

AIR TRAPS/ LIQUID DRAINERS

Nicholson's Air Traps and Liquid Drainer Line continues our tradition of offering high value with traditional traps while simultaneously pushing the performance envelope with leading edge technology. Nicholson innovations set the standard.

DRAIN AIR AND MINI DRAIN

Condensate Removal from Air Systems Pressures To 600 PSIG (41.4 barg) Temperatures to 220°F (104°C)

Automatic and Positive Drain - Effectively removes condensate from compressed air systems with minimum air loss and rapid shutoff on no load conditions.

Reliable - Only one moving part.

Low Maintenance Cost - No adjustments necessary. Replaceable cartridge for in line repair and/or cleaning.

Long Service Life - Stainless Steel internals.

Freezeproof - Will not freeze when installed in vertical position with muffler removed.

Quiet Operation - Meets OSHA noise standards.

Simplifies Startup - No need to drain air lines through manual valves or petcocks. Top performance is reached without waiting for system to purge.

Sized for Most Applications - Drain-Air available in 3/8" and 1/2"; Mini-Drain available in 1/8" and 3/8".

Applications

Drain-Air

- Air Header Drainage (pocket risers, end of line)
- Air Station or Location where petcock is used for blowdown, collecting wells, separators.

Mini-Drain

- Pneumatic Tools
- Air Filters
- Pneumatic Valves

MODELS

- **Drain Air**—Forged body w/SS internal mechanism & nylon muffler
- **Mini Drain**—All SS integral body w/nylon muffler



Canadian Registration # OE0591.9C

PNEUMATIC MUFFLERS ARE AVAILABLE SEPARATELY IN PIPING SPECIALTIES SECTION

Operation

A simple disc is used with no linkage or close fitting parts to eliminate problems found in ordinary small float or piston-operated devices used in drip legs on air lines. Disc will lift off seat on a periodic time cycle, allowing moisture to be discharged and atomized through the muffler. Positive action of the disc assures reliable condensate removal with minimum loss of air and rapid shutoff

on no load condition. Intermittent discharges atomize condensate to avoid messy accumulations produced by other devices. Highly effective, specially designed muffler eliminates noise and diffuses moisture so that discharge drain piping is usually unnecessary. Freeze proof when mounted in vertical position with outlet facing down and muffler removed.

DRAIN AIR AND MINI DRAIN

Typical Specification

The liquid drain trap shall be of thermodynamic design with screwed NPT connections. Internal mechanism shall be stainless steel with hardened working surfaces. A pneumatic muffler shall be employed to reduce exhaust sound pressure level.

Maximum operating conditions

PMO: Max. Operating Pressure	600 psig	(41.4 barg)
TMO: Max. Operating Temperature	220°F	104°C)
PMA: Max. Allowable Pressure	600 psig	(41.4 barg)
TMA: Max. Allowable Temperature	800°F	(426°C)

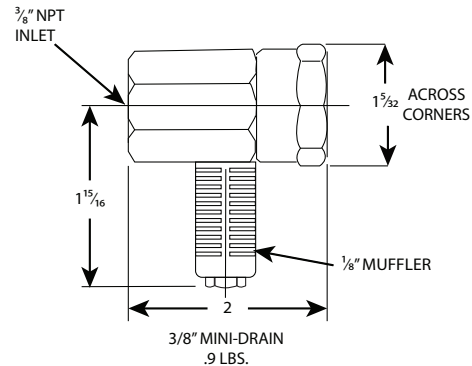
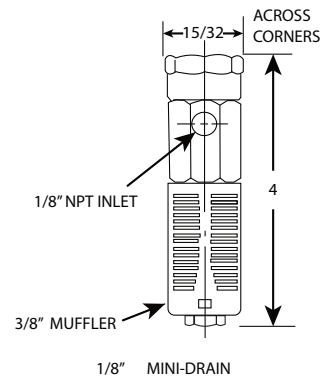
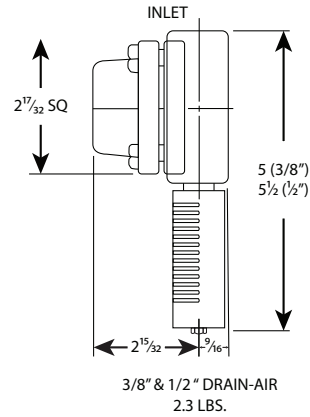
Materials of Construction

DRAIN-AIR

Body & Cover:	ASTM A105 Forged Steel
Celtron® Cartridge:	416 Stainless Steel w/hardened disc & seat
Bolts:	High temperature alloy
Cover Gasket:	347 Stainless Spiral-wound w/graphite filler
Integral Strainer:	304 Stainless Steel
Muffler:	Nylon Housing, Aluminum Screen
Connections:	3/8"-1/2" NPT

