



# BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

# GOYEN - GOCO

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

PRODUCT LEAFLET

### CLEAN AIR SOLUTIONS BY PENTAIR GOYEN MECAIR

Pentair is the global leader in reliable components, from pulse jet valves and pulse cleaning controllers through to certified engineered header tank solutions with or without full immersion valves. Since 1935, through our globally recognized brands Goyen and Mecair, we have provided engineering partnerships to some of the world's leading dust collector manufacturers.

Our valves deliver the most powerful air pulse. These diaphragm valves are designed for baghouses in which reverse pulse jet systems clean the filters, including all bag filters, cartridge filters, envelope filters, ceramic filters and sintered metal fiber filters.

Their tough and reliable design has led to their use in high-performance systems around the world to control the dispersion of noxious substances, improve indoor air quality in workplaces, or prevent harmful dust emissions. Advanced technology makes them suitable for demanding industries and processes, including:

- cement production
- mining applications
- silo and conveyor systems, bulk goods handling
- general industrial dust collection
- improving indoor workplace air quality
- preventing harmful emissions
- in the power industry, protecting boilers and gas turbines from dust particles

With quality being one of our core strengths we are accredited with CSA, UL, CE, ATEX and ISO 9001, and our focus on environmental solutions means that we are ISO14001 accredited.

We support this process through our specialised software GOCO as part of our consultation and provide additional performance testing and modelling using computational fluid dynamics to ensure we:

- eliminate risk in your systems
- minimise your operating costs
- increase your filter life

Goyen and Mecair's advanced application expertise, along with our wide product range and global reach, has allowed us to maintain our valuable long-term customer partnerships based on innovation, experience and engineering trust.



VNA25C-50



VNA25C-100



VNA45C-50



VNA45C-100



VN45PC-50



VN25PC-50

# GOYEN - GOCO

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

### PRODUCT LEAFLET

GOCO is your filter cleaning system software design tool. GOCO encapsulates decades of filter cleaning expertise and delivers it into your particulate filter system design on demand.

### GO CO. YOUR COMPETITIVE ADVANTAGE

We support this process through GOCO, consultation and additional performance testing and modelling using computational fluid dynamics.

### ELIMINATE RISK

- Make the system more robust against changing dust loads.
- Reduce risk of system failure.

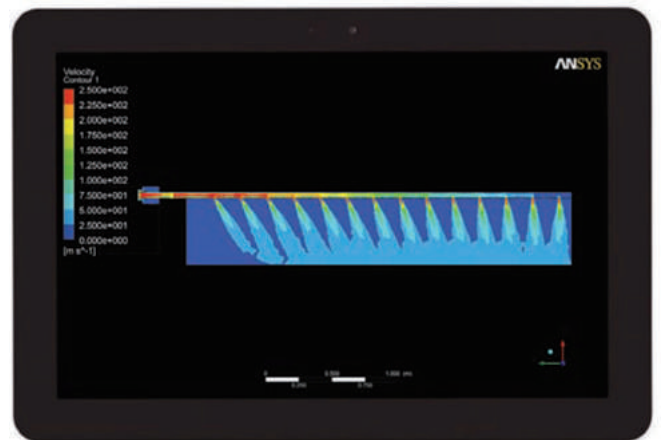
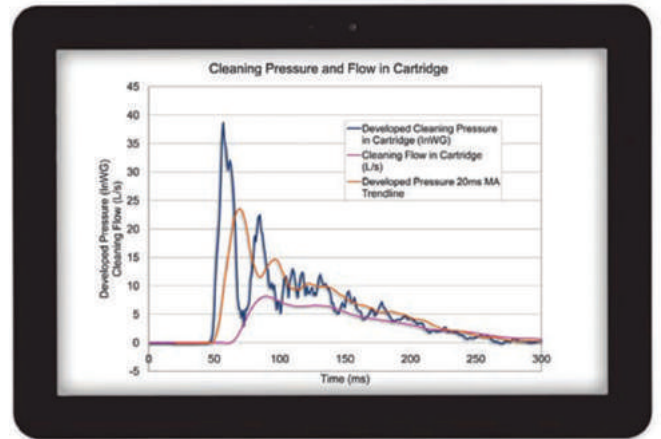
### MINIMISE OPERATING COSTS

- Reduce compressor demand.
- Pulse noise reduction.
- Optimise filter cleaning operation.

