

NOVA NFT250 SERIES VARIABLE ORIFICE STEAM TRAPS

Pressures To 250 PSIG (17.2 barg)
Temperatures to 450°F (232°C)

All Stainless Steel Internal Components — Hardened valves and seats. Extra long life and dependable service. Resists water hammer. Protects against erosion and corrosion.

Erosion Proof — Discharge passage is protected with a stainless steel liner.

Integral Strainer — Stainless Steel screen prevents dirt problems. Blow-down connection provided.

Thermostatic Air Vent — Full balanced pressure element for immediate and complete air venting.

Variable Orifice — Condensate is discharged continuously through the seat ring which is modulated by the float. This provides a smooth, even flow without high velocity or steam entrainment.

SLR Orifice — Optional continuous bleed prevents flash steam lockup when it is impossible to install trap at low point in system.

Guarantee — Traps are guaranteed against defects in materials or workmanship for 3 years.

APPLICATIONS

- Steam Lines
- Process Equipment
- Steam Cookers
- Steam Heated Vats
- Pressing Machinery
- Unit Heaters
- Oil Preheaters
- Converters
- Coils
- Rotating Drum

OPTIONS *See Page 9*

- SLR - SLR Orifice
- B - Blowdown Valve (contact factory)
- Orifice Continuous Bleed Air Vent
- 250# - 250# Flanged Connection* (Flat Faced)

*Available on NFT 253 only.

Canadian Registration # OE0591.9C

MODELS

- **NFT250**—Low capacity
- **NFT251**—Medium capacity
- **NFT252**—High capacity
- **NFT253**—Super high capacity

Installation Tip: Always install STV Test & Block Valve as part of trap station
SEE PAGE 118

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
SEE PAGE 102

OPERATION

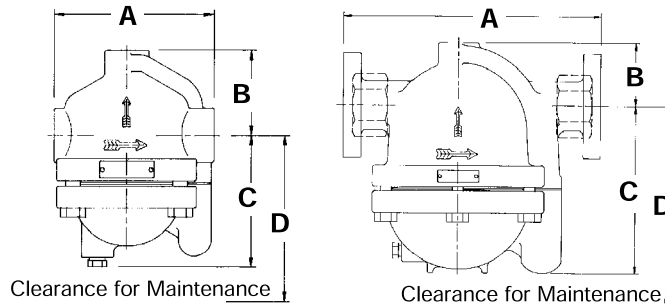
On startup, the thermostatic air vent (caged stainless welded bellows) is open, allowing air to flow freely through the vent valve orifice. When condensate flows into the trap, the float rises, allowing condensate to be discharged. Once air and non-condensibles have been evacuated, hot condensate will cause the thermostatic vent to close. Condensate will continue to be discharged as long as condensation occurs.

During normal operation, an increase in the load causes the liquid level in the trap to rise. The float then rises and rolls off the seat ring, allowing more condensate to flow out. The float sinks as the condensate load decreases, moving nearer to the seat ring, decreasing the effective size of the orifice and allowing less condensate to discharge. This provides smooth, continuous operation that reacts instantly to load variation while maintaining a water seal over the seat ring to prevent live steam loss.

NOVA NFT250 SERIES VARIABLE ORIFICE STEAM TRAPS

SPECIFICATION

Steam trap shall be of float and thermostatic design. Float shall be free of levers, linkages, or other mechanical connections. Float shall be weighted to maintain orientation and shall act as the valve being free to modulate condensate through the seat ring. Air vent shall be of balanced pressure design with stainless steel welded encapsulated bellows capable of discharging air and noncondensable gases continuously within 15°F of saturated temperature. Trap shall contain integral strainer and stainless steel exhaust port sleeve. Trap shall be cast iron bodied suitable for pressures to 250 psi and available in 1/2" through 2" NPT or flanged.