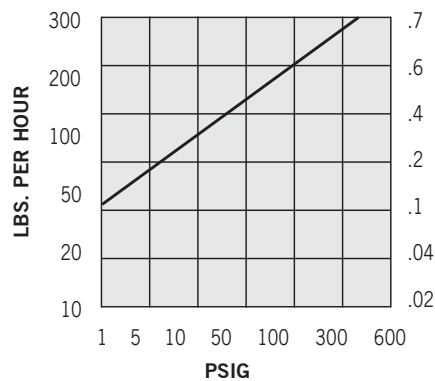
MINI-DRAIN

Cap, Seat & Disc:	416 Stainless, Hardened
Muffler:	Nylon Housing, Aluminum Screen

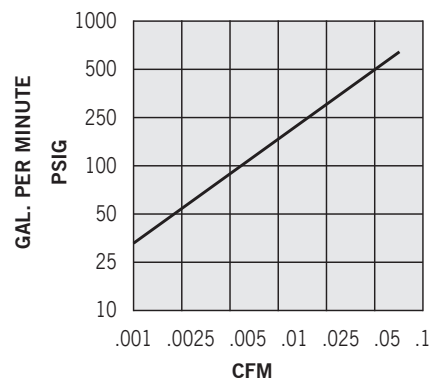


Connections: 1/8"-3/8" NPT

DISCHARGE CAPACITY



AIR LOSS - NO LOAD CONDITION



DRAIN AIR AND MINI DRAIN

SPECIFICATION

The liquid drain trap shall be of thermodynamic design with screwed NPT connections. Internal mechanism shall be stainless steel with hardened working surfaces. A pneumatic muffler shall be employed to reduce exhaust sound pressure level.

Maximum operating conditions

PMO: Max. Operating Pressure	600 psig	(41.4 barg)
TMO: Max. Operating Temperature	200°F	104°C)
PMA: Max. Allowable Pressure	600 psig	(41.4 barg)
TMA: Max. Allowable Temperature	800°F	(426°C)

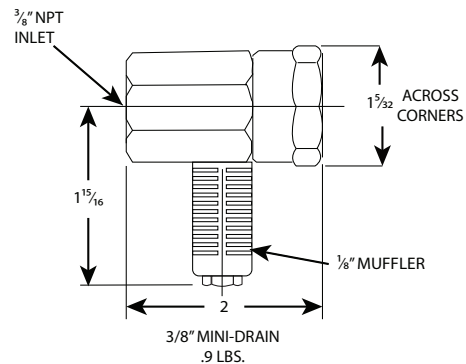
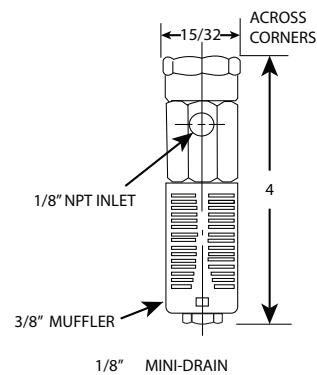
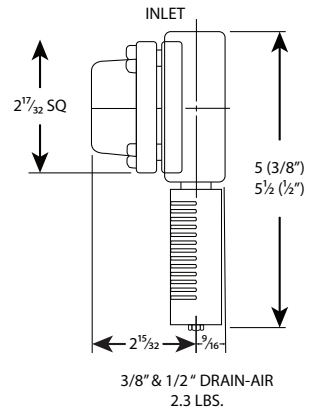
Materials of construction

DRAIN-AIR

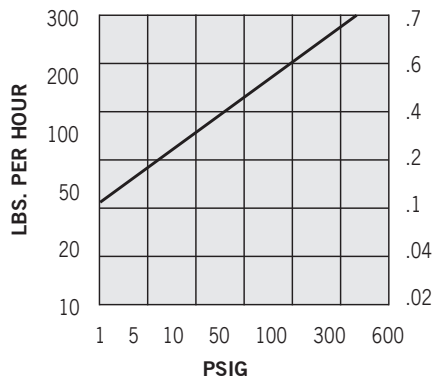
- Body & Cover: ASTM A105 Forged Steel
- Celtron® Cartridge:..... 416 Stainless Steel
w/hardened disc & seat
- Bolts: High temperature alloy
- Cover Gasket: 347 Stainless Spiral-wound
w/graphite filler
- Integral Strainer: 304 Stainless Steel
- Muffler: Nylon Housing, Aluminum
- Screen Connections: 3/8"-1/2" NPT

