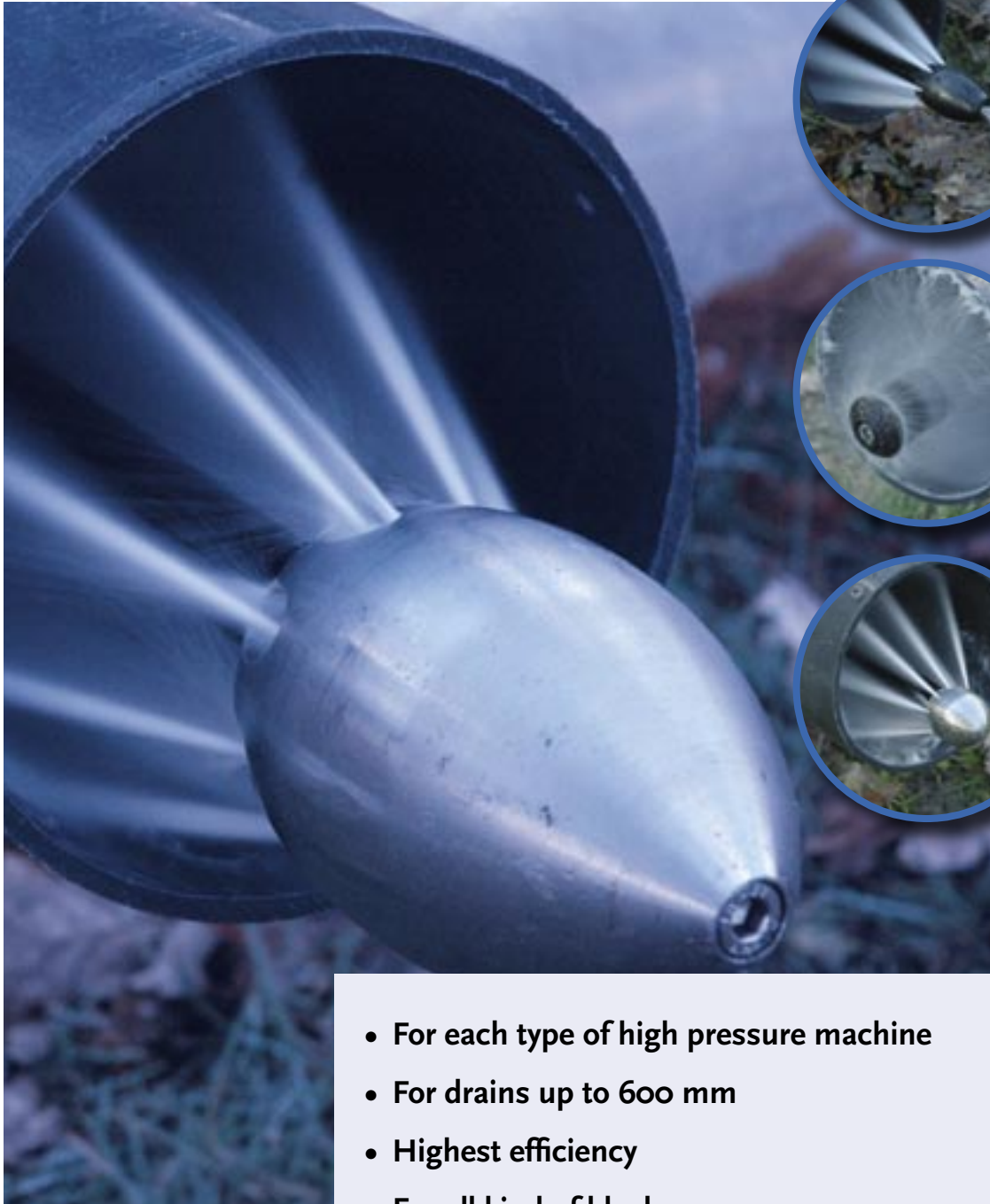


# Jetting nozzles

## Overview jetting nozzles



Jetting nozzles

- For each type of high pressure machine
- For drains up to 600 mm
- Highest efficiency
- For all kind of blockages
- Radial or rotating
- With or without front jet
- Stainless steel or tempered steel
- With or without (ceramic) insert nozzles
- Matching hoses and hose inlet guidance tubes and rollers

Rioned can supply jetting nozzles for any type of high pressure jetting machine and has an extensive range of jetting nozzles in all types and sizes; suitable for a diversity of blockages in drains up to 600 mm.

