

Instruction Manual

Retractable Nozzles

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Bladwijzer niet gedefinieerd.	
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1. Introduction

The retractable nozzle is developed for 2 purposes:

- For cleaning the installation by means of dispersing CIP fluid into the installation
- In case of fire, by means of dispersing water into the installation

The retractable nozzle can be installed horizontally as well as vertically into the system. Be aware that the water should be drained after use of the retractable nozzle, this can be done on the feed manifold, or at the retractable nozzle.

There are several models of the retractable nozzle available, each having its own advantages.

Anyone who is involved with operation of the retractable nozzle or is present in the room where the retractable nozzle is established must be aware of the content of this manual. Only this way safe working conditions can be guaranteed.

2. Safety regulations

Before the installation is taken into operation, this manual must be read carefully. All instructions and regulations must always be followed. Also all national and local laws and safety regulations must be respected.

Only authorized personnel with sufficient training is allowed to install, connect, commission and maintain the retractable nozzle. Working methods that have influence on the good working and safety of the installation have to be avoided.

It is not allowed to make adjustments to the installation or to make changes that can affect the safety. Inspections and maintenance are only allowed when the complete installation is turned off. Operating personnel must always follow the operating and maintenance instructions.

2.1 Use

The retractable nozzle is specially developed for cleaning the internal process installation, or for fire extinguish purposes for the food-industry. Any other use of the retractable nozzle is considered as inappropriate use. The supplier cannot be held responsible for damage caused by inappropriate use.

2.2 Symbols and instructions



This symbol marks safety regulations in this manual to prevent danger or even life threatening situations. It is of great importance that these instructions are followed and that all possible safety precautions are taken. Also all national and local laws and safety regulations must be respected.



This symbol marks instructions in this manual which must be followed to prevent damage to the installation or to other machines.



This symbol highlights activities that have to be performed by the user/operator.

2.3 General security instructions

General WARNING sign, which indicates that special instructions **MUST** be followed to avoid serious personal injuries.



Always handle lye and acid with great care.



NEVER touch a hot retractable nozzle.



ALWAYS read this manual before installation, operation and maintenance.



ALWAYS use authorized personnel to install, operate and service the retractable nozzle. The personnel has to completely understand the working of the retractable nozzle and the instruction manual.



ONLY use the retractable nozzle for the designed purpose.



ALWAYS pay attention to possible loose retractable nozzle parts when unpacking the delivery.



NEVER touch moving retractable nozzle parts.



NEVER touch a hot retractable nozzle.



ALWAYS handle cleaning agents carefully.



NEVER remove a retractable nozzle from piping or disassemble it when the retractable nozzle or piping are pressurized.

3. Technical Data

3.1 Models

The retractable nozzles are intended for use in cleaning and/or fire distinguish systems.

Standard we have the following nozzle program:

- Retractable CIP Nozzle, fluid open, spring return
- Retractable CIP Nozzle, air open, spring return
- Retractable CIP Nozzle, air open, air return
- Retractable Fire Nozzle, fluid open, spring return
- Retractable Fire Nozzle, fluid open, spring return, manual drain function

The air actuated versions are easy to drain, this has to be automated.

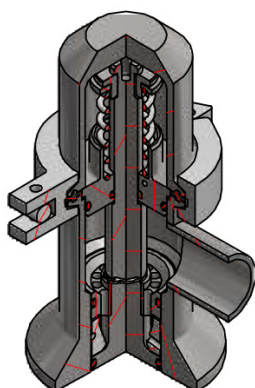
On the air actuated versions proximity switches can be mounted.

For use in insulated installation, also an extended version can be delivered.

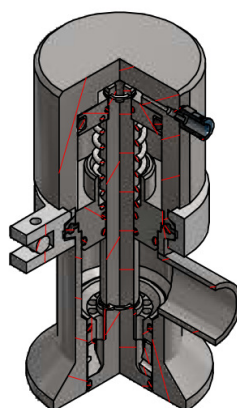
All our nozzles will be delivered with an aluminum welding adaptor. Custom build body on request.

The fluid inlet is Ø25.4 and can be :

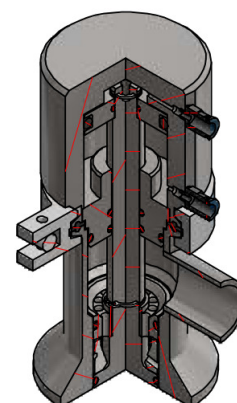
- DIN 11851
- Triclamp
- Hose connection



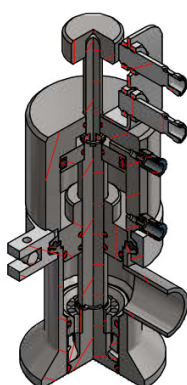
Fluid Open / Spring Return



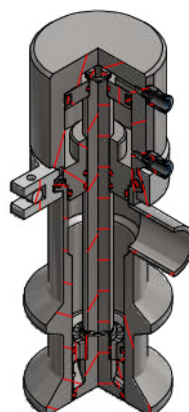
Air Open / Spring Return



Air Open / Air Closed



Air Open / Air Closed
2x Proximity Switch



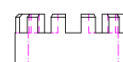
Extended Body
(Insulation)