MINI-DRAIN

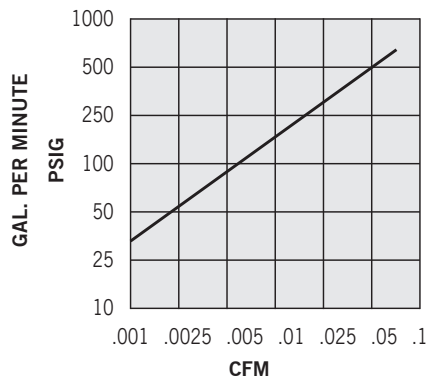
- Cap, Seat & Disc: 416 Stainless, Hardened
- Muffler: Nylon Housing, Aluminum Screen



DISCHARGE CAPACITY



AIR LOSS - NO LOAD CONDITION



TAV SERIES

THERMOSTATIC AIR VENT

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

Sealed Stainless Steel Body - Lightweight, compact and corrosion resistant. No bolts or gaskets. Eliminates body leaks.

Self Centering Valve - Leak tight shutoff. Improved energy savings. Assembly of actuator and valve to impingement plate allows valve to self-align with center of valve seat orifice. Provides long lasting valve and seat.

Temperature Sensitive Actuators - One moving part. Stainless Steel, fail open, welded actuator for maximum corrosion, thermal and hydraulic shock resistance.

Thermal and Hydraulic Shock Resistant - Impingement plate plus welded construction prevent damage to actuator.

Hardened Stainless Steel Valve and Seat - Long life. Lapped as a matched set for steam tight seal.

Inexpensive - Low initial cost.

Maintenance Free - Sealed unit. Replacement traps cost less than repair of more expensive in-line repairable vents.

Directional Discharge - Pipe thread erosion prevented by directing discharge to center of pipe.

Guaranteed - Guaranteed for 3 years against defects in materials or workmanship.

Applications

- Platen Presses
- Plating Tanks
- Sterilizers
- Tire Presses
- Cooking Equipment
- Laundry Equipment
- Other Process Equipment

Canadian Registration # OE0591.9C



MODELS

- **TAV**—High capacity w/welded SS actuator

Operation

Thermal actuator is filled at its free length with a liquid having a lower boiling point than water. As assembled, valve is normally open. On startup, air passes through vent. As air is eliminated, hot steam reaches vent and the thermal actuator fill vaporizes to a pressure higher than line pressure. This forces

valve into seat orifice to prevent any further flow. Should more air collect, it takes heat from the actuator, lowering internal pressure. Line pressure will then compress thermal actuator to open valve and discharge air. Valve lift automatically adjusts to variations.

TAV SERIES

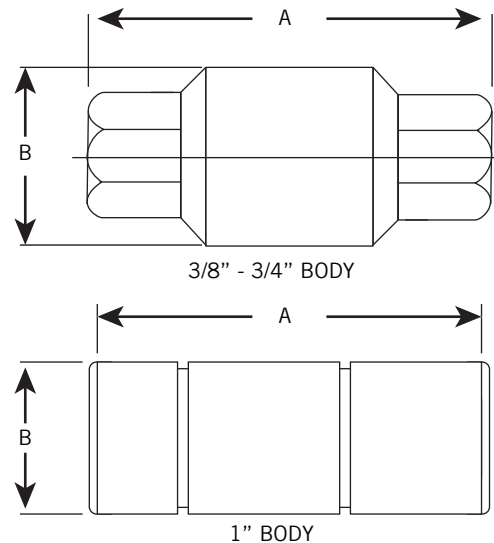
THERMOSTATIC AIR VENTER

SPECIFICATION

Air vent shall be of balanced pressure design stainless steel welded actuator capable of discharging air within 35°F of saturated temperature. Thermostatic actuator shall employ a conical valve lapped in matched sets with the seat ring assuring tight shut off. Vent shall be stainless steel bodied suitable for pressures to 650 psig and available in 3/8" through 1" NPT or socketweld.