#### Highest efficiency

A good jetting nozzle contributes to a maximum efficiency of high pressure jetting machines. This means:

- thorough cleaning,
- optimal rinsing effect,
- high to very high traction,
- minimal loss of pressure,
- short cleaning time,
- high performance velocity from water jets,
- low friction resistance,
- no damage to sewer pipes.

Rioned supplies jetting nozzles that meet the highest efficiency demands.

#### For all kind of blockages

Each cleaning job requires a specific approach. That is why Rioned has a diverse range of jetting nozzles. Because of the design, some are better for unblocking, others for cleaning the drain wall. Radial jetting nozzles for example, usually perform well in unblocking: the static jet streams increase the traction. Rotating jetting nozzles on the other hand spray in all directions and are the best drain cleaners. They are often used to do some extra cleaning after unblocking a drain, to prevent new blockages. Some jetting nozzles are made for obstructions in or around the house that are caused by deposits of grease or soap. Others are armed with chains or steel wires to handle the most difficult jobs like the descaling of lime, cement or concrete, hard grease and smaller roots.

Rioned also has several special jetting nozzles in its assortment for very specific situations, like root cutters and sand shoes.

#### Open or blind

An open jetting nozzle has forward and rear facing holes. The forward jet streams do the unblocking and the rear jet streams provide traction. A blind jetting nozzle has rear facing holes only for the best traction.

#### Stainless steel or tempered steel

Rioned jetting nozzles are super solid. They are made of stainless or tempered steel. Only the sand shoes are made out of another material: the small ones out of the relatively light weight aluminium and the bigger ones are of bronze so that they are heavy enough to stay at the bottom of a sewer.

#### Insert nozzles

Most jetting nozzles have insert nozzles that can be replaced. After a while the holes (the nozzles) wear out because of the water power. Then the jetting nozzle loses pressure. The lifetime of a jetting nozzle can be increased substantially by replacing the insert nozzles. There are steel as well as ceramic insert nozzles. Those with the ceramic inner layer are even more resistant to wear.

#### Matching hoses and hose inlet guidance tubes and rollers

Several circumstances contribute to the efficiency of a jetting nozzle. For example the size of the jetting nozzle compared to the size of the drain that has to be cleaned and the power of the pump (pressure and litres / minute).

Very important, but often forgotten, is the hose. Its length and diameter can improve or interfere with the performance of the jetting nozzle. The correct length and diameter of the hose determines performance.

That is why Rioned also supplies matching hoses in a good quality: reliable, smooth, flexible and durable.

To avoid hose damage at the entrance of a drain, there are also several types of hose inlet guidance tubes and rollers available.



# Radial jetting nozzles

## Standard jetting nozzle

Rioned delivers standard nozzles with each new high pressure jetting machine. They belong to the basic equipment and are mainly used for working on deposits of grease and soap in pipes in or around the house.

<b>Diameter</b>	16 - 50 mm
<b>Length</b>	17 - 60 mm
<b>Design</b>	stainless steel, open and blind
<b>Flow range</b>	10 - 120 lpm / 2 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/8", 1/4", 3/8", 3/4", 1/2", 1"
<b>Usage</b>	drains with Ø 32 - 250 mm 90°-curves starting from 110 mm



## S31 jetting nozzle

The shorter version of the Standard jetting nozzle; also meant for unblocking pipes in or around the house. It has a strong jet stream for good cleaning. However, the S31 can move through curves and smaller pipes better because of its shorter length.

<b>Diameter</b>	34 mm
<b>Length</b>	31 mm
<b>Design</b>	stainless steel, open and blind
<b>Flow range</b>	30 - 120 lpm / 7 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 75 - 250 mm 90°-curves starting from 90 mm



## Front jetter

This jetting nozzle has only 1 front jet and no jet stream backwards. Therefore it is best used to clean wells and pumps or to push forward the sludge through the pipes.