Cip Nozzle



15S03-106A

Brandblus Nozzle



15S03-107A

Fire Nozzle

3.2 Retractable Nozzle selector

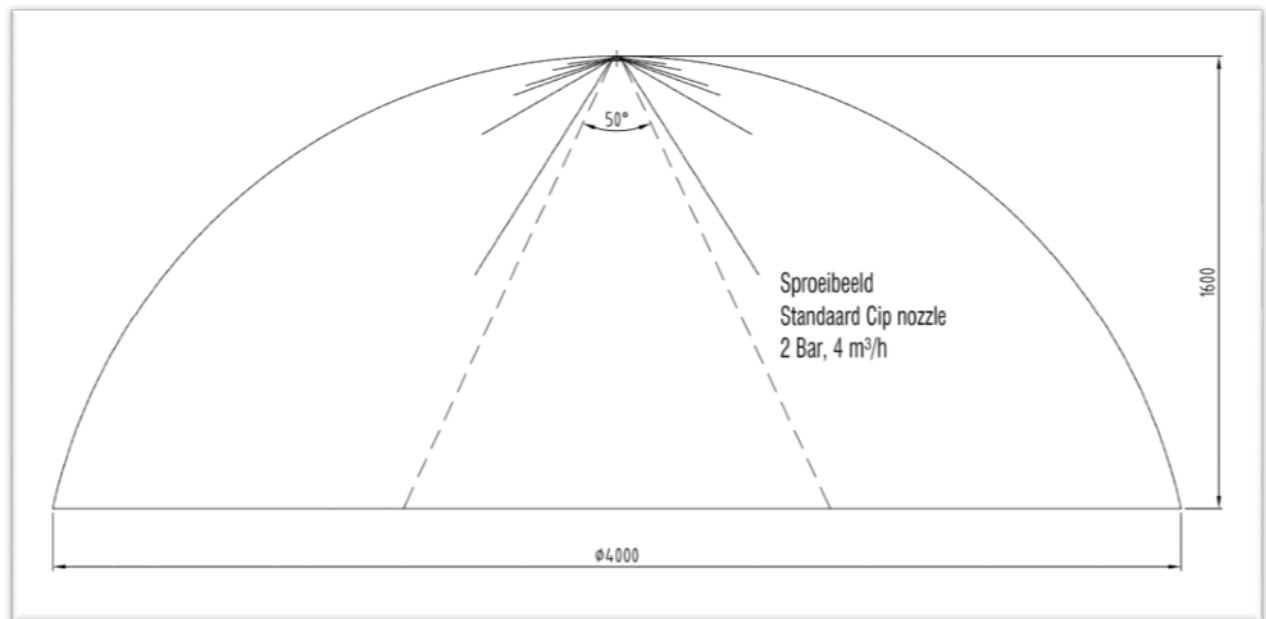
To select the appropriate retractable nozzle, one can use the figure below.

<i>Model</i>	CIP, Wet processing	CIP, Dry processing	Fire extinguish	Sanitary	Insulated tank/ tubing	Atex (20/22)
<i>Air open, Air return</i>	X	X	X	X		
<i>Air open, Air return +Feedback</i>	X	X	X	X		X
<i>Liquid open, Spring return</i>	X	X	X	X		
<i>Liquid open, Spring return + Air drain</i>	X	X	X	X		
<i>Liquid open, Spring return + Manual drain</i>	X	X	X	X		X
<i>Air open, Air return, High body</i>	X	X	X	X		
<i>Air open, Air return +Feedback, high body</i>	X	X	X	X	X	X
<i>Liquid open, Spring return, High body</i>	X	X	X	X	X	
<i>Liquid open, Spring return + Air drain, High body</i>	X	X	X	X	X	
<i>Liquid open, Spring return + Manual drain, high body</i>	X	X	X	X	X	X

3.3 Functioning

The retractable nozzle is designed to operate under certain circumstances

Flow	:	4 m ³ /h
Fluid pressure	:	min 2 bar /max 4 bar
Spray radius	:	2 mtr
Spray angle	:	70-130 °
Operation temperature	:	70-80 °C
Compressed air	:	min 4 bar / max 7 bar



3.4 Materials

The retractable nozzles are made out of stainless steel 1.4404.

O-rings all NBR. Spray nozzle from POM and gasket in silicon red. On request other materials are possible.

The materials are all compatible with standard CIP (chemical) applications.

NBR, POM and Silicon all are suitable for food industry.

4. Installation

4.1 General

The retractable nozzles are often used in :

- Tanks
- Ducting
- Spraydryers
- Cyclones
- Plant components

The retractable nozzles can be fitted to both thin and thick sheeted equipment, both insulated and non-insulated. The retractable nozzles can be fitted on spray drying chambers, cyclones, fluid beds, tanks, and ducts. The body can also be supplied in different lengths.

Positioning of CIP Nozzle:

NOTE: The information in this section is for general positioning requirements only, some specific applications may have different requirements.

Ducting:

Horizontal Duct

The CIP nozzles should be mounted 45° from horizontal and alternate from one side of the duct to the other. Whenever possible the feed header should be above the nozzles. Feed header should also be sloped for draining.

Vertical Duct

Because CIP fluid can flow down the surface of a vertical duct, the CIP nozzles only need to be located near the top of vertical ducts. The number of nozzles required for vertical ducts upon request.

Nozzle feed header must be below the nozzles. Feed header must also slope for draining.

Other Considerations:

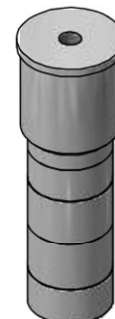
Additional nozzles will be required on elbows.

In both horizontal and vertical ducts, additional nozzles will be required near insulation plates, air dampers, manholes and other ports to ensure cleaning.

