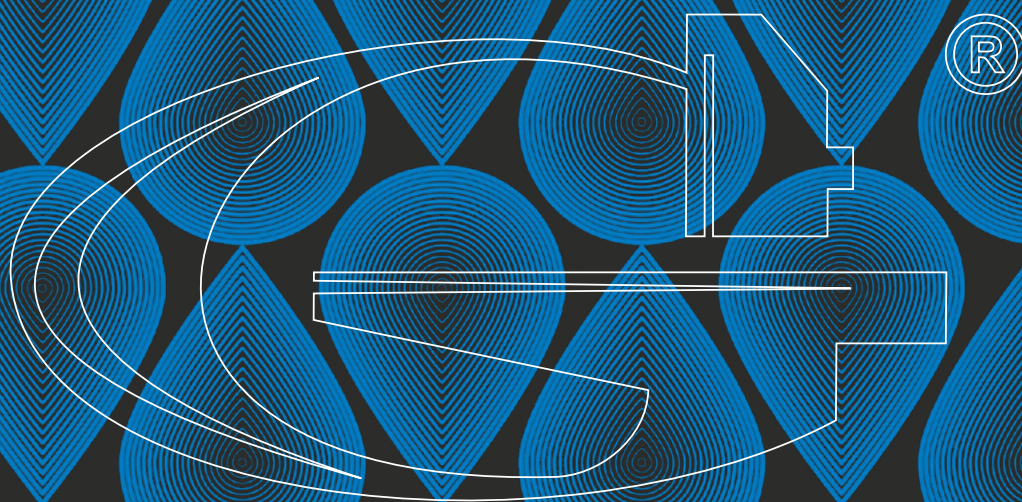




Gregorczyk
Zakład Metalowy

Product Catalogue

High-pressure nozzles, sewer line cleaning
equipment and accessories



Gregorczyk zakład Metalowy

Zakład Metalowy is a family business with over 70 years of experience.

For over 40 years, it has been the only company in Poland to manufacture high-pressure equipment and nozzles for cleaning and unclogging sewers.

The Company also designs and implements individual orders to satisfy customer's needs.

At present

Currently, Zakład Metalowy inż. Jerzy Gregorczyk produces 65 types of nozzles, valves for pumps and pressure converters as well as additional equipment facilitating the cleaning process.

The Company offers comprehensive services in the selection of nozzles for individual customer needs depending on the type of high-pressure construction. Most of the nozzles produced have a patent document or are protected by a protective right issued by the Patent Office of the Republic of Poland.

By combining experience with the needs of the industry market, the Company introduces new design solutions for nozzles, heads and accessories, effectively competing with nozzles of western manufacturers.

Sharing our experience, we provide technical advice, keep records of our clients' utilities and parameters, and offer full customisation of nozzles depending on the need. We provide a comprehensive service that includes the service of nozzles and accessories, both produced by us and other European companies.

We offer a wide range of nozzles and sewer cleaning devices. Our products ensure comprehensive sewage system cleaning, including:

- | | |
|---|--|
| envelope cleaning | cutting roots (from 150mm to 800mm) |
| removing and breaking blockages | drain milling before trenchless renovation |
| cleaning and rinsing of the bottom of the sewer | preparing sewers for TV inspection |
| removing hard limescale deposits from the sewage system | |

Worldwide presence



Our products are working successfully in dozens of European countries, in Canada, and in the United States:

Austria
Belgium
Belarus
Czech Republic
Estonia
Finland
France

Spain
Ireland
Iceland
Liechtenstein
Lithuania
Latvia
Germany

Norway
Portugal
Slovakia
Ukraine
Hungary
United Kingdom
Italy

Canada
United States

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Over 40 years of experience

1982

Establishment of
Zakład Metalowy
inż. Jerzy Gregorczyk

1994

1st patent granted by Patent
Office of the Republic of Poland

1995

Development and introduction
of ceramic inserts into
production

1997

First participation in the WOD-KAN
Exhibition Fair in Bydgoszcz, Poland
(continuously for the next 20 years)

1998

4th patent granted by Patent
Office of the Republic of Poland

1999

Right of Protection for a utility
model granted by the Patent
Office of the Republic of Poland

2002

Right of Protection for a utility
model granted by the Patent
Office of the Republic of Poland

2006

AQUA UKRAINE 2006
trade fair

2009

Madrid International Fair 2009

2015

First internation transaction

2016

Munich Trade Fair (IFAT)

2020

Modernization of production
processes

1996

2nd patent granted by Patent Office of the Republic of Poland

1997

3rd patent granted by Patent Office of the Republic of Poland

1997

Award for the best regional product at the 5th International Multi-branch Fair in Mielec, Poland

2000

Right of Protection for a utility model granted by the Patent Office of the Republic of Poland

2000

5th patent granted by Patent Office of the Republic of Poland

2002

First foreign transaction within the European Union

2013

Podkarpackie Innovator Award for Innovative Product

2013

Introduction of the first Community Design

2014

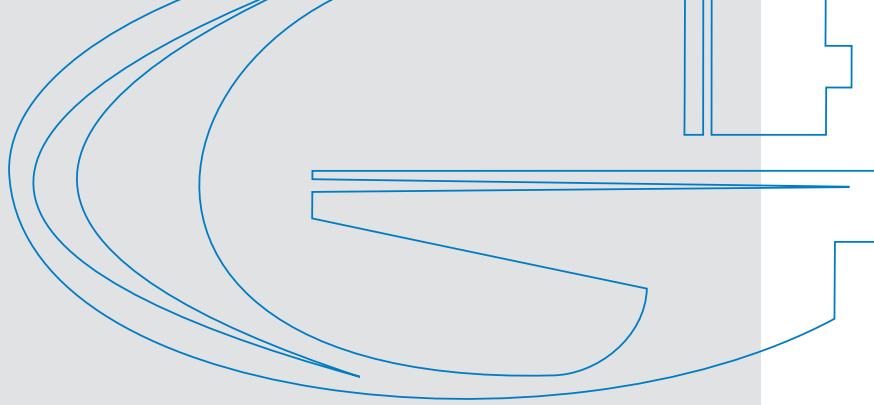
Introduction of the second Community Design

2022

40th anniversary of the Zakład Metalowy inż. Jerzy Gregorczyk

Table of applications

	Clog removal	DP	DQ
	Universal cleaning and sediment removal	BA	DK
	Sewer flushing nozzles	BA	DDC
	Cleaning and flushing sediment from the bottom of the sewer	DC	DD
	Grease removal	DAL	DDC
	Thorough cleaning of sewer lines prior to TV inspection	BA	DDC
	Removal of hard lime deposits, root cutting, and milling of lines prior to trenchless rehabilitation	DR Ø150-200	DLF Ø200-450(600)



DSQ			
KJ	KK	KS	PN
PN	ST		
F	G		
HRH	KBR	RGS	
G			
DF Ø500-800(1000)			

Universal cleaning



DK Sewer nozzle

Sewer nozzles are a group of nozzles made of high-alloy, heat-treated stainless steel. The nozzles are highly manoeuvrable. Owing to the distinctive shape they do not get stuck in the sewer. They have a forward water jet and 5 backward jets. Water discharge angles vary depending on the nozzle size. The nozzles are available in 6 sizes, ensuring comprehensive coverage of

diameters from 30mm. The nozzles are produced with drilled holes (models for smaller diameters). Nozzles for larger diameters are equipped with replaceable ceramic inserts (DK-50, DK-60, DK-75).