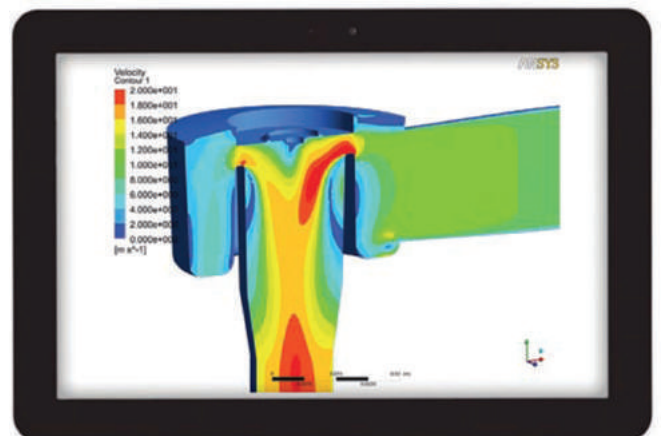
### INCREASE FILTER LIFE

- Improve scrubbing efficiency.
- Reduce pulse rate to clean filters on dP.
- Increase filter life – reduce maintenance frequency.

30% more cleaning flow



Collector performance -30% manifold pressure



Reducing collector build cost

# GOYEN - GOCO NOZZLE PLC (1" AND 1½" PIPE) BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

## PRODUCT LEAFLET



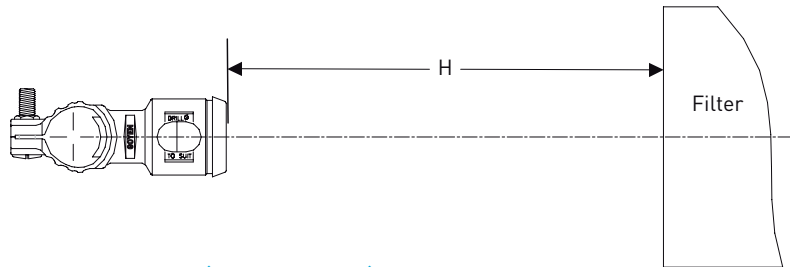
VN25PC-50



VN45PC-50

## INSTALLATION

For best performance,  $H = (\varnothing \text{ Filter} - 48) / 0.353$  (mm) or  $H = (\varnothing \text{ Filter} - 1.88) / 0.353$  (inches). Prepare  $\varnothing 22$  mm ( $\varnothing 0.866$ " hole in the blowtube for VN25PC-50 and prepare  $\varnothing 26$  mm ( $\varnothing 1.023$ " hole in the blowtube for VN45PC-50.



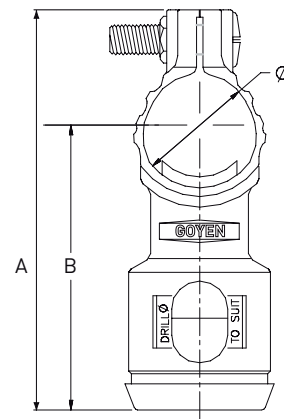
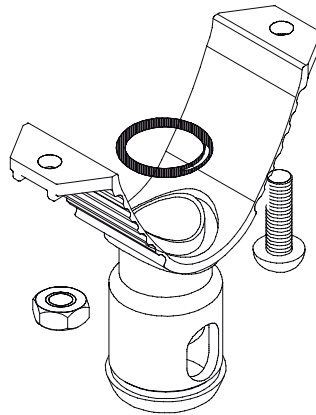
## DIMENSIONS IN MM (AND INCHES)

MODEL	A	B	C
VN25PC-50	110 mm [4.33"]	76 mm [3.00"]	33 mm [1.32"]
VN45PC-50	126 mm [4.97"]	84 mm [3.29"]	48 mm [1.90"]

Nozzles must be drilled to required orifice size before installation. Ensure O-ring is in place when fitting nozzle to pipe.

## DESCRIPTION

Goyen's range of plastic nozzles measurably increase developed pressures in filters during reverse pulsecleaning by balancing the flow through all holes along the blowtube, ensuring that the pulse jet is directed fully into the filters, and minimising the pressure drop through the blowtube holes. Goyen's nozzles ensure effective cleaning is achieved at  $An/Ap$  (total blowtube hole area/blowtube cross-sectional area) values up to 1.5, extracting maximum pulse performance from the diaphragm valves. Typical systems not using the GOCO nozzle perform at 0.5 to 0.8.



## SUITABLE FOR

1" and 1.5" pipe diameters in reverse pulse jet filter cleaning applications and its variations including bag filters and cartridge filters. Plastic nozzles are not suitable for high ambient temperature applications above 80°C (176°F).

\* Please Note: Not intended for use in Gas Turbine applications.