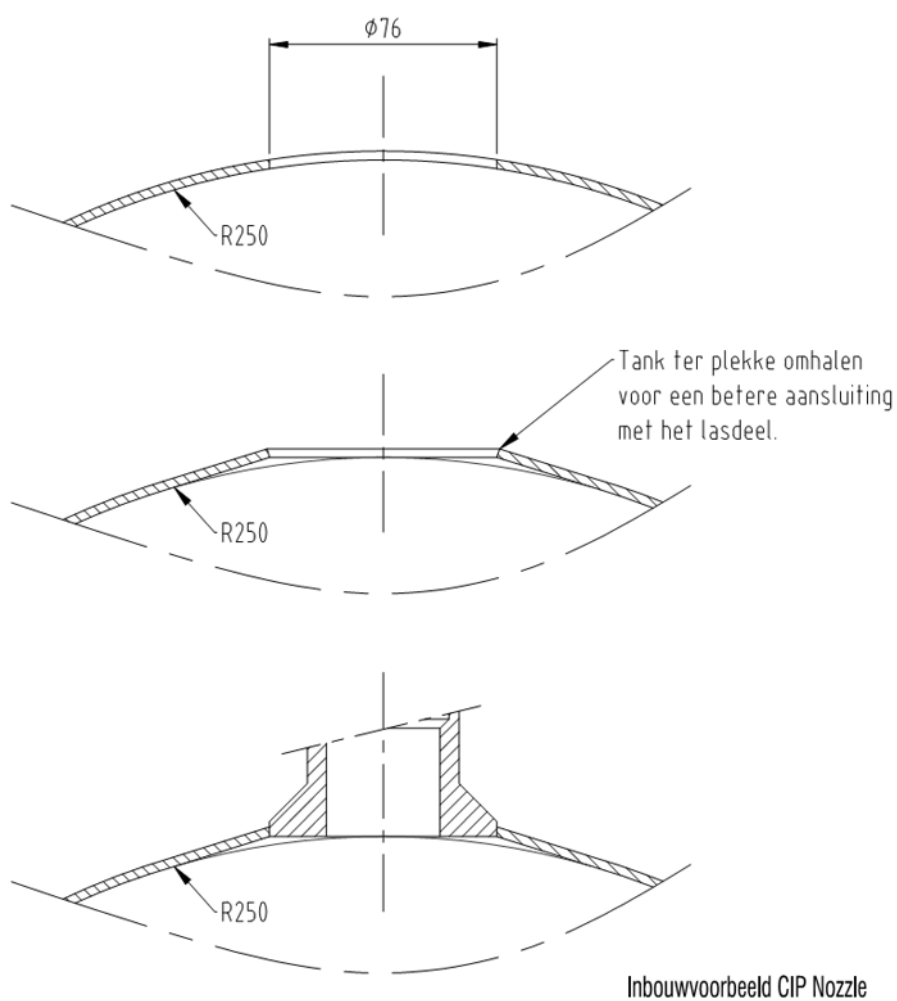
Because of the internal geometry of the CIP nozzle, some valve positions must be avoided so that the nozzle itself will drain.

4.2 Mounting

A hole is cut at the appropriate position and the unit is tack welded into place.
For welding we supply a special welding tool to avoid stress in the body/welding adaptor.



Welding tool, Aluminum



Example installation in duct DN500

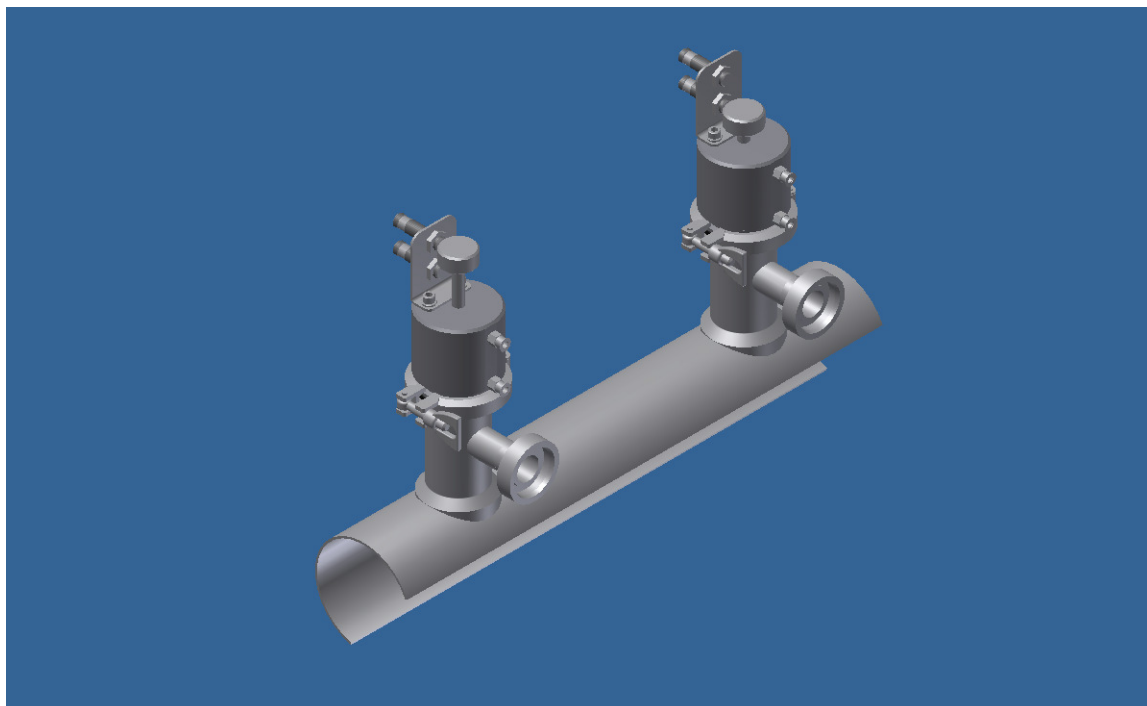
5. Operation

When the CIP nozzle is in its retracted (closed) position, the head of the nozzle rod assembly is flush with the nozzle housing. The O-rings in the nozzle rod ensures that foreign material cannot penetrate into the housing while the nozzle is in both open and closed positions. When the nozzle is in its extended (opened) position, the nozzle head inside the nozzle weld pad is out of the nozzle housing.