Technical parameters

	DK-25*	DK-30*	DK-40*	DK-50	DK-60	DK-75
 Junction	1/4"	1/2"	1/2", 3/4"	3/4", 1"	1", 5/4"	1", 5/4"
 Dimensions	Ø25x35	Ø30x45	Ø40x60	Ø50x80	Ø60x85	Ø70x120
 Number of inserts front	1 [-]	1 [-]	1 [-]	1 [D1M8]	1 [D1M8]	1 [D1M8]
 Number of inserts rear	5 [-]	5 [-]	5 [-]	5 [D1M8]	5 [D1M8]	8 [D1M8]
 Angle of water outflow	25°	35°	35°	35°	32°	32°+25°
 Diameter range	>Ø50	>Ø50	>Ø50	>Ø80	>Ø100	>Ø150
 Weight	0,15kg	0,15kg	0,20kg	0,55kg	0,95kg	1,70kg

* Nozzles with holes drilled in the body (no ceramic)

Universal cleaning



KK Spherical rinsing nozzle

Large group of nozzles available in 5 sizes. Each size is offered in two variants: spherical nozzles with one or three front holes. The number of backward water jets is selected depending on the operating parameters of the customer's pump. There can be 6 or 9 jets. The nozzles have replaceable ceramic inserts.

They are manufactured of high-alloy, heat-treated stainless steel, which increases their abrasion resistance and ensures a long service life. The nozzle can be fully customised depending on the customer's needs. Owing to its shape, the nozzle penetrates the sewer very well.



Technical parameters

		KK 3,5/30*	KK 1,5/30*	KK 3,9/40*	KK 1,9/40*	KK 3,9/45	KK 1,9/45	KK 3,9/60	KK 1,9/60	KK 3,9/80	KK 1,9/80
	Junction	1/4"	1/4"	1/2"	1/2"	1/2", 3/4"	1/2", 3/4"	3/4", 1", 5/4"	3/4", 1", 5/4"	1", 5/4"	1", 5/4"
	Dimensions	Ø30x30	Ø30x30	Ø40x40	Ø40x40	Ø45x45	Ø45x45	Ø60x60	Ø60x60	Ø80x80	Ø80x80
	Number of inserts front	3 [-]	1 [-]	3 [-]	1 [-]	3 [D3M6]	1 [D3M6]	3 [D3M8]	1 [D3M8]	3 [D3M8]	1 [D3M8]
	Number of inserts rear	5 [-]	5 [-]	6(9**) [-]	6(9**) [-]	6(9**) [D3M6]	6(9**) [D3M6]	9 [D3M8]	9 [D3M8]	9 [D3M8]	9 [D3M8]
	Angle of water outflow	25°	25°	25°	25°	25°	25°	25°	25°	25°	25°
	Diameter range	>Ø50	>Ø50	>Ø50	>Ø50	>Ø60	>Ø60	>Ø100	>Ø100	>Ø150	>Ø150
	Weight	0,06kg	0,06kg	0,20kg	0,30kg	0,30kg	0,30kg	0,80kg	0,80kg	1,40kg	1,40kg

* Nozzles with holes drilled in the body (no ceramic)

** Nozzles manufactured with 6 or 9 holes depending on the parameters of the customer's pump

Universal cleaning



ST Standard nozzle

The standard nozzle, due to its small dimensions (diameter 35 mm) has drilled holes. Each time, the diameter of the jet holes is selected based on the customer's pump operating parameters.

It can be produced as a model with a front pilot as well as a nozzle without a pilot. It is very manoeuvrable. Prepared for a 1/2" thread. Made of high-alloy stainless steel.

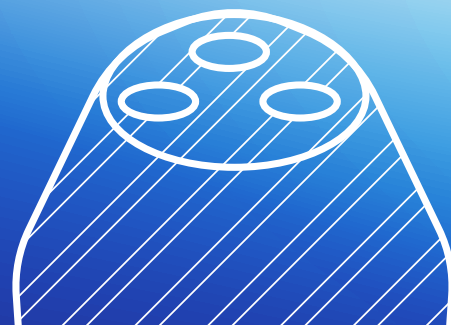


Technical parameters

	ST-1/30	ST-30
 Junction	1/2"	1/2"
 Dimensions	Ø35x40	Ø35x40
 Number of inserts front	1 [-]	-
 Number of inserts rear	5* [-]	5* [-]
 Angle of water outflow	17°	17°
 Diameter range	>Ø50	>Ø50
 Weight	0,15kg	0,15kg

*Number of jet holes selected on the basis of the parameters of the customer's pump operation (holes drilled in the body)

Universal cleaning



KS Conical nozzle

One size nozzle but with two types of forward water jets. The nozzle is available in the variant with one or more front water jets. It is made of high-alloy stainless steel that is heat treated to ensure its high abrasion resistance.

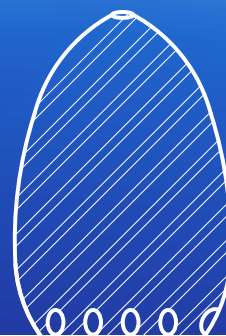
The nozzles have 9 backward water jets at the angle of 25°. Its dimensions ensure that the nozzle does not get stuck in the pipes. The nozzles have replaceable ceramic inserts.



Technical parameters

	KS-3,9/80	KS-1,9/80
 Junction	1", 5/4"	1", 5/4"
 Dimensions	Ø80x80	Ø80x80
 Number of inserts front	3 [D1M10]	1 [D1M10]
 Number of inserts rear	9 [D1M10]	9 [D1M10]
 Angle of water outflow	25°	25°
 Diameter range	>Ø100	>Ø100
 Weight	1,60kg	1,60kg

Sewer cleaning



KJ Rinsing nozzle

A group of nozzles with a characteristic shape, made of high-alloy, heat-treated stainless steel, which increases their abrasion resistance and ensures a long service life. The nozzles have a front ceramic insert (strong impingement water jet - can be plugged). Nine powerful jets are directed to the back at the angle of 25°

to drive the nozzle forward and flush debris forcefully. The nozzles are produced in 3 sizes. Each nozzle is equipped with replaceable ceramic inserts.



Technical parameters

	KJ-40	KJ-60	KJ-80
 Junction	1/2", 3/4"	3/4", 1", 5/4"	1", 5/4"
 Dimensions	Ø40x55	Ø60x110	Ø80x145
 Number of inserts front	1 [D3M6]	1 [D3M8]	1 [D3M8]
 Number of inserts rear	9 [D3M6]	9 [D3M8]	9 [D3M8]
 Angle of water outflow	25°	25°	25°
 Diameter range	>Ø50	>Ø100	>Ø150
 Weight	0,40kg	1,20kg	2,60kg

Sewer flushing



DC pulling and rinsing nozzle

Nozzle with very good dirt-removing properties and a low deadweight. It has 6 backward water jets arranged at small angles. Made of stainless steel and heat treated to increase the hardness and abrasion resistance of the body.