## ORDER CODE AND CHARACTERISTICS

ORDER CODE	VN25PC-50	VN45PC-50
Suitable for pipe $\varnothing$	1" [schedule 40]	1.5" [schedule 40]
Nominal pipe external $\varnothing$ mm (inches)	33 [1.32]	48 [1.90]
Temperature range °C (°F)	-40 [-40] to 80 [176]	-40 [-40] to 80 [176]
Material	PA-6	PA-6
Unit mass kg (lb)	0.060 [0.13]	0.065 [0.14]
Pipe hole $\varnothing$ to accept nozzle mm (inches)	22.0 [0.866]	26.0 [1.023]

Nozzle sizes can be optimised using Goyen's GOCO software. Contact your local Goyen representative.

# GOYEN - GOCO NOZZLE SCREW IN (3/4" AND 1" PIPE)

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

### PRODUCT LEAFLET

#### DESCRIPTION

Goyen's range of plastic screw-in nozzles measurably increase developed pressures in filters during reverse pulse cleaning by balancing the flow through all holes along the blowtube, ensuring that the pulse jet is directed fully into the filters, and minimising the pressure drop through the blowtube holes.

Goyen's nozzles ensure effective cleaning is achieved at An/Ap (total blowtube hole area/ blowtube cross-sectional area) values up to 1.5, extracting maximum pulse performance from the diaphragm valves. Systems not using the Goco nozzle perform at 0.5 to 0.8.

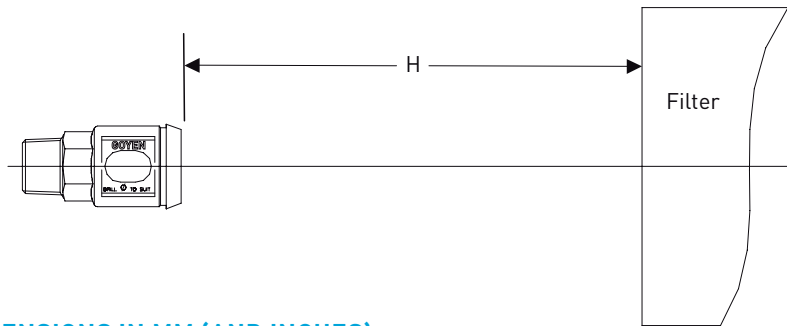
#### SUITABLE FOR

3/4" and 1" pipe diameters in reverse pulse jet filter cleaning applications and its variations including bag filters and cartridge filters. Plastic nozzles are not suitable for high ambient temperature applications above 80°C (176°F). These nozzles are designed to be screwed directly into the threaded outlet of a 'T' series dust collector valve, or into threaded sockets welded to blowtubes.

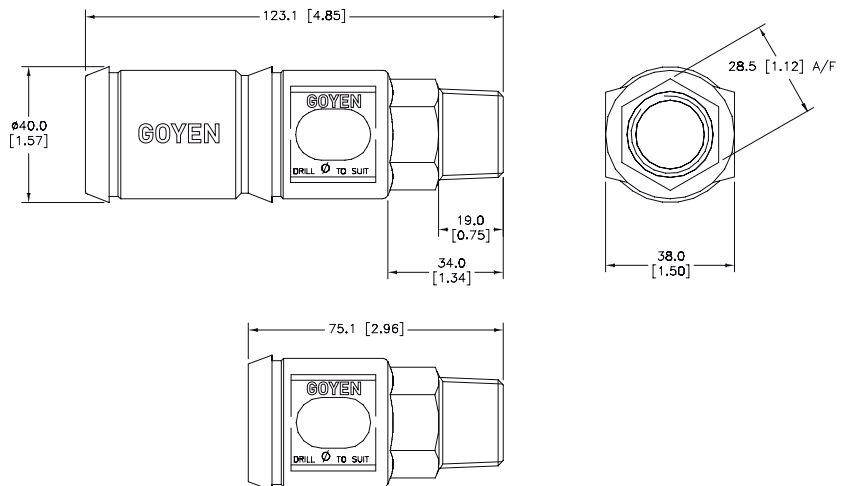
\* Please Note: Not intended for use in Gas Turbine applications.

#### INSTALLATION

For best performance,  $H = (\emptyset \text{ Filter} - 48) / 0.353$  (mm) or  $H = (\emptyset \text{ Filter} - 1.88) / 0.353$  (inches). Nozzles must be drilled to appropriate orifice size before installation.



