion Ratio
				psi	bar	gpm	Lpm	cfm	cmm	
JET-X 2A	Standard	420001	Horizontal or Vertical	50	3.4	35	132	2188	62	468
	LNG	471066		75	5.2	42	159	2727	77	486
				100	6.9	50	189	3010	85	450
JET-X 5A	Standard	420003	Horizontal or Vertical	50	3.4	61	231	6658	189	816
	LNG	436936		75	5.2	75	284	9383	266	939
				100	6.9	87	329	10655	302	916
JET-X 15A	Standard	420005	Horizontal or Vertical	40	2.8	108	409	12121	343	840
				50	3.4	119	450	14491	410	911
				75	5.2	145	549	19141	542	987
				100	6.9	169	640	21796	617	965
JET-X 15A	LNG	472526	Horizontal or Vertical	50	3.4	180	681	12949	367	538
				75	5.2	220	833	17769	503	604
				100	6.9	260	984	19503	552	561
JET-X 20	Standard	421590	Horizontal or Vertical	40	2.8	212	803	13530	383	477
				50	3.4	238	901	14746	418	463
	LNG	471871		75	5.2	294	1113	19007	538	484
				100	6.9	338	1279	22598	640	500
JET-X 27	Standard	436899	Horizontal or Vertical	40	2.8	181	685	20295	575	839
				50	3.4	203	768	23965	679	883
				75	5.2	243	920	27303	773	840
				100	6.9	276	1045	28802	816	781

Notes: 1. JET-X 2% concentrate should not be used for salt water applications.
2. JET-X 2% and JET-X 2.75% concentrates should not be mixed for normal system operation.

Performance Data (Continued)

FM Approved Performance (JET-X 2%)										
Generator Model		Part Number	FM Approved Orientation	Inlet Pressure		Flow Rate		Foam Output		Expansion Ratio
				psi	bar	gpm	Lpm	cfm	cmm	
JET-X 5A	Standard	420003	Horizontal	40	2.8	55	208	4020	114	547
				50	3.4	62	235	5184	147	625
	LNG	436936		75	5.2	76	288	7632	216	751
				100	6.9	88	333	7794	221	662
JET-X 15A	Standard	420005	Horizontal	40	2.8	107	405	9540	270	667
				50	3.4	119	450	12150	344	764
				75	5.2	149	562	17100	484	861
				100	6.9	174	659	19296	546	829
JET-X 27	Standard	436899	Horizontal or Vertical	40	2.8	184	697	19548	554	795
				50	3.4	202	765	21600	612	800
				75	5.2	244	924	27036	766	829
				100	6.9	280	1060	29916	847	799

Notes: 1. JET-X 2% concentrate should not be used for salt water applications.

2. JET-X 2% and JET-X 2.75% concentrates should not be mixed for normal system operation.

UL Listed Performance (JET-X 2.75%)										
Generator Model		Part Number	UL Listed Orientation	Inlet Pressure		Flow Rate		Foam Output		Expansion Ratio
				psi	bar	gpm	Lpm	cfm	cmm	
JET-X 2A	Standard	420001	Horizontal or Vertical	50	3.4	35	132	2122	60	454
	LNG	471066		75	5.2	42	159	2785	79	496
				100	6.9	50	189	3163	90	473
JET-X 5A	Standard	420003	Horizontal or Vertical	50	3.4	61	231	5575	158	684
	LNG	436936		75	5.2	75	284	6628	188	661
				100	6.9	87	329	7182	203	617
JET-X 15A	Standard	420005	Horizontal or Vertical	50	3.4	119	450	11269	319	708
				75	5.2	145	549	15479	438	799
				100	6.9	169	640	18447	522	816
JET-X 15A	LNG	472526	Horizontal or Vertical	50	3.4	180	681	11735	332	488
				75	5.2	220	833	16040	454	545
				100	6.9	260	984	19601	555	564
JET-X 20	Standard	421590	Horizontal or Vertical	40	2.8	212	803	13443	381	474
				50	3.4	238	901	16034	454	504
	LNG	471871		75	5.2	294	1113	21145	599	538
				100	6.9	338	1279	24301	688	538

Note: JET-X 2% and JET-X 2.75 % concentrates should not be mixed for normal system operation.