Connections:
1/2"-2" NPT or 1/2"-2" Flanged

MATERIALS OF CONSTRUCTION

Body and CoverCast Iron ASTM A126B
All Internal PartsStainless Steel
Air VentBalanced Pressure, Stainless Steel
Cover GasketGraphite Fiber

MAXIMUM OPERATING CONDITIONS

PMO: Max. Operating Pressure

ORIFICE	PMO	
20	20 psig	(1.4 barg)
50	50 psig	(3.5 barg)
100	100 psig	(6.9 barg)
150	150 psig	(10.3 barg)
250	250 psig	(17.2 barg)

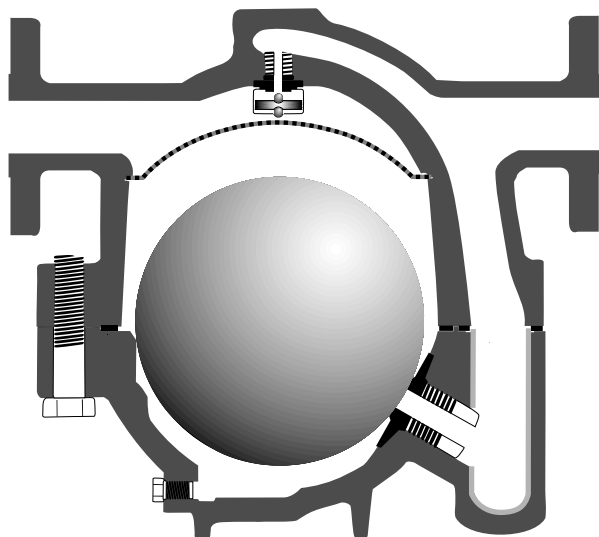
PMA: Max. Allowable Pressure:
250 psig (17.2 barg)

TMA: Max. Allowable Temperature:
450°F (232°C)

		Dimensions						Weight Lbs. (kg)
Model	Size	Connection	Inches (mm)					
			A	B	C	D		
NFT250	1/2 & 3/4	NPT	4 1/4 (108)	2 3/4 (69)	3 5/8 (92)	5 1/2 (140)	6 (2.7)	
NFT251	3/4 & 1	NPT	5 1/2 (140)	2 15/16 (74)	4 9/16 (116)	6 3/4 (171)	13 (5.9)	
NFT252'	1 & 1 1/2	NPT	11 (279)	2 15/16 (74)	7 3/4 (197)	10 (254)	41 (18.6)	
NFT253	1 1/2 & 2	NPT	13 3/4 (349)	2 15/16 (74)	11 5/8 (295)	15 3/8 (391)	120 (54.5)	
		250# Flg.	15 3/4 (400)	2 15/16 (74)	11 5/8 (295)	15 3/8 (391)	130 (59.1)	

Maximum Capacity-lbs/hr (10°F Below Saturation)																	
Trap	Orifice Size	Differential - PSIG (barg)															
		Max. ΔP	1 (.07)	5 (.34)	10 (.69)	15 (1.03)	20 (1.38)	30 (2.07)	50 (3.45)	75 (5.17)	100 (6.90)	125 (8.62)	150 (10.3)	175 (12.1)	200 (13.8)	225 (15.5)	250 (17.2)
NFT250	0.193	20	264	810	1050	1100	1200										
	0.141	50	190	430	610	750	870	1070	1400								
	0.102	100	88	160	250	300	350	425	530	670	710						
	0.091	150	70	140	219	260	295	345	410	470	520	555	590				
	0.067	250	37	90	140	170	200	240	300	340	390	405	415	440	460	480	500
NFT251	0.277	20	590	1600	2100	2400	2450										
	0.209	50	340	760	1080	1330	1540	1900	2460								
	0.157	100	200	500	650	740	830	950	1100	1300	1400						
	0.141	150	170	385	527	627	705	825	990	1130	1240	1330	1415				
	0.120	250	110	255	360	425	500	575	700	800	900	940	1000	1050	1100	1150	1200
NFT252	0.593	20	2720	6280	8600	10500	11700										
	0.469	50	1750	3920	5560	6830	7900	9700	12600								
	0.339	100	930	2170	3130	3840	4460	4990	6020	7030	7960						
	0.316	150	850	1935	2650	3150	3540	4140	4970	5685	6230	6690	7100				
	0.261	250	670	1400	1900	2400	2540	3000	3500	4100	4200	4900	5100	5300	5500	5750	6000
NFT253	1.102	20	8000	15000	18000	19900	22800										
	0.875	50	5460	12600	15600	16900	18400	21000	25400								
	0.593	100	2800	6350	8700	10900	12800	13700	16600	18700	21000						
	0.578	150	2690	6120	8385	9970	11200	13100	15700	17980	19700	21150	22450				
	0.484	250	1600	3770	5300	6470	7560	8610	10400	12100	13600	14600	15500	16300	17100	17800	18400

For Kg/Hr Multiply by .454



NOVA NFT650 SERIES VARIABLE ORIFICE STEAM TRAPS

Pressures To 650 PSIG (44.8 barg)
Temperatures to 750°F (400°C)

All Stainless Steel Internal Components — Hardened valves and seats. Extra long life and dependable service. Resists water hammer. Protects against erosion and corrosion.