Maximum operating conditions

PMO: Max. Operating Pressure	650 psig	(44.8 barg)
TMO: Max. Operating Temperature	650°F	343°C
PMA: Max. Allowable Pressure	650 psig	(44.8 barg)
TMA: Max. Allowable Temperature	750°F	(400°C)



Connections: 3/8" – 1" NPT or socketweld

Materials of construction

Body & Cover: ASTM A351 Grade CF3M (316L)
 1" is 316SS, ASME SA479
 Actuator: Welded Stainless Steel
 Valve & Seat: Hardened 416 Stainless Steel

Dimensions			
NPT or Socket weld	inches (mm)		Weight Lbs. (kg)
	A	B	
3/8", 1/2"	3 3/4 (95)	1 3/4 (44)	1.1 (0.5)
3/4"	3 1/2 (100)	1 3/4 (44)	1.2 (0.54)
1"	4 3/8 (111)	1 3/4 (44)	1.6 (0.73)

Air Capacity—SCFM for 14.7 PSIA @ 60°F (dm³/s)																
Vent	Orifice Inches (mm)	Inlet Pressure (barg)														
		10 (0.7)	50 (3.5)	100 (6.9)	125 (8.62)	150 (10.3)	200 (13.8)	250 (17.2)	300 (20.7)	350 (24.1)	400 (27.6)	450 (31.0)	500 (34.5)	550 (37.9)	600 (41.4)	650 (44.8)
TAV	5/16 (8)	33 (16)	34 (20)	156 (74)	192 (91)	230 (109)	300 (142)	370 (175)	440 (208)	510 (241)	580 (274)	650 (307)	720 (340)	790 (373)	860 (406)	930 (439)

DRAINER NLD SERIES

FREE-FLOATING LEVER DRAINER

ALL STAINLESS STEEL

Pressures to 400 psig (28 barg)
 Temperatures to 500°F (260°C)

Automatic and Positive Drain - Effectively removes liquids from compressed air systems with minimum air loss and rapid shutoff on load conditions

Inexpensive - Low maintenance and initial cost

Steel Body - Durable heavy wall construction provides years of reliable service and resists corrosion and freezing.

Maintenance Free - Sealed body design prevents tampering and no gaskets or adjustments are necessary

All Stainless Steel Construction - Long lasting, rugged, and corrosion resistant

Direct Lever Action - Ensures proper seating under all operating conditions



MODELS

- **NLD** - Free Float liquid Drainer

Applications

- Removes liquid from air or gas systems
- Removes liquid from air or gas storage

Canadian Registration Number - OE 10389.5 ADD1*
 *Available only up to 307 psig.

ORDERING CODE

Model			Dash	Inlet Size	Outlet Size	Orifice
N	L	D	-	2	1	3
1	2	3	4	5	6	7

MODEL - Position 1 - 3 NLD - Drainer Series	OUTLET SIZE - Position 6 1 = 1/2"
DASH - Position 4	ORIFICE - Position 7 1 = 1/8" 2 = 3/32" 3 = 5/64"
INLET SIZE - Position 5 2 = 3/4"	

Operation

The all stainless steel drainer removes liquids from a pressurized air /gas system. The float and lever operated design provides instantaneous and automatic adjustment to variations in flow and pressure. As liquid enters the top of the drainer, it

starts to lift the float up and open the valve. When the liquid is removed, it falls back down to close the valve. This cycle repeats as more liquid accumulates in the drainer.

DRAINER NLD SERIES

FREE-FLOATING LEVER DRAINER ALL STAINLESS STEEL

SPECIFICATION

The liquid drain trap shall be of a float type design with all stainless steel components including, sealed body, seat and valve. It is available in 3/4" x 1/2" NPT connections.

Material of Construction

Body	AISI304 SS
Connectors	AISI 304 SS
Float	AISI 304 SS
Lever	AISI 304 SS
Bracket Clip	AISI 304 SS
Valve	Hardened Chrome Steel AISI 03
Valve Seat	Hardened Chrome Steel AISI 03