System Calculation for Total Flooding

Building

- Light steel construction
- Non-sprinklered

Hazard

- Low density combustibles

Fill Time

As stated in NFPA 11, the fill time for a non-sprinklered building of light steel construction and a hazard of low density combustibles is a maximum of 3 minutes (T).

Building Area

100 ft (30.5 m) × 30 ft (9.1 m) = 3,000 ft² (278 m²)

Building Height

10 ft (3 m) = Volume (V) of 30,000 ft³ (850 m³)

Calculation Without Sprinklers

$$\begin{aligned} R &= (V/T) \times C_N \times C_L \\ R &= \text{Rate of Discharge in cfm} \\ V &= \text{Submergence Volume in ft}^3 \\ T &= \text{Submergence Time in minutes} \\ C_N &= \text{Compensation for normal shrinkage} \\ &\quad (1.15, \text{ constant}) \\ C_L &= \text{Compensation for leakage} \\ &\quad 1.0, \text{ no leakage} \\ &\quad 1.2, \text{ moderate leakage} \\ R &= (30,000 \text{ ft}^3 / 3 \text{ min}) \times 1.15 \times 1 = \\ &\quad 10,000 \times 1.15 \times 1 \\ &= 11,500 \text{ cfm required} \end{aligned}$$

Metric Calculation

$$\begin{aligned} R &= (850 \text{ m}^3 / 3 \text{ min}) \times 1.15 \times 1 \\ &= 283.3 \times 1.15 \times 1 \\ &= 326 \text{ cmm required} \end{aligned}$$

326 cmm / 189 cmm per Metric JET-X 5A @ 3.4 bar
= 1.73 generators

System Calculation for Local Application

Group II aircraft hangar using outside air to generators.

Hangar to be protected

- Group II hangar measuring 33,000 ft² (3066 m²)
- Sprinkler system (wet pipe) for 0.17 gpm/ft² over 5000 ft² (6.9 Lpm/m² over 465 m²)

Fill time

As stated in NFPA 409, fill depth of 3 ft (0.9 m) within one minute (T) with sufficient foam concentrate for 12 minutes total.

Building Area

150 ft × 220 ft = 33,000 ft² (45.7 m × 67.1 m = 3066 m²)

Foam Volume (V)

33,000 ft² × 3 ft = 99,000 ft³ (2803 m³)

Calculation With Sprinklers

$$\begin{aligned} R &= ([V/T] + R_s) \times C_N \times C_A^* \\ R_s &= \text{Rate of foam breakdown by sprinklers} \\ &\quad 10 \text{ cfm/gpm} \times \text{sprinkler system discharge in} \\ &\quad \text{gpm (0.075 cmm/Lpm} \times \text{sprinkler discharge} \\ &\quad \text{in Lpm)} \\ C_N &= \text{Compensation for normal shrinkage} \\ &\quad (1.15 \text{ constant}) \\ C_A^* &= \text{Compensation for inside air} \\ &\quad (1.20 \text{ constant}) \\ C_L &= \text{Leakage factor (not required for local} \\ &\quad \text{application systems)} \\ R &= ([99,000 \text{ ft}^3 / 1 \text{ min}] + 8500 \text{ cfm}) \times 1.15 \\ &= 107,500 \times 1.15 \\ &= 123,625 \text{ cfm minimum required} \end{aligned}$$

123,625 cfm / 27,303 cfm per JET-X 27 @ 75 psi
= 4.53 generators

Metric Calculation

$$\begin{aligned} R &= ([2803 \text{ m}^3 / 1 \text{ min}] + 241 \text{ cmm}) \times 1.15 \\ &= 3044 \times 1.15 \\ &= 3501 \text{ cmm minimum required} \end{aligned}$$

3501 cmm / 773 cmm per JET-X 27 @ 5.2 bar
= 4.53 generators

Therefore, use five JET-X 27 generators at 27,303 cfm (773 cmm) each.

*Inside air may be used with AHJ approval. When using inside air, Tyco Fire Protection Products recommends using the 20% compensation factor (C_A) noted in the calculation for R. Contact Tyco Fire Protection Products Technical Services with questions on use of inside air for high-expansion foam systems.