<b>Diameter</b>	28 mm
<b>Length</b>	85 mm
<b>Design</b>	precious steel, blind (no holes at the rear)
<b>Water flow</b>	30 - 400 lpm / 7 - 89 gpm
<b>Pressure</b>	max. 200 bar / 2900 psi
<b>Connection</b>	1/2"



## High yield jetting nozzle

Combines traction with cleaning capacity. Its high yield comes from a built-in chamber that limits the loss of pressure in the jetting nozzle. Its cleaning capacity comes from two spray rings giving jet streams at different angles.

<b>Diameter</b>	38 mm
<b>Length</b>	46 mm
<b>Design</b>	stainless steel, open and blind
<b>Water flow</b>	40 - 120 lpm / 9 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 90 - 300 mm 90°-curves starting from 110 mm

## Sand shoe

Designed to clear away sand and stones. Because of their shape, they remain flat on the bottom of the sewer. Therefore they are extremely suitable to clean the bottom of wider drains. They are capable to replace many times their own weight of sand and stones. To achieve the highest efficiency, always use a sand shoe in combination with a rotating coupling.

<b>Width</b>	97 - 160 mm
<b>Length</b>	195 - 260 mm (without coupling)
<b>Design</b>	aluminium / bronze, open
<b>Water flow</b>	30 - 400 lpm / 7 - 89 gpm
<b>Pressure</b>	max. 200 bar / 2900 psi
<b>Connection</b>	1/2", 3/4", 1"
<b>Usage</b>	drains with Ø starting from 250 mm 90°-curves starting from 250 mm

# Nozzle sets

Rioned has two complete jetting nozzle sets available for those who always want to have the right tools at hand for all kind of blockages: the Basic and the Professional. The Basic contains all jetting nozzles that everybody should have. The Professional is for more difficult jobs and is equipped with jetting nozzles for bigger and more powerful high pressure jetting machines.



## Rocket jetting nozzle black

A jetting nozzle with a huge traction and very powerful jet streams that make it ideal for longer pipes. It is also available with a front jetter.

<b>Diameter</b>	60 mm
<b>Length</b>	120 mm
<b>Design</b>	tempered steel, open with insert nozzles
<b>Water flow</b>	40 - 120 lpm / 9 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 100 - 400 mm 90°-curves starting from 200 mm



## Granate jetting nozzle

A standard jetting nozzle for pipes with a bigger diameter. It also has an excellent traction.

<b>Diameter</b>	50 mm
<b>Length</b>	75 mm
<b>Design</b>	stainless steel, open with insert nozzles
<b>Water flow</b>	40 - 120 lpm / 9 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 90 - 250 mm 90°-curves starting from 150 mm



## Torpedo jetting nozzle

It looks like the Granate jetting nozzle, but is much bigger and is made for wider pipes. The Torpedo has more jets at the rear for even more traction.

<b>Diameter</b>	75 mm
<b>Length</b>	125 mm
<b>Design</b>	stainless steel, open with insert nozzles
<b>Water flow</b>	40 - 400 lpm / 9 - 89 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1" (if necessary adapter ring 1" to 1/2" or 3/4")
<b>Usage</b>	drains with Ø 150 - 500 mm 90°-curves starting from 200 mm



## Quatro set jetting nozzle

The tapering jetting nozzle that is best for difficult obstructions. It cuts, breaks and removes them. The Quatro set is also the best solution for ice in the pipes.