#### DIMENSIONS IN MM (AND INCHES)



#### ORDER CODE AND CHARACTERISTICS

ORDER CODE	CONNECTION SIZE MM (INCHES)	THREAD TYPE	BARREL LENGTH MM (INCHES)	UNIT MASS KG (LB)	MATERIAL	TEMPERATURE RATING °C (°F)
VN20SPN-50	20 (3/4)	NPT	56 (2.2)	0.040 (0.09)	PA-6	-40 [-40] to 80 (176)
VN20SPR-50	20 (3/4)	R	56 (2.2)	0.040 (0.09)	PA-6	-40 [-40] to 80 (176)
VN20SPN-100	20 (3/4)	NPT	104 (4.1)	0.065 (0.14)	PA-6	-40 [-40] to 80 (176)
VN20SPR-100	20 (3/4)	R	104 (4.1)	0.065 (0.14)	PA-6	-40 [-40] to 80 (176)
VN25SPN-50	25 (1)	NPT	56 (2.2)	0.040 (0.09)	PA-6	-40 [-40] to 80 (176)
VN25SPR-50	25 (1)	R	56 (2.2)	0.040 (0.09)	PA-6	-40 [-40] to 80 (176)
VN25SPN-100	25 (1)	NPT	104 (4.1)	0.065 (0.14)	PA-6	-40 [-40] to 80 (176)
VN25SPR-100	25 (1)	R	104 (4.1)	0.065 (0.14)	PA-6	-40 [-40] to 80 (176)

Nozzle sizes can be optimised using Goyen's GOCO software. Contact your local Goyen representative.

# GOYEN - GOCO NOZZLE ALUMINIUM (1" AND 1½" PIPE) BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

PRODUCT LEAFLET



VNA25C-50

VNA25C-100



VNA45C-50

VNA45C-100



AL25-B, AL25-BD#,  
AL45-B, AL45-BD#

REG-#

## SUITABLE FOR

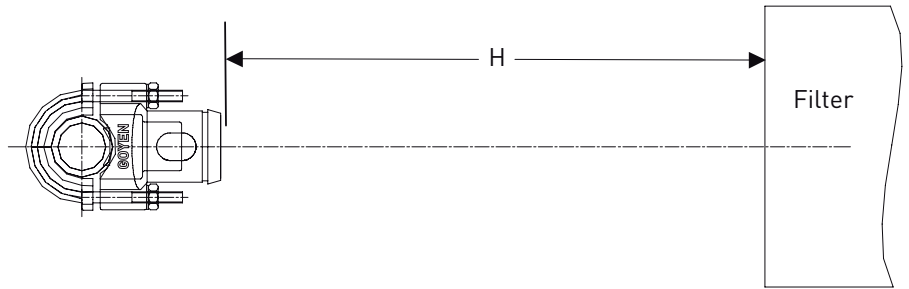
1" and 1.5" pipe diameters in reverse pulse jet filter cleaning applications and its variations including bag filters, cartridge filters, ceramic filters, and sintered metal fibre filters.

\* Please Note: Not intended for use in Gas Turbine applications.

## INSTALLATION

For best performance,  $H = (\text{Ø Filter} - 48) / 0.353$  (mm) or  $H = (\text{Ø Filter} - 1.88) / 0.353$  (inches).

Prepare  $\text{Ø } 20\text{--}21$  mm ( $\text{Ø } 0.78\text{--}0.83$ " hole in the blowtube for VNA-25C and prepare  $\text{Ø } 27\text{--}28$  mm ( $\text{Ø } 1.06\text{--}1.10$ " hole in the blowtube for VNA-45C.

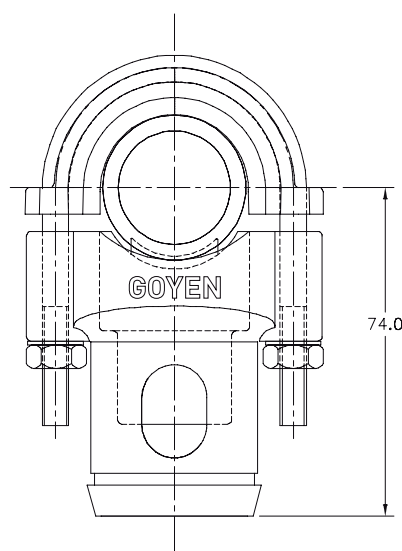


## DIMENSIONS IN MM (AND INCHES)

ITEM	MASS KG (LB)	ITEM	MASS KG (LB)
VNA25C-50	0.175 (0.366)	VNA25C-100	0.220 (0.485)
VNA45C-50	0.160 (0.353)	VNA45C-100	0.205 (0.452)
AL25-B/BD# & AL45-B/BD#	0.055 (0.121)	REG-#	0.020 (0.044)