During CIP operation, the water or another cleaning fluid is pumped to the nozzle under pressure, which forces the nozzle head into the correct position for cleaning the plant. The CIP nozzle head is fitted with a spray ring that rotates according to the feed pressure. Once the feed is stopped, the CIP nozzle head automatically returns to its starting position.

Even when the nozzle is opened and/or closed by means of compressed air it still needs fluid pressure to operate well. The pneumatic function is for position detection by means of proximity switches and for draining. One (or more) nozzles can be connected by air tubing to a solenoid (3/2 or 5/2), this solenoid can be kept open after flushing, so CIP line and CIP nozzle will fully drain itself.

While in the opened position, the spinner ring is free of the housing and rotates as the cleaning liquid is forced through it. Because of its design and rotation while in operation, it disperses the liquid over the desired area of the equipment to be cleaned.



5.1 Inspection before operation



Before the retractable nozzle can be taken into operation, all parts must be checked.



Visual checking of the retractable nozzle both internal and external for contamination. Make sure the inner piston can be mounted by hand.

5.2 Taking the retractable nozzle into operation



The temperature of the retractable nozzle can be very high during operation



In case of leakage, be aware of the liquids being used, therefore it is recommended for the first time to use cold water for testing.

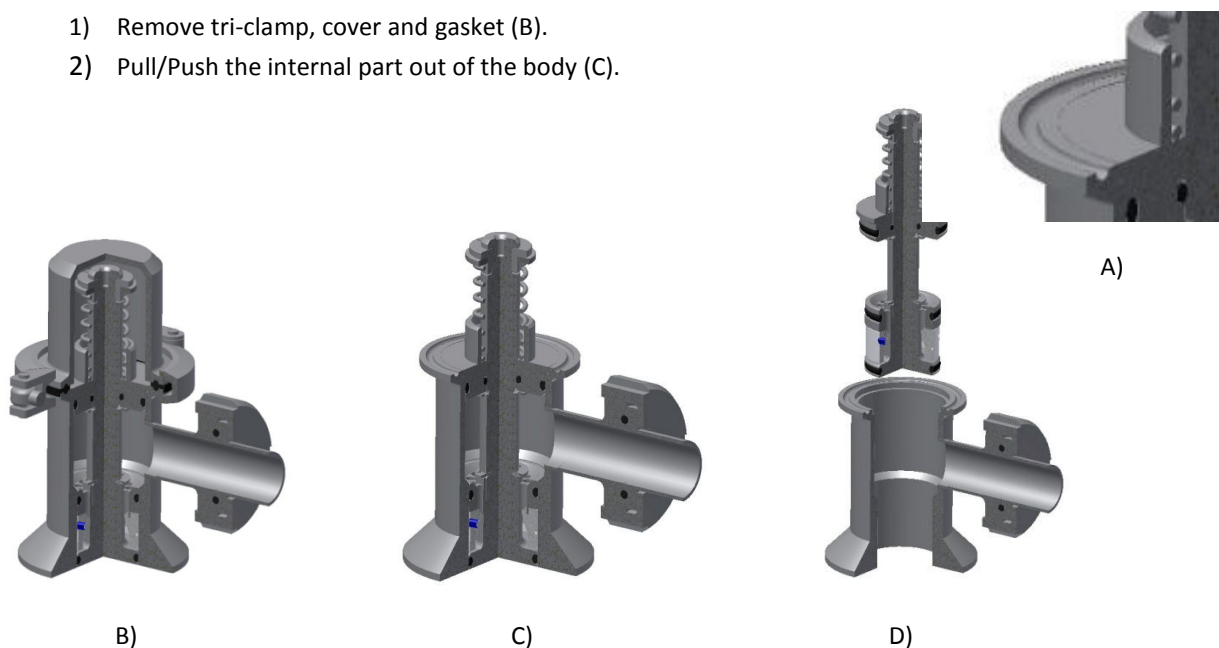
6. Maintenance

Principally, the retractable nozzle is free of maintenance. However, you should do a periodically inspection when the installation is running. The retractable nozzle is designed to operate inside the process installation, therefore it is unlikely that regular cleaning is necessary. Fouling of the retractable nozzle affects the efficiency of the retractable nozzle.

6.1 Inspection

Dismantling of CIP nozzle:

- 1) Remove tri-clamp, cover and gasket (B).
- 2) Pull/Push the internal part out of the body (C).