The nozzles are offered in 3 sizes and have replaceable ceramic inserts.



Technical parameters

	DC-50	DC-60	DC-65	DC-80
 Junction	1/2"	1/2", 3/4"	3/4", 1"	1", 5/4"
 Dimensions	Ø50x100	Ø60x120	Ø65x135	Ø70x200
 Number of inserts front	-	-	-	-
 Number of inserts rear	3+3 [D3M6]	3+3 [D3M8]	3+3 [D3M8]	3+3 [D3M8]
 Angle of water outflow	10°+ 15°	10°+ 15°	10°+ 15°	10°+ 15°
 Diameter range	>Ø60	>Ø80	>Ø100	>Ø150
 Weight	1,00kg	1,50kg	1,75kg	3,00kg

Sewer flushing



Rinsing nozzle

A large group of flushing nozzles that come in many sizes. Produced with a single front hole, and either 9 or 12 rear jets (at two different angles of 15° and 35°). Wide angles of water outflow jets (35°) guarantee great flushing along the entire section envelope.

Nozzles manufactured from heat-treated high-alloy stainless steel, which increases their abrasion resistance and ensures long life. Interchangeable ceramic inserts.



Technical parameters

	PN-40	PN-60	PN-80/9	PN-80/12
 Junction	1/2"	1/2", 3/4", 1"	1", 5/4"	1", 5/4"
 Dimensions	Ø40x65	Ø60x100	Ø80x135	Ø80x135
 Number of inserts front	1 [D3M6]	1 [D3M8]	1 [D3M8]	1 [D3M8]
 Number of inserts rear	5 [D3M6]	3+6 [D3M8]	3+6 [D3M8]	3+9 [D3M8]
 Angle of water outflow	17°	15°+35°	15°+35°	15°+35°
 Diameter range	>Ø50	>Ø80	>Ø150	>Ø150
 Weight	0,40kg	1,10kg	2,30kg	2,50kg

Sewer flushing



PN* Rinsing nozzle with a strong front jet

Rinse nozzles produced in versions with three or four front holes and either 9 or 12 rear jets (at two different angles of 15° and 35°). Wide angles of water outflow jets (35°) guarantee great perimeter rinsing of the section.

Nozzles manufactured from heat-treated high-alloy stainless steel, which increases their abrasion resistance and ensures long life. Interchangeable ceramic inserts.



Technical parameters

	PN-3,6/40	PN-3,9/60	PN-4,9/80	PN-4,12/80
 Junction	1/2"	1/2", 3/4", 1"	1", 5/4"	1", 5/4"
 Dimensions	Ø40x65	Ø60x100	Ø80x135	Ø80x135
 Number of inserts front	3 [D3M6]	3 [D3M8]	4 [D3M8]	4 [D3M8]
 Number of inserts rear	6 [D3M6]	3+6 [D3M8]	3+6 [D3M8]	3+9 [D3M8]
 Angle of water outflow	17°	15° + 35°	15° + 35°	15° + 35°
 Diameter range	>Ø50	>Ø80	>Ø150	>Ø150
 Weight	0,30kg	1,10kg	2,10kg	2,20kg

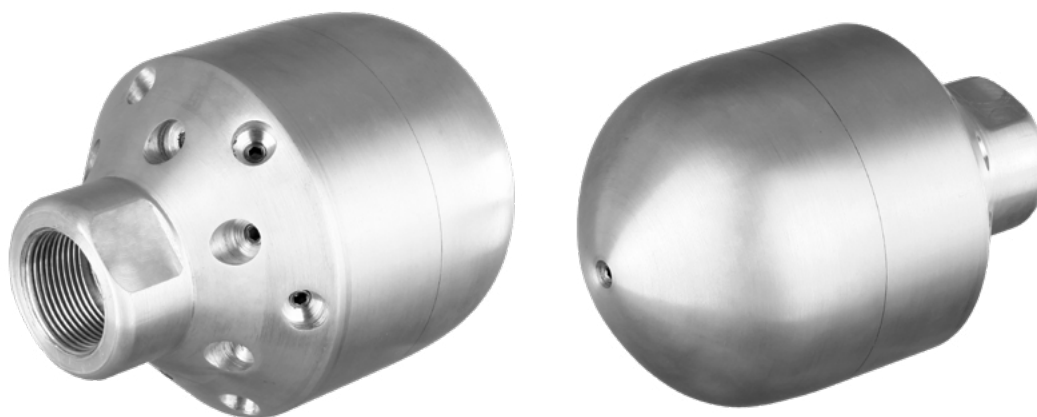
Grease removal



DAL Aluminium nozzle

One size lightweight nozzle. It has 12 jets directed backwards at two angles of 25° and 55°. Wide outflow angles enable the transfer of all water energy to the perimeter of the pipe, thus cleaning very effectively.

The use of aluminium material allows the nozzle to work in conditions where non-sparking materials must be used. A lightweight nozzle that rises slightly in the pipe, dedicated to removing grease. The nozzle has replaceable ceramic inserts.



Technical parameters

DAL-120		
	Junction	1", 5/4"
	Dimensions	Ø120x180
	Number of inserts front	1 [D3M8]
	Number of inserts rear	6+6 [D3M8]
	Angle of water outflow	60°+25°
	Diameter range	>Ø200
	Weight	3,00kg

Grease removal



DDC Fine cleaning nozzle

One size lightweight nozzle. It has 12 jets directed backwards at two angles of 25° and 55°. The large angle of water outflow ensures strong removal of debris from the pipe, which is especially helpful in removing grease and hard limescale deposits. The nozzles are produced in 4 sizes and have replaceable ceramic inserts. We

use high-alloy stainless steel (DDC-50, DDC-60, DDC-80) and alloy steel (DDC-120) in their production. All nozzles undergo thermal treatment in order to increase resistance to abrasion and mechanical damage.



Technical parameters

	DDC-50	DDC-60	DDC-80	DDC-120
 Junction	1/2", 3/4"	3/4", 1"	1", 5/4"	1", 5/4"
 Dimensions	Ø40x65	Ø60x90	Ø80x110	Ø115x185
 Number of inserts front	[-]	[-]	[-]	[-]
 Number of inserts rear	4+8 [D3M6]	4+8 [D3M8]	4+8 [D3M8]	4+8 [D2M12]
 Angle of water outflow	15°+55°	15°+55°	15°+55°	15°+60°
 Diameter range	>Ø60	>Ø100	>Ø150	>Ø200
 Weight	0,40kg	0,85kg	1,70kg	8,00kg

Grease removal



KBR

Special purpose nozzle

Group of nozzles with a rotating central part. KBR nozzles have 2 jets set at an angle of 90° to the cross-section wall and 2 jets at an angle of 45°. This combination allows both forward nozzle movement and simultaneous flushing of waste material. The nozzles have a low rotational speed of the central part, used for removing fat deposits and mineral deposits, cleaning drain pipes, vertical pipelines.

Made of high-alloy stainless steel subjected to heat treatment. Replaceable ceramic inserts. The nozzles do not work in a system with water recycling.