Ordering Information

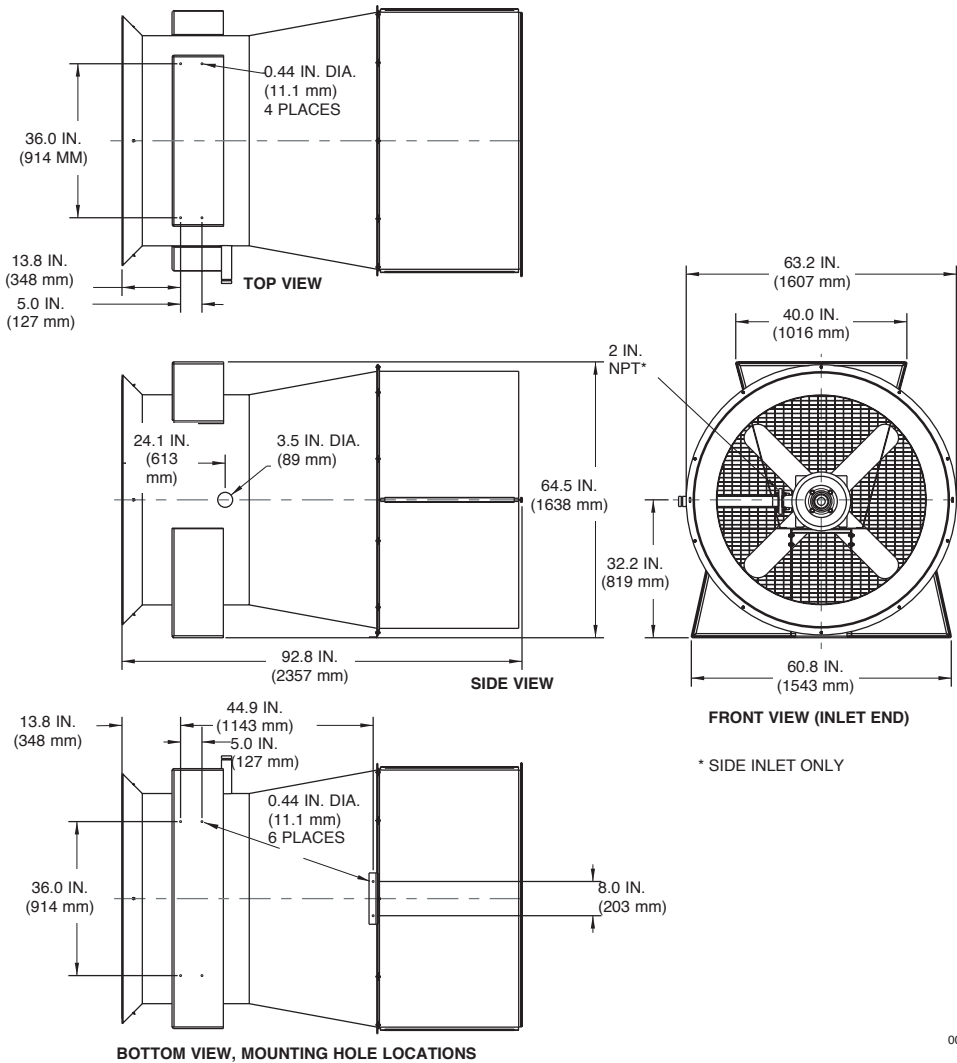
Standard Models (Carbon Steel Construction)

Part Number	Generator Model	Weight lb (kg)	2% Approvals	2.75% Approvals
420001	JET-X 2A	73 (33)	UL, CE	UL, CE
420003	JET-X 5A	255 (116)	UL, FM, CE	UL, CE
420005	JET-X 15A	397 (180)	UL, FM, CE	UL, CE
421590	JET-X 20	397 (180)	UL, CE	UL, CE
436899	JET-X 27	720 (327)	UL, FM, CE	CE