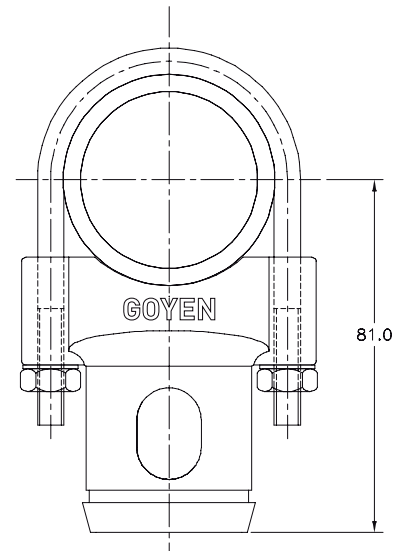
## DESCRIPTION

Goyen's range of nozzles measurably increase developed pressures in filters during reverse pulse cleaning by balancing the flow through all holes along the blowtube, ensuring that the pulse jet is directed fully into the filters, and minimising the pressure drop through the blowtube holes. Goyen's nozzles ensure effective cleaning is achieved at  $A_n/A_p$  (total blowtube hole area/blowtube cross-sectional area) values up to 1.5, extracting maximum pulse performance from the diaphragm valves. Typical systems not using the Goco nozzle perform at 0.5 to 0.8.



VNA25C-50

To suit 1" schedule 40 pipe.



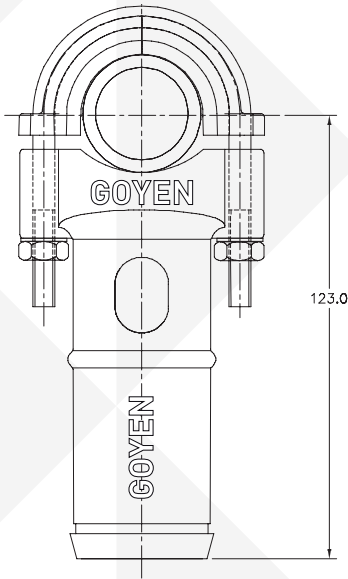
VNA45C-50

To suit 1.5" schedule 40 pipe.

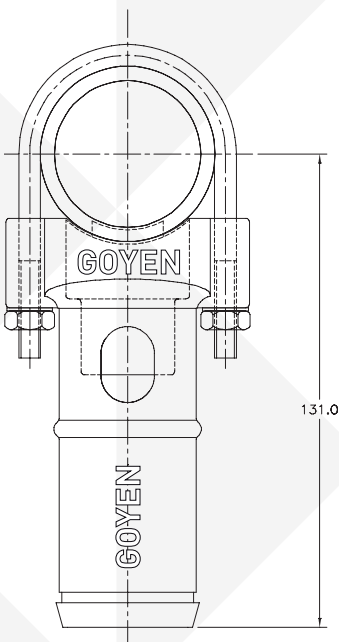
# GOYEN - GOCO NOZZLE ALUMINIUM (1" AND 1.5" PIPE)

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

PRODUCT LEAFLET



VNA25C-100  
To suit 1" schedule 40 pipe



VNA45C-100  
To suit 1.5" schedule 40 pipe

### ORDER CODE AND CHARACTERISTICS

#### Diecast Nozzles

MODEL	MASS KG (LB)	MODEL
VNA25C-50	Diecast venturi nozzle assembly to suit 1" pipe, short barrel.	Body and saddle: diecast aluminium Clamp, nuts & washers: nickel-plated mild steel
VNA25C-100	Diecast venturi nozzle assembly to suit 1" pipe, long barrel.	Body and saddle: diecast aluminium Clamp, nuts & washers: nickel-plated mild steel
VNA45C-50	Diecast venturi nozzle assembly to suit 1.5" pipe, short barrel.	Body and saddle: diecast aluminium Clamp, nuts & washers: nickel-plated mild steel
VNA45C-100	Diecast venturi nozzle assembly to suit 1.5" pipe, long barrel.	Body and saddle: diecast aluminium Clamp, nuts & washers: nickel-plated mild steel

#### Nozzle Inserts

MODEL	MASS KG (LB)	MATERIAL	TEMPERATURE RANGES °C (°F)
AL25-BD#	Diecast nozzle insert to suit VNA25 series. Insert orifice must be drilled by the customer suiting the application and will be supplied with $\varnothing 4$ mm	Diecast aluminium	-60 (-76) to 400 (752)
AL45-BD#	Diecast nozzle insert to suit VNA45 series. Insert orifice must be drilled by the customer suiting the application and will be supplied with $\varnothing 4$ mm nominal hole. No seals required.	Diecast aluminium	-60 (-76) to 400 (752)
REG-#	Plastic nozzle insert with rubber seal. Suits both VNA25 and VNA45 series. (#=4 mm to 22 mm)	Insert: PA-6 30% glass filled. Seal: Nitrile	-40 (-40) to 80 (176)

To order specify nozzle and nozzle insert codes separately.

For example: VNA25C-50 and REG-14 for a short nozzle to suit a 1" pipe with a 14 mm plastic insert.