Technical parameters

	KBR-40	KBR-60	KBR-80
 Junction	1/2"	3/4", 1"	1", 5/4"
 Dimensions	Ø40x80	Ø60x100	Ø80x130
 Number of inserts front	[-]	[-]	[-]
 Number of inserts rear	4+3 [D3M6]	4+3 [D3M8]	4+4 [D3M8]
 Diameter range	>Ø50	>Ø100	>Ø150
 Weight	0,70kg	1,40kg	3,40kg



Blockages and obstruction removal



Special purpose nozzle

Group of nozzles with a rotating central part. HRH nozzles have 4 jets at an angle of 45°. The flowing water jets clean the channel, while bouncing off the channel walls cause the nozzle to move forward. This solution results in low water consumption. The nozzles have a low rotational speed of the central

part, used for removing fat deposits and mineral deposits, cleaning drain pipes and vertical pipelines.. Made of high-alloy stainless steel subjected to heat treatment. Replaceable ceramic inserts. The nozzles do not work in a system with water recycling.



Technical parameters

		HRH-25	HRH-30	HRH-40	HRH-60	HRH-80
 Junction		3/8", 1/4"	3/8", 1/4", 1/2"	1/2"	1/2", 1"	1/2", 5/4"
 Dimensions		Ø25x55	Ø30x65	Ø40x80	Ø60x100	Ø80x130
 Number of inserts front		[-]	[-]	[-]	[-]	[-]
 Number of inserts rear		4 [D3M4]	4 [D3M6]	4+3 [D3M6]	4+3 [D3M8]	4+4 [D3M8]
 Diameter range		>Ø50	>Ø50	>Ø50	>Ø100	>Ø150
 Weight		0,15kg	0,30kg	0,70kg	1,40kg	3,40kg

Grease removal



RGS

Special purpose nozzle

Group of nozzles with a rotating central part. RGS Nozzles are equipped with 4 radial nozzles, set at a 90° angle (cross-section cleaning) and 3 or 4 nozzles directed backward (causing the nozzle to move forward and simultaneously flushing waste and debris).

The nozzles have a low rotational speed of the central part, used for removing fat deposits and mineral deposits, cleaning drain pipes and vertical pipelines. Made of high-alloy stainless steel subjected to heat treatment. Replaceable ceramic inserts. The nozzles do not work in a system with water recycling.

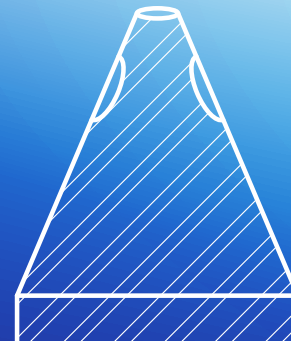


Technical parameters

	RGS-40	RGS-60	RGS-80
 Junction	1/2"	3/4", 1"	1", 5/4"
 Dimensions	Ø40x80	Ø60x100	Ø80x130
 Number of inserts front	[-]	[-]	[-]
 Number of inserts rear	4+3 [D3M6]	4+3 [D3M8]	4+4 [D3M8]
 Diameter range	>Ø50	>Ø100	>Ø150
 Weight	0,70kg	1,40kg	3,40kg

* Nozzles with holes drilled in the body (no ceramic)

Blockages and obstruction removal



DP Piercing nozzle

The nozzles have 4 very powerful forward breaking jets. Due to this design, they can quickly break up and break through any type of blockage. In addition, they have 6 powerful rear jets which ensure a strong forward movement of the nozzle, enabling it to penetrate the

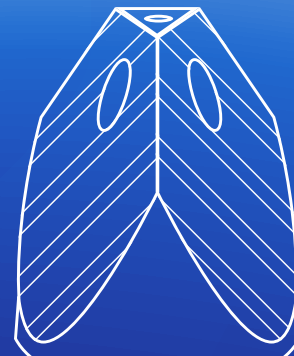
blockage with great force. The nozzles are produced in 3 sizes and have replaceable ceramic inserts. All nozzles are heat treated in order to increase resistance to abrasion and the service life.



Technical parameters

	DP-40	DP-60	DP-80
 Junction	1/2", 3/4"	1", 5/4"	1", 5/4"
 Dimensions	Ø40x75	Ø65x110	Ø75x120
 Number of inserts front	4 [D3M6]	4 [D3M8]	4 [D3M8]
 Number of inserts rear	6 [D3M6]	6 [D3M8]	6 [D3M8]
 Angle of water outflow	10°+20°	10°+20°	10°+20°
 Diameter range	>Ø50	>Ø100	>Ø150
 Weight	0,40kg	1,10kg	1,70kg

Blockages and obstruction removal



DQ Quattro nozzle

A group of nozzles used to break and dislodge blockages. They have 4 very strong forward water jets and characteristic sharp cutting edges. They are used to cut through small roots, papers and fabrics and facilitate entry into the blockage, thus effectively unblocking it. Six jets drive the nozzles forward.

The nozzles are offered in 4 sizes. The smallest nozzles have drilled holes, the other nozzles are equipped with replaceable ceramic inserts. The nozzles are made of stainless steel hardened to the hardness which increases their resistance to abrasion.



Technical parameters

	DQ-40*	DQ-45	DQ-60	DQ-80
 Junction	1/4", 1/2"	1/2", 3/4"	3/4", 1", 5/4"	1", 5/4"
 Dimensions	Ø40x70	Ø45x75	Ø60x100	Ø85x135
 Number of inserts front	4 [-]	4 [D3M6]	4 [D3M8]	4 [D3M8]
 Number of inserts rear	5 [-]	5 [D3M6]	6 [D3M8]	6 [D3M8]
 Angle of water outflow	10°+25°	10°+25°	10°+25°	10°+25°
 Diameter range	>Ø50	>Ø50	>Ø100	>Ø150
 Weight	0,25kg	0,35kg	0,85kg	1,60kg

* Nozzles with holes drilled in the body (no ceramic)