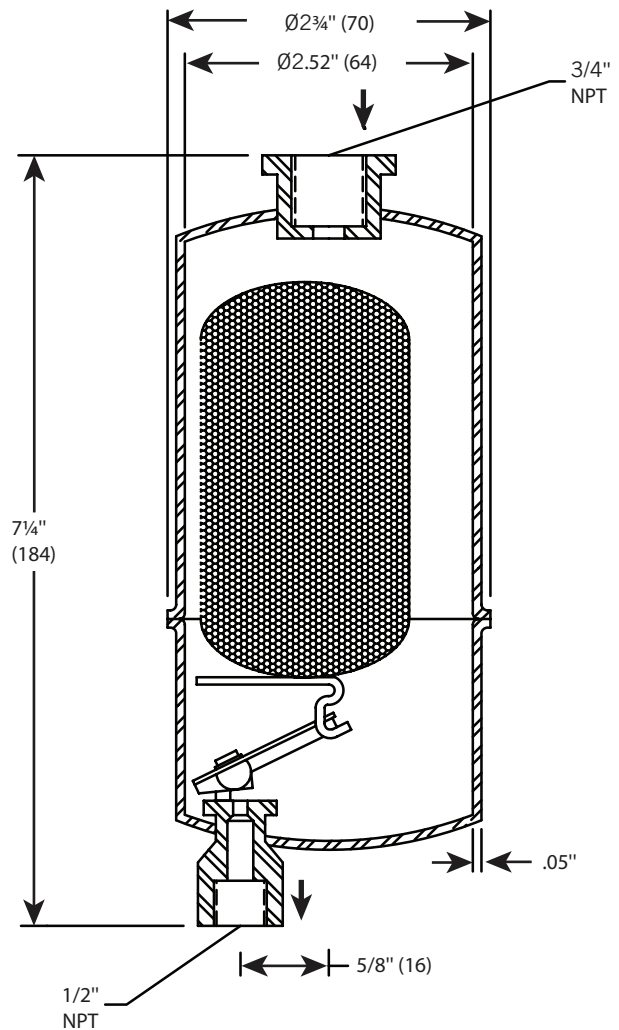
Maximum operating conditions

PMO: Max. Operating Pressure	See table below
PMA: Max. Allowable Pressure	400 psig (28 barg)
TMA: Max. Allowable Temperature	500°F (260°C)

Orifice	Max. Operating Pressure PSI (bar)
1/8"	175 PSi (12)
3/32"	300 PSi (21)
5/64"	400 psi (28)

Critical Dimensions

Height	7¼"
Diameter	2¾"
Wall	0.05"
Pipe Connections	NPT



VENTER NAV SERIES

FREE-FLOATING LEVER AIR VENTER

Pressures to 400 psig {28 barg}
 Temperatures to 500°F (260°C)

Automatic and Positive Drain - Effectively removes liquids from compressed air systems with minimum air loss and rapid shutoff on load conditions

Inexpensive - Low maintenance and initial cost
Stainless Steel Body - Durable heavy wall construction provides years of reliable service and resists corrosion and freezing.

Maintenance Free - Sealed body design prevents tampering and no gaskets or adjustments are necessary

All Stainless Steel Construction - Long lasting, rugged, and corrosion resistant

Direct Lever Action - Ensures proper seating under all operating conditions



Canadian Registration Number -
 OE 10389.5 ADD1*
 *Available only up to 307 psig.

MODELS

- NAV - Free Float Air/Gas Vents

Applications

- For Hot or Cold Water and Non-Viscous Liquid Systems
- For the removal of air and other gases
 - From hydronic heating,
 - From cooling systems,
 - Liquid chilling operations, and other light liquid services.

ORDERING CODE

Model				Inlet Size	Outlet Size	Orifice
N	A	V	-	2	1	1
1	2	3	4	5	6	7
MODEL - Position 1 - 3 NAV - Venter Series				OUTLET SIZE - Position 6 1 = 1/2"		
DASH - Position 5				ORIFICE - Position 7 1 = 1/8" 2 = 3/32" 3 = 5/64"		
INLET SIZE - Position 5 1 = 1/2" 2 = 3/4"						

Operation

The all stainless steel air/gas vent allows for the removal of air/gas from a pressurized liquid system. The float and lever-operated design provides instantaneous and automatic adjustment to variations in flow and pressure.

The valve is closed in the presence of liquid. As air/gas enters the bottom of the venter, the float begins to drop and open the valve. When air is removed, it lifts back up to close off the valve. This cycle repeats as more air/gas builds up.

VENTER NAV SERIES

FREE-FLOATING LEVER AIR VENTER

SPECIFICATION

The air/gas vent shall be of a float-type design capable of discharging air or gas in a pressurized liquid system. All components including sealed body, seat, and valve are made of stainless steel and are available with a 1/2" or 3/4" NPT inlet and 1/2" NPT outlet.

Material of Construction

Body AISI304 SS
 Connectors AISI 304 SS
 Float AISI 304 SS
 Lever AISI 304 SS
 Bracket Clip AISI 304 SS
 Valve Hardened Chrome Steel AISI 03
 Valve Seat Hardened Chrome Steel AISI 03

Maximum operating conditions

PMO: Max. Operating Pressure See table below
 PMA: Max. Allowable Pressure 400 psig (28 barg)
 TMA: Max. Allowable Temperature 500°F (260°C)

Orifice	Max. Operating Pressure PSI (bar)*
1/8"	175 PSi (12)
3/32"	300 PSi (21)
5/64"	400 psi (28)

Critical Dimensions

Height 7¹/₄"
 Diameter 2³/₄"
 Wall 0.05"
 Pipe Connections NPT