<b>Diameter</b>	18 - 50 mm
<b>Length</b>	28 - 85 mm
<b>Design</b>	tempered steel, open
<b>Water flow</b>	17 - 400 lpm / 4 - 89 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/8", 1/4", 1/2", 3/4", 1"
<b>Usage</b>	drains with Ø 32 - 500 mm 90°-curves (depending on the size) starting from 50 mm



### The Basic contains:

- Two mini jetting nozzles 1/8" (open and blind) suitable for a mini high pressure jetting hose
- S31
- High efficiency jetting nozzle
- Front jetter
- Granate jetting nozzle
- Quatro set
- Rotating jetting nozzle stainless steel
- Nozzle needles
- Universal lubricating oil



### The Profiset contains:

- Two mini jetting nozzles 1/8" (open and blind) suitable for a mini high pressure jetting hose
- S31
- High efficiency jetting nozzle
- Front jetter
- Rotating jetting nozzle tempered steel
- Tornado
- Quatro set
- Torpedo
- Sand shoe
- Nozzle needles
- Universal lubricating oil



# Rotating jetting nozzles

## Standard rotating jetting nozzle stainless steel



Rotating jetting nozzle that cleans away deposits of soap and grease and leaves drains streak-free.

<b>Diameter</b>	40 mm
<b>Length</b>	85 mm
<b>Design</b>	stainless steel, steel insert nozzles
<b>Water flow</b>	40 - 120 lpm / 9 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 90 - 200 mm 90°-curves starting from 110 mm

## Standard rotating jetting nozzle tempered steel



Rotating jetting nozzle made of tempered steel with ceramic insert nozzles.

<b>Diameter</b>	40 mm
<b>Length</b>	85 mm
<b>Design</b>	stainless steel, ceramic insert nozzles
<b>Water flow</b>	10 - 400 lpm / 2 - 89 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/8", 1/4", 3/8", 1/2"
<b>Usage</b>	drains with Ø 32 - 250 mm 90°-curves starting from 110 mm

## Tornado jetting nozzle



The 'super unblocker'. This jetting nozzle has a special construction with a rotating ceramic part so that the water comes out in the form of a cone. This cone drills away any obstructions. At the same time the Tornado has an excellent traction.

<b>Diameter</b>	39 mm
<b>Length</b>	64 mm
<b>Design</b>	stainless steel, open with insert nozzles
<b>Water flow</b>	30 - 120 lpm / 7 - 27 gpm
<b>Pressure</b>	max. 300 bar / 4350 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 75 - 200 mm 90°-curves starting from 110 mm

### An ideal couple

Equipped with the Tornado and the Blizzard you can solve nearly all obstruction problems!

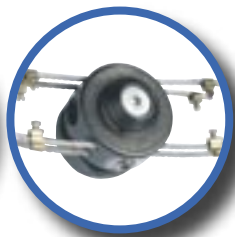
## Blizzard jetting nozzle



The 'all-in-one' jetting nozzle. With its hydraulic tempered front jet it drills itself through blockages. The rotating partition prevents spinning and limits the spraying of the water. Therefore the Blizzard has more power and is capable to clean the whole drain wall. It is available in four different sizes and with attachment to extend or centralize the jetting nozzle: the Centralizer and the Super Centralizer.



	Mini	Small	Large	Extra Large
<b>Diameter</b>	48	48	79	107 mm
<b>Length</b>	67	112	191	231 mm
<b>Design</b>	stainless steel, open			
<b>Water flow</b>	15 - 45 lpm 3 - 10 gpm	27 - 75 lpm 6 - 17 gpm	42 - 150 lpm 9 - 33 gpm	190 - 300 lpm 42 - 67 gpm
<b>Pressure</b>	275 / 4000	275 / 4000	550 / 8000	200 / 3000 bar/psi
<b>Connection</b>	3/8"	1/2"	1/2" or 3/4"	1"
<b>Usage</b>	drains with Ø 75 - 900 mm 90°-curves starting from:			
	75 mm	110 mm	250 mm	300 mm
<b>Rotation speed</b>	300 - 500	200 - 500	150 - 300	150 - 300 rpm



## Buster jetting nozzle

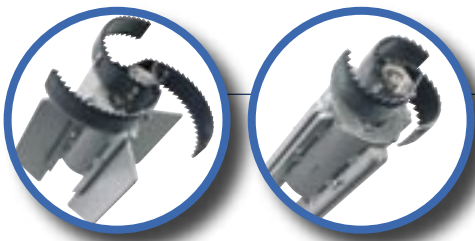
Made for the most difficult obstructions, but relatively light-weight. It hits, cuts and scrapes through everything. The Buster is delivered as a set with a body and three jetting nozzles provided with:

- Link chains for hardened blockages (limescale, cement or concrete)
- Industrial chains, sharp enough to tackle grease or smaller roots
- Steel wires to scrape the pipes clean.