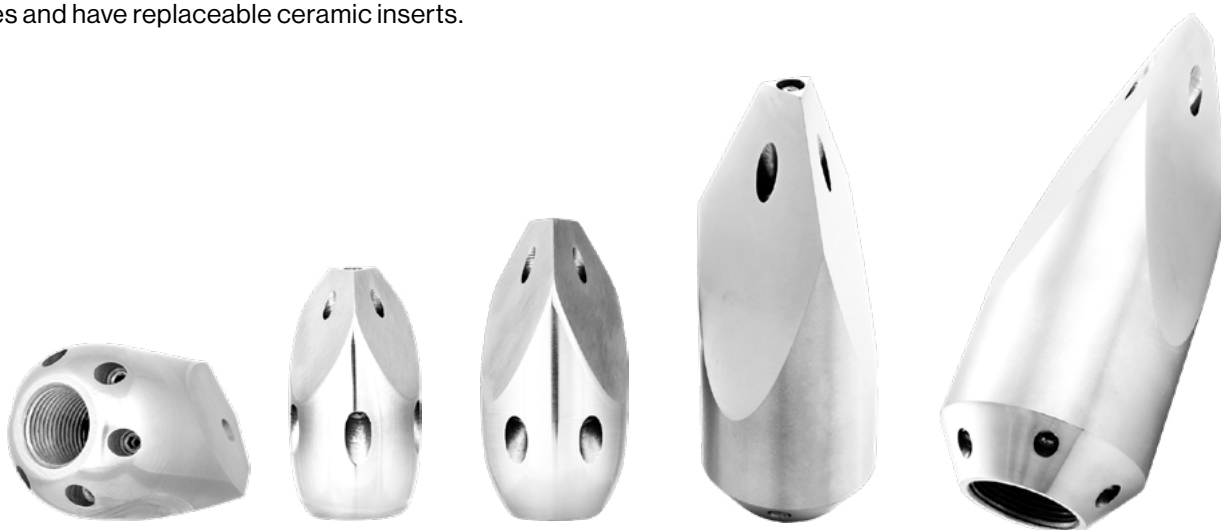
Blockages and obstruction removal



Super Quattro nozzle

Upgraded version of the Quattro nozzle. This nozzle has powerful forward jets and even longer cutting edges. The longer cutting edges in this model ensure an effective and smooth nozzle movement even in the narrowest sewer pipes. The nozzles are produced in 5 sizes and have replaceable ceramic inserts.

The nozzles are manufactured of high-alloy, heat-treated stainless steel owing to which their abrasion resistance is increased and the nozzle retains sharp cutting edges longer.

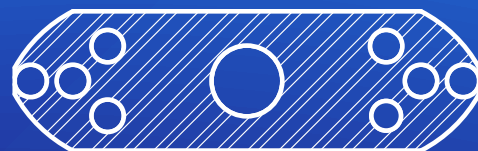


Technical parameters

	DSQ-30*	DSQ-45	DSQ-50	DSQ-60	DSQ-80
 Junction	1/2"	1/2", 3/4"	3/4", 1"	1", 5/4"	1", 5/4"
 Dimensions	Ø30x60	Ø45x85	Ø50x100	Ø65x170	Ø75x220
 Number of inserts front	4 [D3M4]	4 [D3M6]	4 [D3M8]	4 [D3M8]	4 [D3M8]
 Number of inserts rear	5 [D3M6]	6 [D3M6]	6 [D3M8]	6 [D3M8]	6 [D3M8]
 Angle of water outflow	7°+20°	7°+20°	7°+20°	7°+20°	7°+20°
 Diameter range	>Ø50	>Ø50	>Ø80	>Ø100	>Ø150
 Weight	0,25kg	0,50kg	0,75kg	2,20kg	4,00kg

* Nozzles with holes drilled in the body (no ceramic)

Cleaning and flushing sediment from the bottom of the sewer



F FLOUNDER nozzle

Flat, heavy nozzles for cleaning the bottom of the sewer. The characteristic flat shape in combination with rounded corners and edges provides the tool with perfect sliding properties, allows it to move freely and work on the bottom of the sewer (the nozzle does not rotate).

The nozzles are made of alloy steel hardened by heat treatment and have high abrasion resistance. They are offered in 4 sizes.

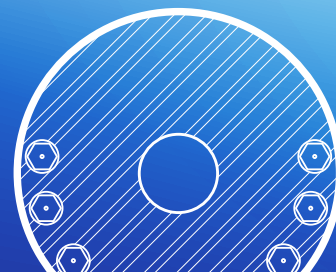


Technical parameters

	F-1	F-2	F-3	F-4
 Junction	1/2"	3/4"	1", 5/4"	1", 5/4"
 Dimensions	180x110x30	180x150x35	200x150x55	200x170x60
 Number of inserts front	[-]	[-]	[-]	[-]
 Number of inserts rear	4 [D3M12]	6 (8)* [D3M8]	8 [D3M12]	8 [D3M12]
 Diameter range	>Ø150	>Ø200	>Ø250	>Ø300
 Weight	3,65kg	5,85kg	8,25kg	16,00kg

* Nozzles are not equipped with ceramic inserts

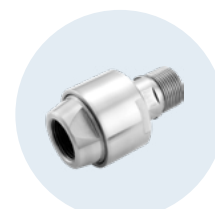
Cleaning and flushing sediment from the bottom of the sewer



Lower jet nozzles with return memory

Nozzles with a special body balance, always position themselves in such a way that all the energy of the outlet jets is directed to the bottom of the sewer. The nozzle is extremely effective and has a high attack force. In the design of the nozzle, an off-centre hose connection is used. We recommend to use the nozzle with a rotary joint. The nozzle acts as a BULLDOZER, it also rinses out heavy sand and gravel deposits in highly silted pipes.

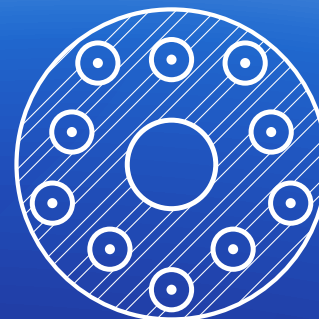
An innovative solution is the introduction of the forward water jet, located in the lower part of the nozzle, which defines the nozzle's advance path and allows it to penetrate under debris. The nozzle is manufactured of heat-treated alloy steel which increases its abrasion resistance and ensures a long service life. It is offered in 3 sizes.



we recommend the use of a rotary connector

Technical parameters

	DD-120	DD-150	DD-200
 Junction	1", 5/4"	1", 5/4"	1", 5/4"
 Dimensions	Ø120x280	Ø150x350	Ø200x400
 Number of inserts front	1 [D2M12]	1 [D2M12]	1 [D2M12]
 Number of inserts rear	7 [D2M12]	7 [D2M12]	9 [D2M12]
 Diameter range	>Ø200	>Ø300	>Ø400
 Weight	16,00kg	22,00kg	25,00kg



Rinsing and firmly pulling off contaminants

BA BOMB nozzle

Heavy rinsing nozzles with 10 or 12 replaceable ceramic inserts positioned at two angles. Wide water outflow angles (30°) result in effective envelope rinsing of the pipe. The nozzles are recommended for pre-rinsing of the sewer before starting work with

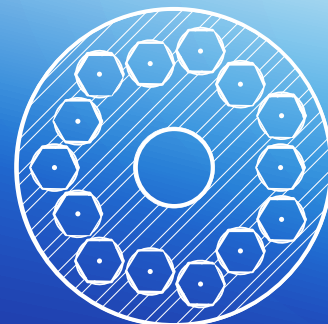
the use of milling nozzles, for rinsing out construction residues from newly built sections and for rinsing the sewer before TV inspection.



Technical parameters

	BA-100	BA-150
 Junction	1", 5/4"	1", 5/4"
 Dimensions	Ø100x200	Ø150x300
 Number of inserts front	[-]	[-]
 Number of inserts rear	5+5 [D1M10]	6+6 [D1M10]
 Angle of water outflow	15°+30°	15°+30°
 Diameter range	>Ø150	>Ø300
 Weight	9,10kg	16,50kg

Rinsing and firmly pulling off contaminants



GRENADA nozzle

GRENADA nozzles, produced in many sizes, allow to clean sewers from Ø100mm. They have 8 to 14 replaceable ceramic inserts depending on the model. All jets in the nozzle are directed backwards at small angles, which allows for perfect removal of debris from the bottom of the sewer.