VNA45C-100 and AL45-BD10 for a long nozzle to suit a 1.5" pipe with a 10 mm aluminium insert.

Nozzle sizes can be optimised using Goyen's GOCO software. Contact your local Goyen representative.

# GOYEN - GOCO NOZZLE STRAPLESS (2", 2½", 3" AND 4" PIPE) BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

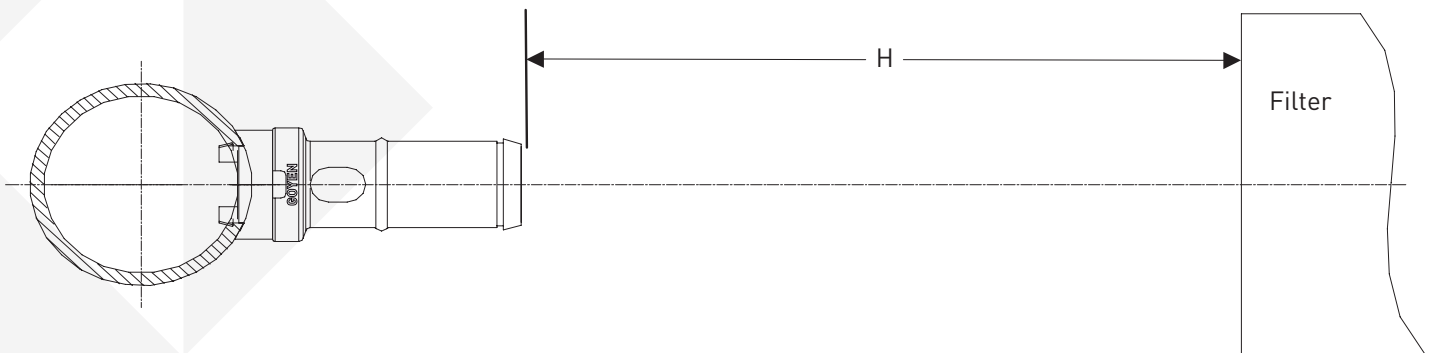
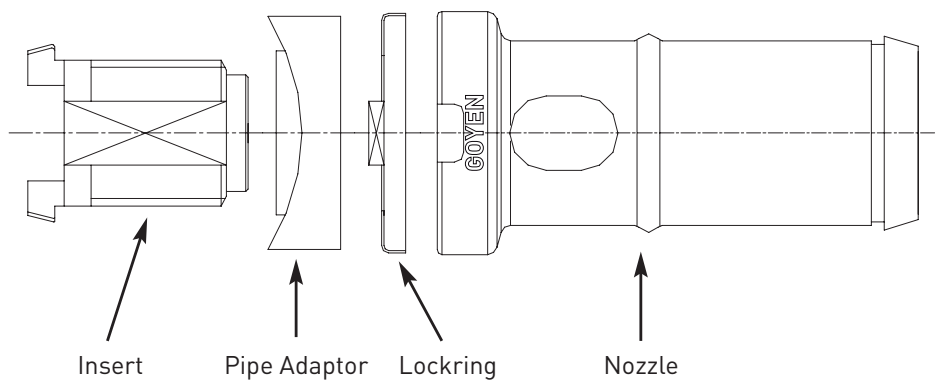
## PRODUCT LEAFLET

### DESCRIPTION

Goyen's range of nozzles measurably increase developed pressures in filters during reverse pulse cleaning by balancing the flow through all holes along the blowtube, ensuring that the pulse jet is directed fully into the filters, and minimising the pressure drop through the blowtube holes. Goyen's nozzles ensure effective cleaning is achieved at An/Ap (total blowtube hole area/blowtube cross-sectional area) values up to 1.5, extracting maximum pulse performance from the diaphragm valves. Typical systems not using the Goco nozzle perform at 0.5 to 0.8.

### INSTALLATION

For best performance,  $H=(\emptyset \text{ Filter} - 48)/0.353$  (mm) or  $H=(\emptyset \text{ Filter} - 1.88)/0.353$  (inches). Prepare  $\emptyset 34.1-34.5$  mm ( $\emptyset 1.34-1.36$ " ) holes in the blowtube.



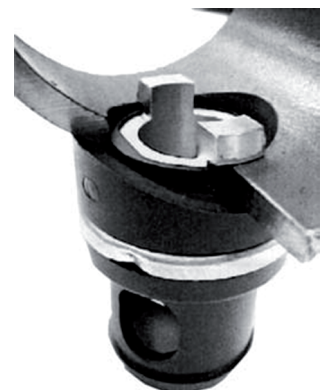
### SUITABLE FOR

2", 2.5", 3" and 4" schedule 40 pipe diameters as used in reverse pulse jet filter cleaning applications and its variations including bag filters, cartridge filters, ceramic filters, and sintered metal fibre filters.