The set also contains a cutting point to drill through blockages.



<b>Diameter</b>	50 mm
<b>Length</b>	65 mm
<b>Design</b>	tempered stainless steel, open and blind
<b>Water flow</b>	30 - 120 lpm / 7 - 27 gpm
<b>Pressure</b>	80 - 300 bar / 1130 - 4230 psi
<b>Connection</b>	1/2"
<b>Usage</b>	drains with Ø 80 - 250 mm 90°-curves starting from Ø 90 mm
<b>Rotation speed</b>	depending on the capacity of the machine



# Hydraulic root cutter

The best solution for drains that are blocked by roots, hard grease, compacted sand or soil. The Rioned root cutters are powerful, reliable and easy to use. They consist of a central body with knives in different sizes and matching skids to keep them centralized in the drain. The knives have sharp angular teeth at front and rear. Rioned supplies two types: there is a standard root cutter as well as the Maxi. The Maxi is for high pressure jetting machines and combination units with more water flow and bigger connections.

All root cutters come as a complete set in a carrying box.

Each set contains:

- standard knives
- standard skids
- transport box
- grease/waternipple
- mounting set
- grease gun



Maxi

	Hydraulic root cutter	Hydraulic root cutter Maxi
<b>Diameter</b>	starting from 100 mm	starting from 150 mm
<b>Length</b>	200 mm (knife included)	310 mm (knife included)
<b>Design knives</b>	tempered steel	tempered steel
	open	open
<b>Water flow</b>	40 - 120 lpm / 9 - 27 gpm	135 - 230 lpm / 30 - 51 gpm
<b>Pressure</b>	max. 140 bar / 2100 psi	max. 140 bar / 2100 psi
<b>Connection</b>	1/2"	3/4", 1"
<b>Usage</b>	drains with Ø 100 - 350 mm	drains with Ø 150 - 500 mm
<b>Standard knives</b>	Ø 100, 150 or 200 mm	Ø 150, 200, 250, 300 or 375 mm
<b>Optional knives</b>	Ø 125, 225 or 250 mm	
<b>Standard skids</b>	Ø 100, 150 or 200 mm	Ø 150, 200, 250, 300 or 375 mm
<b>Optional skids</b>	Ø 125, 225 or 250 mm	



## High pressure hoses

The high pressure hose has to be adjusted to the water flow and the pressure of the machine. That is why for each high pressure jetting machine, Rioned gives advice about the length and the (inside) diameter of the hose. Do always follow this advice in order to obtain the highest efficiency of the machine and the jetting nozzle.

In longer hoses, the water gets more resistance; using a hose that is too long, therefore causes an unnecessary loss of pressure. If the hose is too narrow, there is a loss of pressure too. And if the hose is too wide for the machine (a wrong inside diameter), the jet stream also loses power.

Rioned supplies reliable and smooth hoses in different sizes. They are special hoses for cleaning work, very flexible, resistant to high pressure, and fit for drains with a diameter up to 600 mm. These hoses are made of a flexible rubber compound and all have a steel inside coating to make them even more reliable and resistant to wear. The outside is smooth so that they have less resistance and are more hygienic than for example textile hoses.



Inside diameter	Length	Coupling
NW 5 (= 3/16")	10, 15 or 20 m	1/8" x 1/8"
NW 6 (= 1/4")	10, 15 or 20 m	1/8" ext. 3/8" int.
NW 8 (= 5/16")	10, 20 or 30 m	1/4" x 3/8"
NW 10 (= 3/8")	20, 30, 40 or 50 m	2" x 1/2"
NW 13 (= 1/2")	20, 40, 50, 60, 80, 100 or 120 m	2" x 1/2"
NW 16 (= 5/8")	80, 100 or 120 m	2" x 1/2"

other lengths on request.