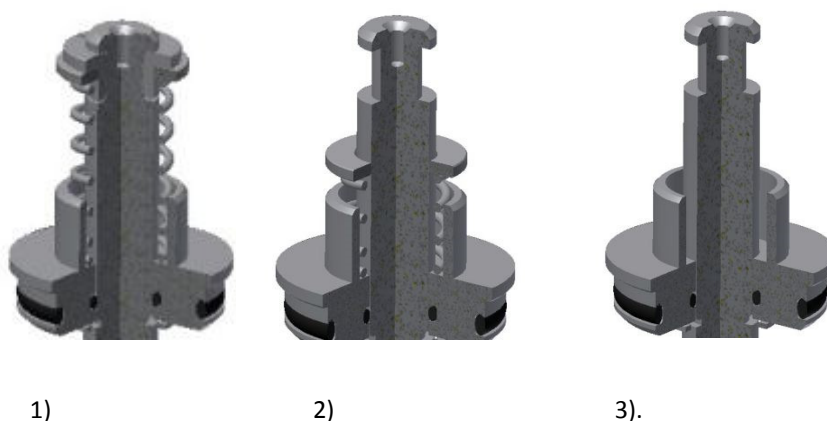


Mount CIP Nozzle:

- 1) Replace the internal part in to the body and make sure triclamp and closing plate are flat (D).
- 2) Replace gasket, cover and triclamp (A).

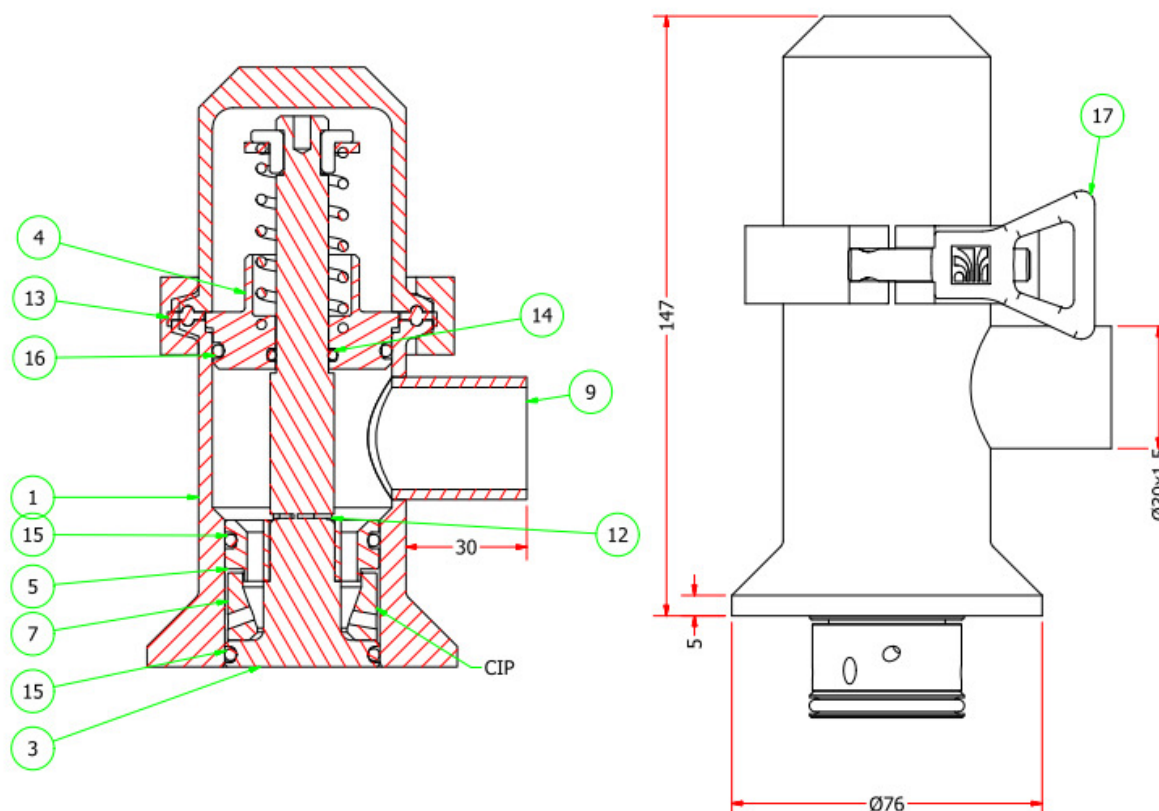
Dismantling the internal parts of the CIP Nozzle is only necessary for replacing O-rings or springs.

1. By Pushing the sealing ring down (2), Removal of the two safety clips is possible.
2. Afterwards removal of sealing ring and spring is possible.