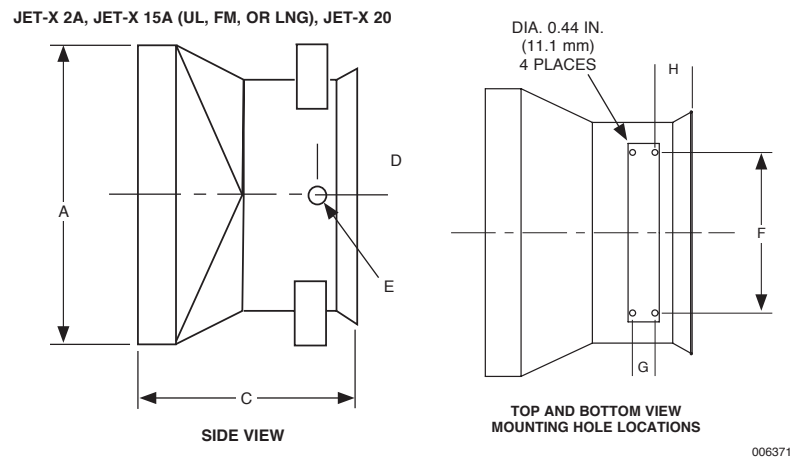
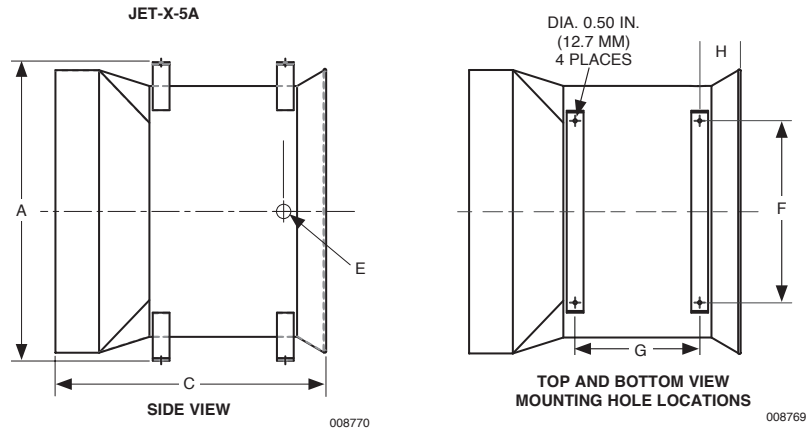
LNG Models (Stainless Steel Construction)

Part Number	Generator Model	Weight lb (kg)	2% Approvals	2.75% Approvals
471066	JET-X 2A LNG	73 (33)	UL, CE	UL, CE
436936	JET-X 5A LNG	255 (116)	UL, FM, CE	UL, CE
472526	JET-X 15A LNG	398 (180)	UL, CE	UL, CE
471871	JET-X 20 LNG	398 (180)	UL, CE	UL, CE

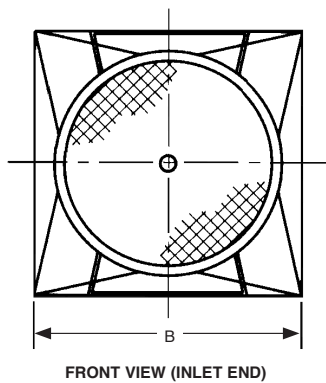
JET-X 27 Dimensions



General Dimensions



ALL GENERATORS EXCEPT JET-X 27



Model	A	B	C	D	E	F	G	H
	in. (mm)	in. (mm)	in. (mm)	in. (mm)	NPT – in.	in. (mm)	in. (mm)	in. (mm)
JET-X 2A	25.0 (635)	25.0 (635)	30.1 (764)	3.9 (99)	1.0	16.0 (406)	– –	3.3 (83)
JET-X 5A	44.5 (1130)	42.1 (1069)	40.3 (1024)	6.4 (154)	1.5	27.0 (686)	18.5 (470)	6.1 (156)
JET-X 15A (UL)	64.0 (1629)	64.0 (1629)	46.0 (1178)	8.5 (219)	2.0	36.0 (914)	5.0 (127)	8.0 (213)
JET-X 15A (FM)	64.0 (1629)	64.0 (1629)	46.0 (1178)	8.5 (219)	2.0	36.0 (914)	5.0 (127)	8.0 (213)
JET-X 15A (LNG)	64.0 (1629)	64.0 (1629)	46.0 (1178)	8.5 (219)	2.0	36.0 (914)	5.0 (127)	8.0 (213)
JET-X 20	64.0 (1629)	64.0 (1629)	46.0 (1178)	8.5 (219)	2.0	36.0 (914)	5.0 (127)	8.0 (213)

Note: The converted values in this document are provided for dimensional reference only and do not reflect an actual measurement.

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