## Hose inlet guidance



Often a hose has to be pass sharp edges at the entrance or the inside of a drain. The hose scrapes along these sharp edges, which causes unnecessary wear. This happens also inside the drain, at the link between the vertical and the horizontal pipes.

Special accessories have been developed to prevent such damage: the hose inlet guidance tubes and rollers.

Rioned supplies them in different types:

- A metal guidance that is put over the edges of the drain, protecting the hose at the inlet of the drain.

- A metal guidance that can be brought into the drain to guide the hose at the bottom of the drain. This guidance protects the hose at the link between the vertical and the horizontal pipes.
- A plastic guidance that is also led into to the drain to protect the hose at the bottom of the drain.

For most of them the principal is the same: nylon rollers guide the hose into the drain so that it does not touch the edges. The inlet guidance's are suitable for are all Rioned high pressure hoses: from NW 5 until NW 16.

# Basic rules for using the right jetting nozzle

1. Choose the jetting nozzle that best fits the application. The schedule below shows which one is best suited for which type of work.

	Cleaning drain walls	Unblocking grease and soap	Sand	Hardened deposits (lime concrete, cement etc.)	Ice in drains	Roots	Washing wells and pumps
Standard jetting nozzles							
S31							
Front jetter							Best solution
High yield jetting nozzle	Best solution						
Rocket jetting nozzle black							
Granate							
Torpedo							
Quatro set							
Standard rotating jetting nozzle							
Tornado							
Buster							
Blizzard							
Root cutter							Best solution
Sand shoe			Best solution				

Not fit	
Possible	
Best solution	

2. Check which function the jet streams need to have. Do they have to unblock, clean or provide traction?  
*A strong jet stream forward will unblock well and drills a hole through difficult obstructions. When cleaning from the building, a strong jet stream forward is necessary to move the dirt forwards.*  
*A strong jet stream backward gives traction. When cleaning from the drain, a strong jet stream backward is necessary to pull back the dirt.*  
*Sideways jet streams spray into the direction of the drain walls and are best fit to clean.*

3. Check the right size of the jetting nozzle  
*If a jetting nozzle is too small, it does not clean very well and it can easily turn around inside a pipe. A jetting nozzle that is too big can not take angles.*  
*As a basic rule, we advise a jetting nozzle with a diameter that is about 1/4 of the drain that has to be cleaned. To prevent problems in curves, never use a jetting nozzle that is longer than the diameter of the drain.*

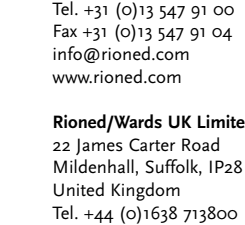
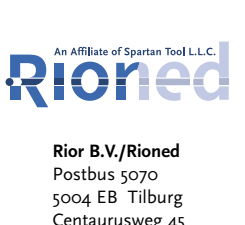
4. Check the capacity of the pump  
*The hose and the jetting nozzle need a certain water flow. Always check if the pump is capable of delivering enough water for optimal use of the jetting nozzle.*

5. Check the nozzles  
*The pump presses the water with power through the nozzles (the holes in the jetting nozzle). This is what causes the water pressure. If the nozzles are too small, too much pressure is caused which damages the pipes. If they are too big, not enough pressure is built up for doing the job well. Always take care that for each machine a good jetting nozzle with the right holes is used.*  
*It is also recommended to check the holes regularly on wear and blockages.*

6. Adjust the jetting nozzle to the hose and the connection  
*It goes without saying that the jetting nozzle has to fit on the coupling. If the diameter of the hose is too small, it is too flexible and it can turn around in the pipe while it is being used.*  
*All Rioned jetting nozzles are female; that is why they are as short as possible.*

When ordering a jetting nozzle always tell us

- the length, diameter and connection on the hose
- working pressure and litres of the pump



Rior B.V./Rioned is the European market leader in cleaning, detection and inspection systems for small and medium-sized drains and sewers. From the head office in Tilburg (the Netherlands) as well as the affiliates in the UK, France and Belgium, worldwide markets are served.

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