7. Spareparts

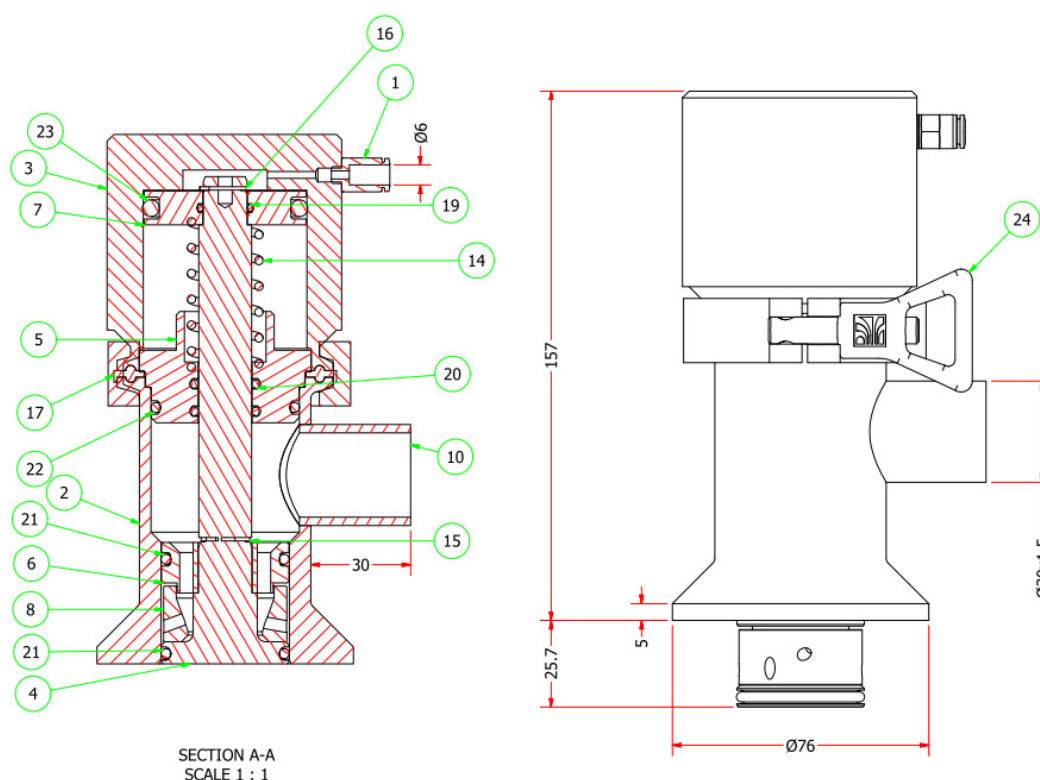
7.1 Retractable CIP Nozzle, fluid open, spring return



SECTION A-A
SCALE 1 : 1

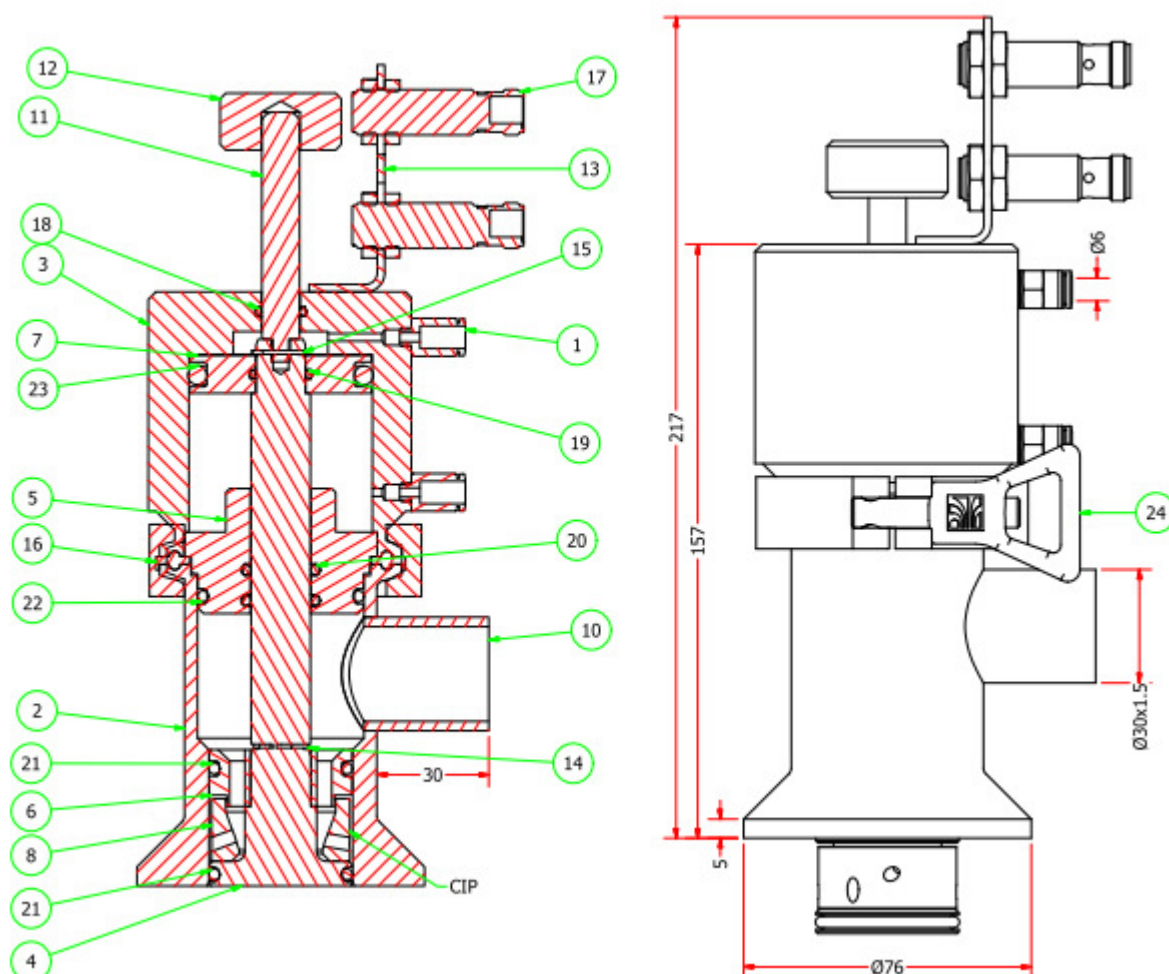
17	1	Triclamp 2inch BPE			
16	1	O-RING 38x3	O-ring		Rubber
15	2	O-RING 32x3	O-ring		Rubber
14	1	O-RING 12.6x2.4	O-ring		Rubber
13	1	Gasket tryclamp	2"		Rubber
12	1	DIN 471 - 12x1	Zegering		A2
11	1	CS305	Drukveer		AISI 304
10	2	15S03-112A	Halve veerborgring	L=10,5	AISI 316
9	1	15S03-108	Buis Ø 30,0x2,5	L=39	AISI 316
8	1	15S03-107A	Nozzle (brandblus)	L=17	AISI 316
7	1	15S03-106A	Nozzle (CIP)	L=17	POM
6	1	15S03-105B	Ring tbv veer	L=2,5	AISI 316
5	1	15S03-104A	Geleidering	L=15	AISI 316
4	1	15S03-103B	Geleidebus fluid open/spring return	L=28	AISI 316
3	1	15S03-102B	Zuigerstang fluid open/spring return	L=135	AISI 316
2	1	15S03-101C	Kap fluid open/spring return	L=60	AISI 316
1	1	15S03-100A	Onderhuis	L=85	AISI 316
Pos	Aantal	Tek./type nr.	Omschrijving	Afmetingen	Materiaal
Stuklijst					