The nozzles are made of thermally hardened alloy steel. Nozzles of this type are recommended for cleaning sewer systems before TV inspection.



Technical parameters

	G-1	G-2	G-3	G-4	G-5	G-6
 Junction	1", 5/4"	1", 5/4"	1", 5/4"	1", 5/4"	1", 5/4"	1", 5/4"
 Dimensions	Ø70x110	Ø70x120	Ø90x150	Ø90x200	Ø125x230	Ø125x300
 Number of inserts front	[-]	[-]	[-]	[-]	[-]	4 [D2M12]
 Number of inserts rear	4+4 [D1M8]	4+4 [D1M8]	5+5 [D2M10]	5+5 [D2M12]	7+7 [D2M12]	5+5 [D2M12]
 Angle of water outflow	5°+10°	5°+10°	5°+10°	5°+10°	5°+10°	5°+10°
 Diameter range	>Ø100	>Ø100	>Ø150	>Ø200	>Ø400	>Ø400
 Weight	2,00kg	2,30kg	4,80kg	5,00kg	9,70kg	13,00kg

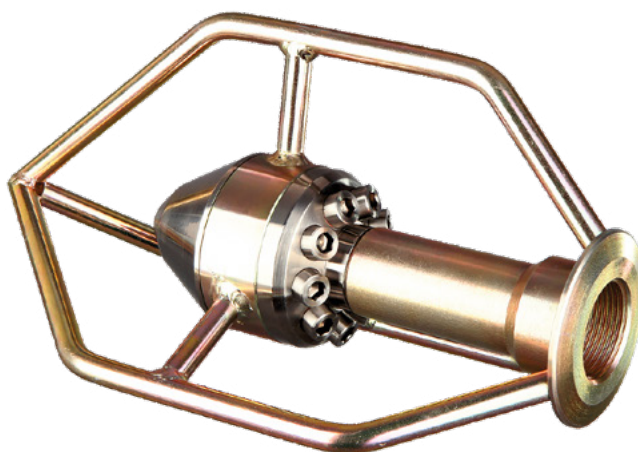
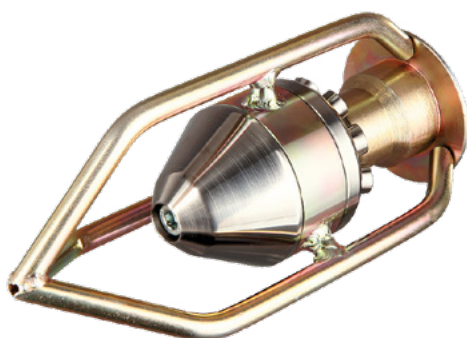
Rinsing and firmly pulling off contaminants



MOLE sewer device

Nozzle with horizontal centering. Its design ensures a central position of the nozzle in the pipe. The nozzle is produced in 3 sizes and has replaceable ceramic

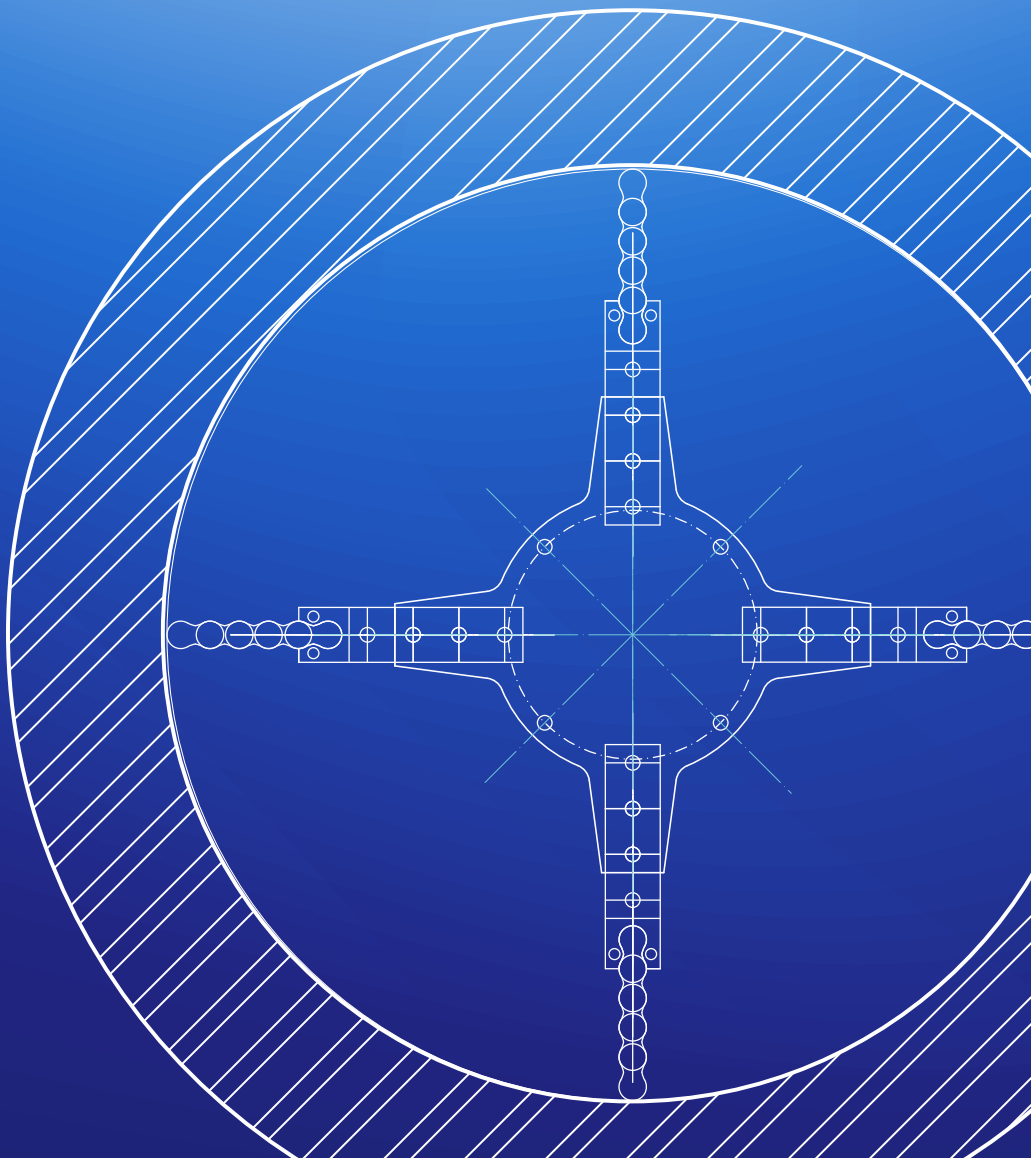
inserts. It is made of hardened stainless steel. Guide skids are protected with a galvanised surface.