Erosion Proof — Discharge passage is protected with a stainless steel liner.

Integral Strainer — Stainless Steel screen prevents dirt problems. Blow-down connection provided.

Thermostatic Air Vent — Provided with balanced pressure element for immediate and complete air venting.

Variable Orifice — Condensate is discharged continuously through the seat ring which is modulated by the float. This provides a smooth, even flow without high velocity or steam entrainment.

SLR Orifice — Optional continuous bleed prevents flash steam lockup when it is impossible to install trap at low point in system.

Guarantee — Traps are guaranteed against defects in materials or workmanship for 3 years.

APPLICATIONS

- Steam Lines
- Process Equipment
- Steam Cookers
- Steam Heated Vats
- Pressing Machinery
- Unit Heaters
- Oil Preheaters
- Converters
- Coils
- Rotating Drum

OPTIONS *See page 9*

- SLR - SLR Orifice
- B - Blowdown Valve (contact factory)
- Continuous Bleed Air Vent
- 300# or 600# Flanged Connection* (Raised Face)

*Available on NFT652 and NFT653 only.

Canadian Registration # OE0591.9C

MODELS

- **NFT651**—Low capacity
- **NFT652**—Medium capacity
- **NFT653**—High capacity

Installation Tip: Always install STV Test & Block Valve as part of trap station
SEE PAGE 118

Installation Tip: Add Uniflex Pipe Coupling for ease of maintenance
SEE PAGE 102

OPERATION

On startup, the thermostatic air vent (caged stainless welded bellows) is open, allowing air to flow freely through the vent valve orifice. When condensate flows into the trap, the float rises, allowing condensate to be discharged. Once air and non-condensibles have been evacuated, hot condensate will cause the thermostatic vent to close. Condensate will continue to be discharged as long as condensation occurs.

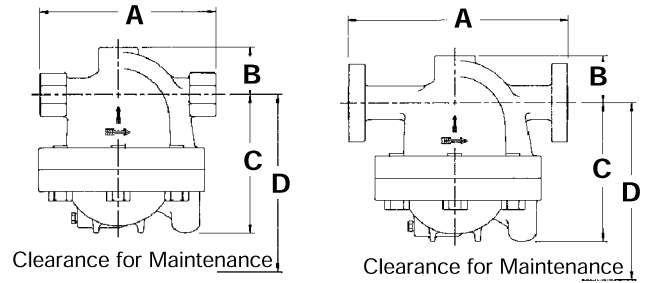
During normal operation, an increase in the load causes the liquid level in the trap to rise. The float then rises and rolls off the seat ring, allowing more condensate to flow out. The float sinks as the condensate load decreases, moving nearer to the seat ring, decreasing the effective size of the orifice and allowing less condensate to discharge. This provides smooth, continuous operation that reacts instantly to load variation while maintaining a water seal over the seat ring to prevent live steam loss.

NOVA NFT650 SERIES

VARIABLE ORIFICE STEAM TRAPS

SPECIFICATION

Steam trap shall be of float and thermostatic design. Float shall be free of levers, linkages, or other mechanical connections. Float shall be weighted to maintain orientation and shall act as the valve being free to modulate condensate through the seat ring. Air vent shall be of balanced pressure design with stainless steel welded encapsulated bellows capable of discharging air and noncondensable gases continuously within 15°F of saturated temperature. Trap shall contain integral strainer and stainless steel exhaust port sleeve. Trap shall be cast steel bodied suitable for pressures to 650 psi and available in 1/2" through 2" NPT, Socket Weld, or flanged.