7.2 Retractable CIP Nozzle, air open, spring return



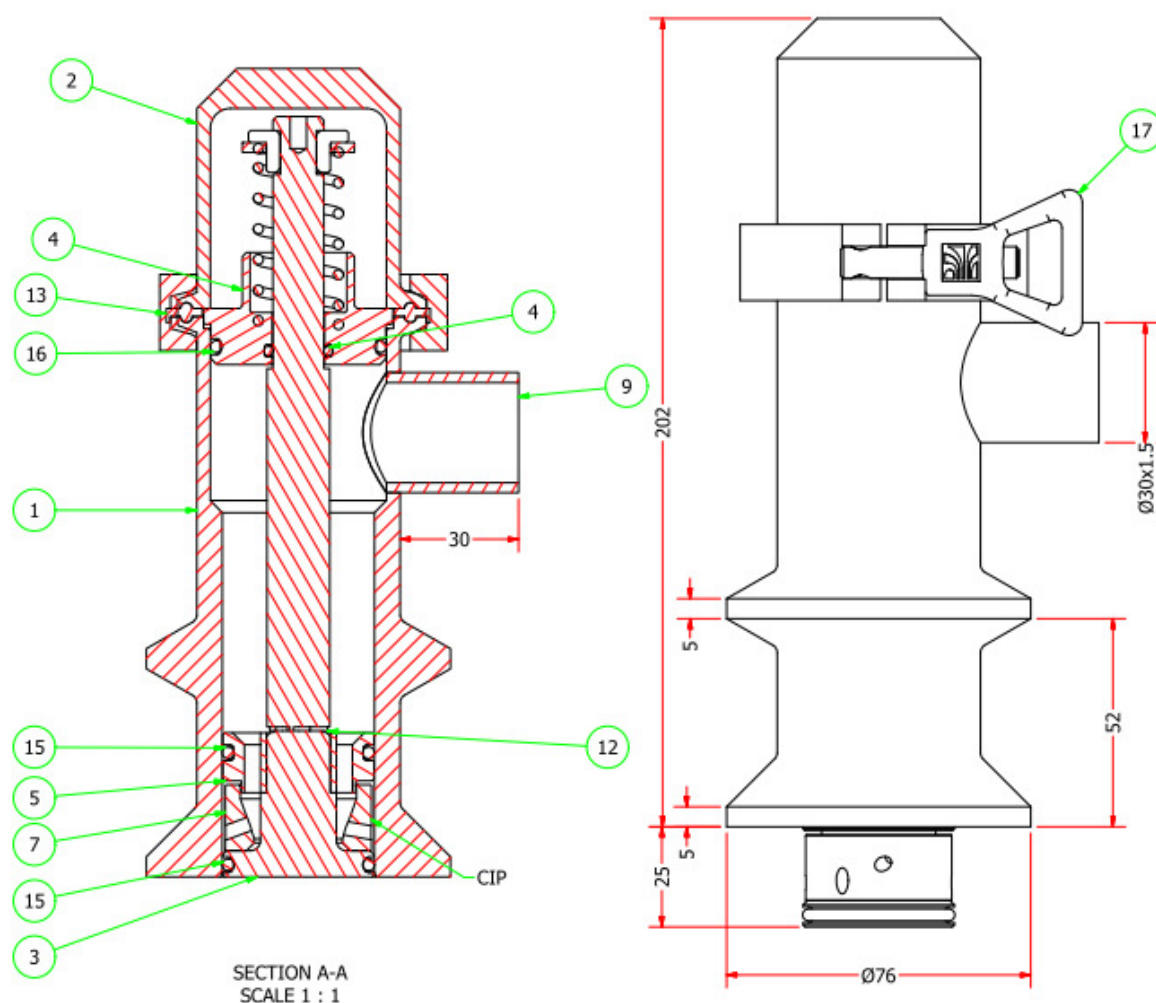
24	1	Triclamp 2inch BPE			
23	1	O-RING 39x5	O-ring		Rubber
22	1	O-RING 38x3	O-ring		Rubber
21	2	O-RING 32x3	O-ring		Rubber
20	2	O-RING 15.88x2.62	O-ring		Rubber
19	1	O-RING 13x2	O-ring		Rubber
17	1	Gasket tryclamp 2"			Rubber
16	1	DIN 471 - 9x1	Zegering		A2
15	1	DIN 471 - 12x1	Zegering		A2
14	1	CS305	Drukveer		AISI 304
10	1	15S03-108	Buis Ø 30,0x2,5	L=39	AISI 316
9	1	15S03-107A	Nozzle (brandblus)	L=17	AISI 316
8	1	15S03-106A	Nozzle (CIP)	L=17	POM
7	1	15S03-105A	Zuiger air open/close	L=10	AISI 316
6	1	15S03-104A	Geleidering	L=15	AISI 316
5	1	15S03-103C	Geleidebus air open/spring return	L=33	AISI 316
4	1	15S03-102A	Zuigerstang air open/close	L=144,5	AISI 316
3	1	15S03-101G	Kap air open/spring return	L=70	AISI 316
2	1	15S03-100A	Onderhuis	L=85	AISI 316
1	1	153306 QSM-M5-6	QSM-Push-in fitting		
Pos	Aantal	Tek./type nr.	Omschrijving	Afmetingen	Materiaal
Stuklijst					