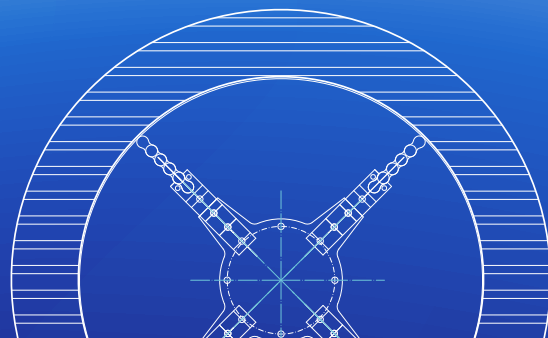
Technical parameters

		KR-1	KR-2	KR-3
	Junction	1", 5/4"	1", 5/4"	1", 5/4"
	Dimensions	Ø125x255	Ø215x310	Ø315x470
	Number of inserts front	[-]	[-]	[-]
	Number of inserts rear	9 [D1M10]	9 [D1M10]	9 [D1M10]
	Angle of water outflow	25°	25°	25°
	Diameter range	>Ø150	>Ø250	>Ø350
	Weight	3,90kg	4,90kg	5,70kg

Root-cutting nozzles



Root-cutting nozzles, rotary nozzles

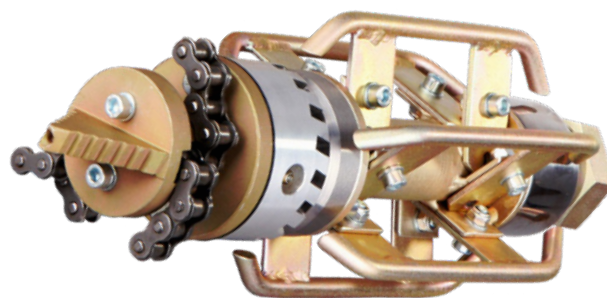


Ø150-200 rotary nozzle

DR Ø150-200 rotary nozzle used for root cutting, removal of struvite deposits, often to remove grease in a mechanical way. It provides work in the diameter range Ø150mm-Ø200mm. The working diameters of the nozzle are regulated by the spacing of the guide skids.



The operation of the nozzle is based on the principle of a turbine driven by streams of water, which, attacking the turbine blades obliquely, cause its rotation. It has a very high speed of rotation, and requires expert handling. The nozzle can work in the recycling system.

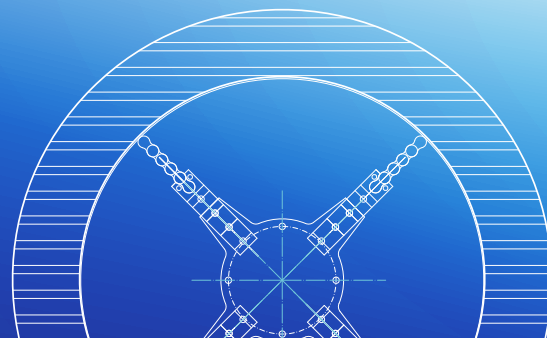


Technical parameters

DR Ø150-200

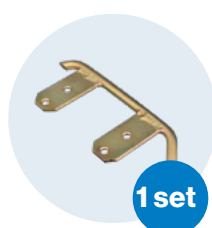
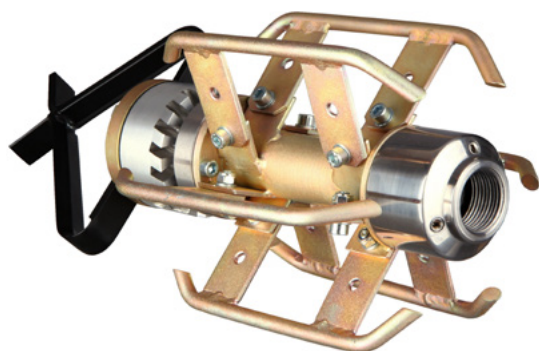
	Junction	1", 5/4"
	Dimensions	-
	Number of inserts front	[-]
	Number of inserts rear	3 [D3M8]
	Angle of water outflow	25°
	Diameter range	>Ø150-200
	Weight	5,00kg

Root-cutting nozzles, rotary nozzles



Ø150-200 rotary nozzle

The cutter set includes



Guides (skids)



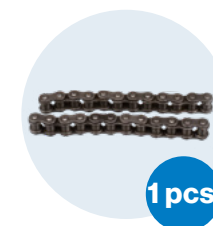
Chain/knife catch



Cutting knives
Ø150/Ø200



Chain attachment



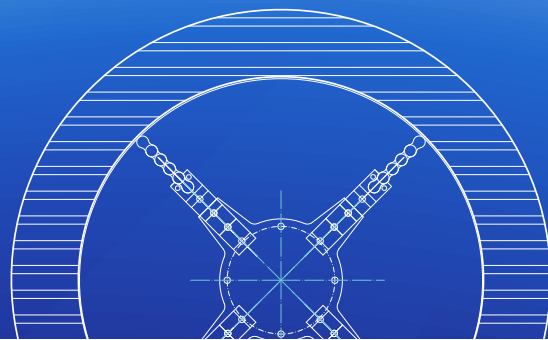
Cutting chain 5m

Spare parts

Product name	
	Nozzle turbine
	Turbine shaft
	Drive head
	Nozzle body
	Guides (skids) 150-200

Product name	
	Knife attachment
	Cutting knife Ø150
	Ø200 cutting knife
	Chain attachment
	Chain 5m
	Ceramic drive inserts D3M8 (M8)

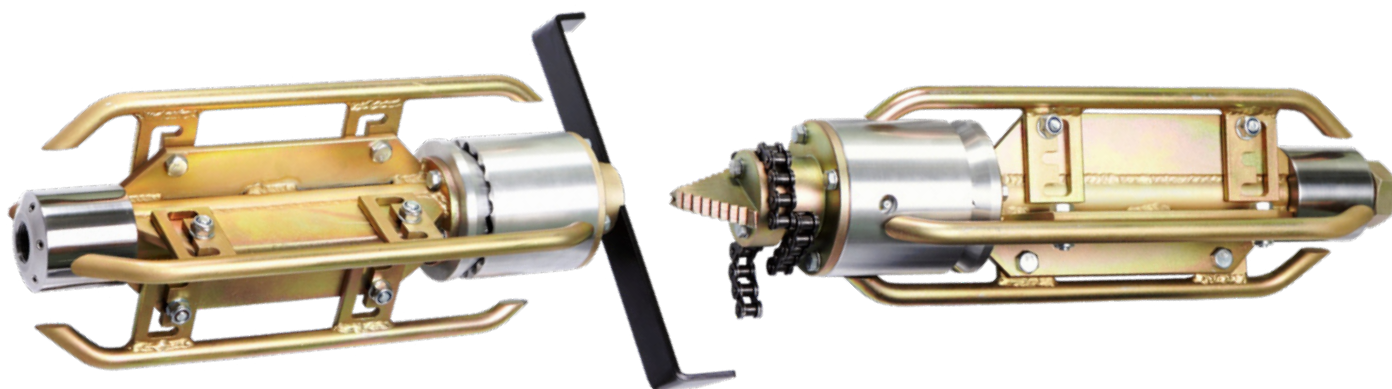
Root-cutting nozzles, rotary nozzles



Ø200-450(600) Chain nozzle with teeth

The nozzle is moved deep into the sewage pipe to be cleaned by 6 jets located in the rear of the nozzle. The rotating part of the nozzle where the chain catch, the knife catch and the milling discs are attached is moved as a result of four streams of water hitting the milled surface of the turbine. Adjustable guides (skids) are attached to the nozzle body and they enable the nozzle to work centrally and position it exactly in the axis of

the pipe being cleaned. It has a very high rotational speed and requires professional handling. The use of the nozzle should be preceded by pre-rinsing of the pipe (heavy rinsing nozzles such as BOMB nozzles are recommended).