\* Please Note: Not intended for use in Gas Turbine applications.

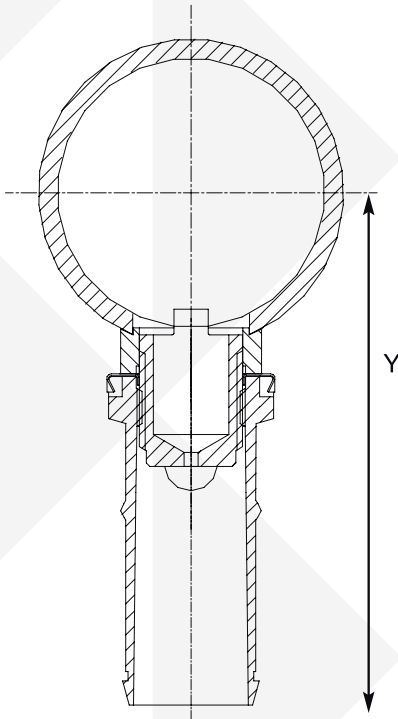
1. Ensure holes prepared in the blowtube are free from burrs.
2. Assemble the insert into nozzle passing through the pipe adaptor and locking as illustrated above. Only screw the insert part way into the nozzle.
3. Align the insert lugs along the axis of the blowtube, and hook one lug into the blowtube
4. Swing the second lug up into the blowtube and slide the pipe adaptor up and onto the blowtube hole.
5. Screw the nozzle up onto the insert, checking that all components are aligned. Hand tight is sufficient.
6. Dent the locking into one or both of the nozzle cavities; this will ensure the assembly is permanently locked in place. To remove the nozzle, bend the dent out using a screwdriver blade.

(For detailed installation instructions, refer to DEINC-018 VNA.)



# GOYEN - GOCO NOZZLE STRAPLESS (2", 2½", 3" AND 4" PIPE) BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

PRODUCT LEAFLET



## DIMENSIONS IN MM (AND INCHES)

ITEM	MASS KG (LB)	ITEM	MASS KG (LB)
VNA50I-50	0.115 (0.254)	VNA50I-100	0.205 (0.452)
VNA62I-50	0.115 (0.254)	VNA62I-100	0.205 (0.452)
VNA76I-50	0.115 (0.254)	VNA76I-100	0.205 (0.452)
VNA102I-50	0.115 (0.254)	VNA102I-100	0.205 (0.452)

ORDER CODE	Y MM (INCHES)	ORDER CODE	Y MM (INCHES)
VNA50I-50	88 (3.46)	VNA50I-100	138 (5.43)
VNA62I-50	94 (3.71)	VNA62I-100	145 (5.68)
VNA76I-50	102 (4.03)	VNA76I-100	152 (6.00)
VNA102I-50	115 (4.53)	VNA102I-100	165 (6.50)

## ORDER CODE AND CHARACTERISTICS

### Diecast Nozzles

CODE	SCHEDULE 40 PIPE (INCHES)	DESCRIPTION	MATERIAL	TEMPERATURE RANGES °C (°F)
VNA50I-50	2	Short barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA62I-50	2.5	Short barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA76I-50	3	Short barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA102I-50	4	Short barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA50I-100	2	Long barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA62I-100	2.5	Long barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA76I-100	3	Long barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)
VNA102I-100	4	Long barrel	Diecast aluminium & galvanised steel (locking)	-60 [-76] - 400 (752)

Note that assemblies include nozzle, pipe adaptor, nozzle insert and locking.

Nozzle inserts must be drilled to required orifice size.

Nozzle sizes can be optimised using Goyen's GOCO software. Contact your local Goyen representative.

# GOYEN

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

### PRODUCT LEAFLET



CC 100



CC 150



CC 200

### DESCRIPTION

Goyen's Cartridge Cleaning Cone attaches to the Goyen GOCO nozzle system. This product optimises the cleaning pulse in cartridge filter applications by ensuring that the developed pressure in the filter is even along the entire length of the filter element.

### SUITABLE FOR

Cartridge and pleated filter elements used in reverse pulse jet dust collectors. Suitable for filter elements with internal diameter of 60 mm (2.4") or larger. The Cartridge Cleaning Cone may be assembled to any of the Goyen range of GOCO nozzles.

\* Please Note: Not intended for use in Gas Turbine applications.