7.3 Retractable CIP Nozzle, air open, air return



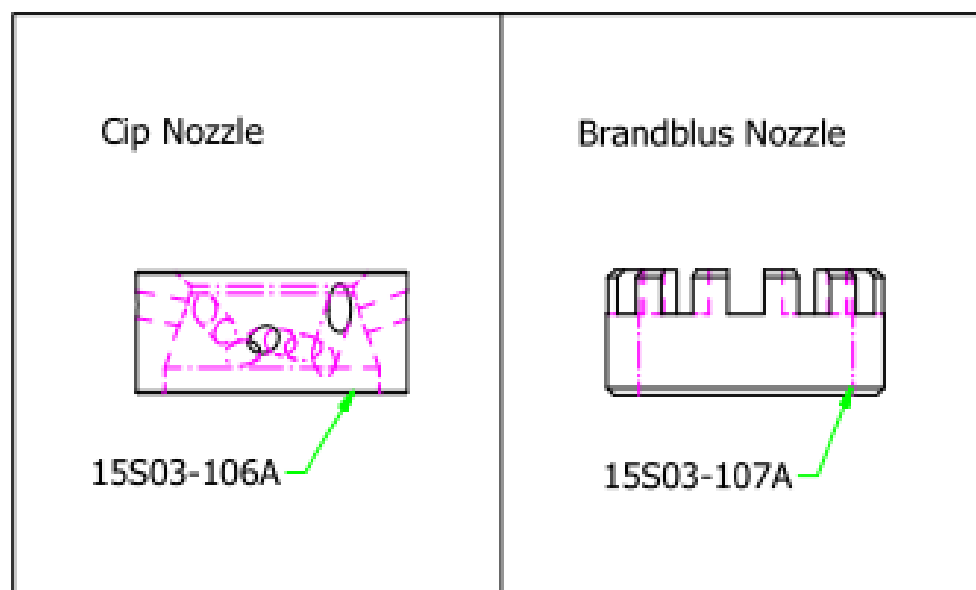
24	1	Triclamp 2inch BPE			
23	1	O-RING 39x5	O-ring		Rubber
22	1	O-RING 38x3	O-ring		Rubber
21	2	O-RING 32x3	O-ring		Rubber
20	2	O-RING 15.88x2.62	O-ring		Rubber
19	1	O-RING 13x2	O-ring		Rubber
18	1	O-RING 10x2	O-ring		Rubber
17	2	IFT203	Sensor		
16	1	Gasket tryclamp	2"		Rubber
15	1	DIN 471 - 9x1	Zegering		A2
14	1	DIN 471 - 12x1	Zegering		A2
13	1	15S03-111A	Sensor steun	76x47	AISI 304
12	1	15S03-110A	Sensor nok	L=15	AISI 316
11	1	15S03-109A	Sensor as	L=66	AISI 316
10	1	15S03-108	Buis Ø 30,0x2,5	L=39	AISI 316
9	1	15S03-107A	Nozzle (brandblus)	L=17	AISI 316
8	1	15S03-106A	Nozzle (CIP)	L=17	POM
7	1	15S03-105A	Zuiger air open/close	L=10	AISI 316
6	1	15S03-104A	Geleidering	L=15	AISI 316
5	1	15S03-103A	Geleidebus air open/close	L=33	AISI 316
4	1	15S03-102A	Zuigerstang air open/close	L=144,5	AISI 316
3	1	15S03-101B	Kap air open/close tbv sensor	L=70	AISI 316
2	1	15S03-100A	Onderhuis	L=85	AISI 316
1	2	153306 QSM-M5-6	QSM-Push-in fitting		Generic
Pos	Aantal	Tek./type nr.	Omschrijving	Afmetingen	Materiaal

7.4 Extended body



17	1	Triclamp 2inch BPE			
16	1	O-RING 38x3	O-ring		Rubber
15	2	O-RING 32x3	O-ring		Rubber
14	1	O-RING 12.6x2.4	O-ring		Rubber
13	1	Gasket tryclamp	2"		Rubber
12	1	DIN 471 - 12x1	Zegering		A2
11	1	CS305	Drukveer		AISI 304
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4	1	15S03-103B	Geleidebus fluid open/spring return	L=28	AISI 316
3	1	15S03-102C	Zuigerstang fluid open/spring return	L=190	AISI 316
2	1	15S03-101C	Kap fluid open/spring return	L=60	AISI 316
1	1	15S03-100B	Onderhuis	L=140	AISI 316
Pos	Aantal	Tek./type nr.	Omschrijving	Afmetingen	Materiaal
Stuklijst					

7.5 As per cip nozzle, different spinner



8. Contact Information Sanco Processing

Please contact Sanco Processing for any questions about the retractable nozzle.

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