Connections:
1/2-2" NPT or 1 1/2-2" Flanged

MATERIALS OF CONSTRUCTION

- Body & CoverASTM A216 Grade WCB
- Cover GasketSpiral Wound 304 Stainless w/graphite filler
- All InternalStainless Steel
- Air Vent . . .Balanced Pressure, Stainless Steel

MAXIMUM OPERATING CONDITIONS

PMO: Max. Operating Pressure

ORIFICE	PMO
20	20 psig (1.4 barg)
50	50 psig (3.5 barg)
100	100 psig (6.9 barg)
175	175 psig (12.1 barg)
300	300 psig (20.7 barg)
400	400 psig (27.6 barg)
600	600 psig (41.4 barg)

PMA: Max. Allowable Pressure:
650 psig (44.8 barg)

TMA: Max. Allowable Temperature:
750°F (400°C)

Dimensions		Inches (mm)						Weight Lbs. (kg)
Model	Size	A			B	C	D	
		NPT	300#	600#				
NFT651	1/2, 3/4 & 1	5 1/2	—	—	3 1/16	5 7/16	7 1/4	21
		(140)			(78)	(138)	(184)	(9.5)
NFT652	1	11	13 3/4	13 3/4	2 15/16	8 3/4	11 3/8	84
		(279)	(349)	(349)	(75)	(222)	(290)	(38.2)
NFT652	1 1/2 & 2	11	13 3/4	14 9/16	2 15/16	8 3/4	11 3/8	87
		(279)	(349)	(370)	(75)	(222)	(290)	(39.5)
NFT653	1 1/2	13 3/4	16 3/4	17 3/8	3 5/16	11 7/8	16	192
		(349)	(426)	(411)	(84)	(392)	(406)	(87.3)
NFT653	2	13 3/4	16 11/16	17 7/16	3 5/16	11 7/8	16	195
		(349)	(424)	(443)	(84)	(302)	(406)	(88.6)

Maximum Capacity - lbs/hr (10 degrees Below Saturation)

Trap	Orifice Size	MAX ΔP	Differential - PSIG (barg)															
			1	5	10	20	50	75	100	150	175	200	250	300	400	500	600	
			(.07)	(.34)	(.69)	(1.38)	(3.45)	(5.17)	(6.90)	(10.3)	(12.1)	(13.8)	(17.2)	(20.7)	(27.6)	(34.5)	(41.4)	
NFT651	0.277	20	590	1600	2100	2450												
	0.209	50	340	760	1080	1540	2460											
	0.157	100	200	500	650	830	1100	1300	1400									
	0.141	150	170	385	527	705	990	1130	1240	1415								
	0.130	175	180	350	500	675	900	1000	1100	1300	1400							
	0.120	250	110	255	360	500	700	800	900	1000	1050	1100	1200					
	0.106	300	105	240	330	435	575	675	750	875	955	1020	1140	1255				
	0.096	400	100	220	300	390	510	585	640	740	795	835	920	1000	1140			
	0.081	600	75	145	180	225	300	340	375	435	465	490	540	585	665	740	800	
NFT652	0.593	20	2720	6280	8600	11700												
	0.469	50	1750	3920	5560	7900	12600											
	0.339	100	930	2170	3130	4460	6020	7030	7960									
	0.316	150	850	1935	2650	3540	4970	5685	6230	7100								
	0.297	175	800	1700	2300	3200	4400	5000	5500	6400	6900							
	0.261	250	670	1400	1900	2540	3500	4100	4200	5100	5300	5500	6000					
	0.238	300	645	1240	1565	1955	2575	2940	3220	3740	4000	4220	4640	5060				
	0.213	400	515	995	1250	1565	2060	2355	2575	2995	3200	3380	3720	4050	4600			
	0.180	600	370	710	895	1120	1470	1680	1840	2140	2290	2410	2655	2890	3300	3655	3955	
NFT653	1.102	20	8000	15000	18000	22800												
	0.875	50	5460	12600	15600	18400	25400											
	0.593	100	2800	6350	8700	12800	16600	18700	21000									
	0.578	150	2690	6120	8385	11200	15700	17980	19700	22450								
	0.547	175	2400	5500	7600	10300	14400	16500	18200	20750	21900							
	0.484	250	1600	3770	5300	7560	10400	12100	13600	15500	16300	17100	18400					
	0.453	300	1500	3500	5200	7075	9325	10655	11655	13545	14485	15275	16815	18315				
	0.404	400	1400	2800	4200	5630	7420	8480	9270	10770	11520	12150	13380	14570	16555			
	0.339	600	800	1800	2800	3900	5220	5970	6530	7585	8110	8555	9420	10260	11655	12960	13990	

For Kg/Hr Multiply by .454