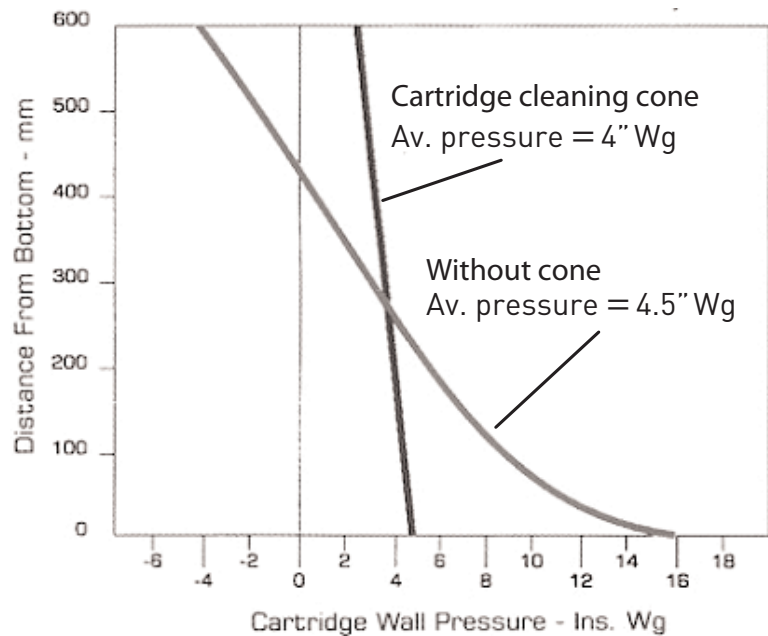
### PERFORMANCE

As illustrated above for a typical system, the Cartridge Cleaning Cone ensures that the developed overpressure is even along the entire length of the filter element. The average developed pressure is nearly equal

to the system without. Note that in this case, the system without the attachment is unable to overcome the normal filter differential pressure near the top of the filter. Massive over pressure is developed at the bottom of the filter. The effects of this include blinding of significant filter area and damage to the filter membrane – poor filtration performance and reduced filter life.

Graphic shown is for internal Ø 240 mm, external Ø 350 mm cartridge filter 600 mm long operating at a pressure drop of 4" Wg. System pulse pressure is 413 kPa (60 psi). No venturi used on cartridge element. CC200 used.

Nozzle sizes can be optimised using Goyen's GOCO software. Contact your local Goyen representative.



# GOYEN

## BLOWTUBE NOZZLES AND CARTRIDGE CLEANING CONES

### PRODUCT LEAFLET

#### INSTALLATION

When installing into baghouse, the end of the cone should lie between 30 and 80 mm (1.13" and 3.14") from the filter opening.



Note the profile of the four legs of the cone



Snap the clip into position over the four legs



Note the profile at the end of the nozzle

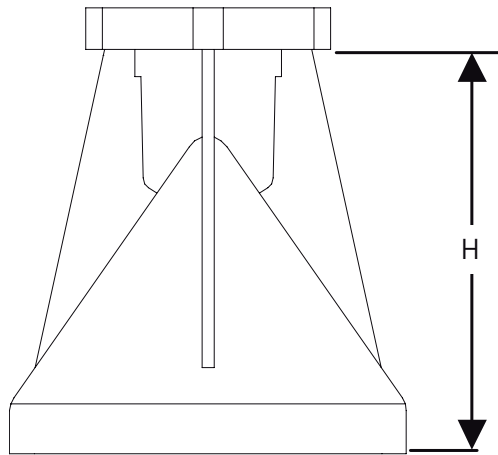


Snap cone assembly into position over the nozzle outlet

#### DIMENSIONS IN MM (AND INCHES)

To calculate total assembly height when mounted to a Goco nozzle, add H to the total nozzle length. Refer to relevant nozzle product specification.

	CC100 MM (INCHES)	CC150 MM (INCHES)	CC200 MM (INCHES)
H	33 (1.30)	77 (3.03)	102 (4.02)



#### ORDER CODE AND CHARACTERISTICS

ORDER CODE	SUITABLE FILTER (INTERNAL) Ø IN MM (INCHES)	MATERIAL (CONE AND CLIP)	UNIT MASS KG (LBS)	TEMPERATURE RANGE °C °(F)
CC 100	60 – 100 [2.4 – 3.9]	30% glass filled PA-6	0.03 (0.066)	-40 [-40] to 80 (176)
CC 150	100 – 175 [3.9 – 6.9]	30% glass filled PA-6	0.07 (0.154)	-40 [-40] to 80 (176)
CC 200	Larger than 175 [6.9]	30% glass filled PA-6	0.13 (0.287)	-40 [-40] to 80 (176)

Note that assemblies include cone and clip.



**GOYEN CONTROLS PTY LIMITED**

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