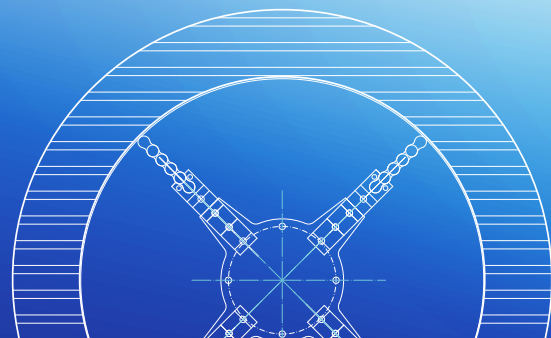
i Possibility to extend the basic set
to Ø600 diameters

Technical parameters

DŁF Ø200-450(600)

	Junction	1", 5/4"
	Dimensions	-
	Number of inserts front	[-]
	Number of inserts rear	6 [D3M8]
	Angle of water outflow	25°
	Diameter range	Ø200-450 (600)
	Weight	28,00kg

Root-cutting nozzles, rotary nozzles



Ø200-450(600) Chain nozzle with teeth

The cutter set includes



2 set

Guides (skids)



1 pcs

Catch for cutting
knives



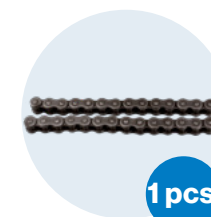
6 pcs

Cutting knives



1 set

Chain attachment



1 pcs

Cutting chain 5m



3 pcs

Milling discs

Spare parts

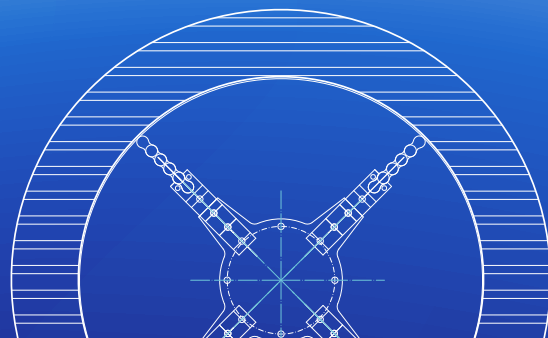
Product name	
	Nozzle turbine
	Turbine shaft
	Drive head
	Guide (skids) 200-300/ 350-450
	Nozzle body
	Knife attachment
	Cutting blade

Product name	
	Chain attachment
	Chain
	Milling disc 200/250/300

Additional equipment

Product name	
	Cap for nozzle DLF 200-450
	Guide (skids) for Ø600 for nozzle DLF 200-450 (600)
	Rosette for Ø600 for nozzle DLF 200-450 (600)

Root-cutting nozzles, rotary nozzles

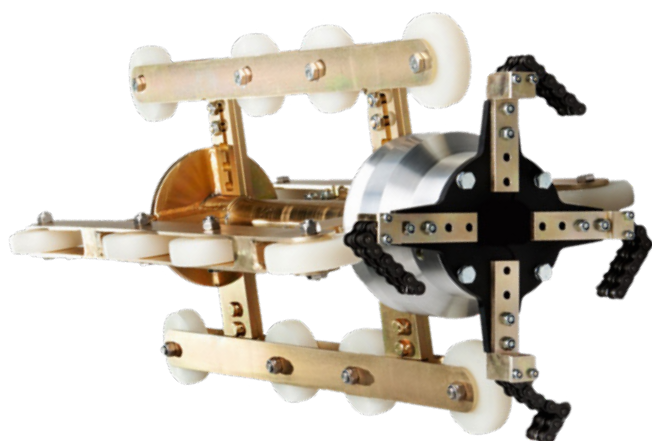


DF

Ø500-800(1000) Milling nozzle

This nozzle has the ability to clean the widest range of pipe diameters from the nozzles in our production. It is designed to remove hard limescale deposits, grease and other debris. It perfectly handles cutting roots, even in heavily overgrown sewers. It is designed for sewage pipes with diameters from Ø500mm-Ø800mm. The nozzle operates as a turbine driven by water jets.

DF nozzle has a very high rotational speed of the cutting rosette, therefore it requires professional handling. The nozzle can operate in water recycling systems. The use of the nozzle should be preceded by pre-cleaning of the sewer (heavy rinsing nozzles such as BOMB nozzles are recommended).



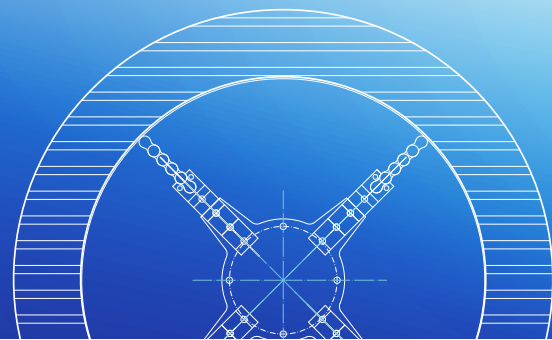
i Possibility to extend the basic set to Ø1000 diameters

Technical parameters

DLØ500-800

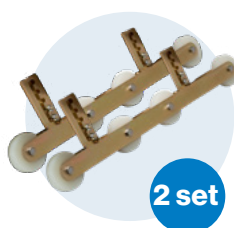
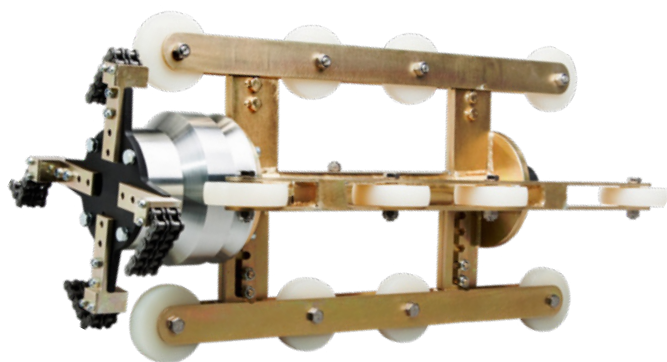
	Junction	1", 5/4"
	Dimensions	-
	Number of inserts front	[-]
	Number of inserts rear	6 [D3M8]
	Angle of water outflow	25°
	Diameter range	>Ø500-800 (1000)
	Weight	45,00kg

Root-cutting nozzles, rotary nozzles



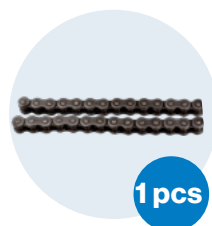
DF Ø500-800(1000) Milling nozzle

The cutter set includes



Cutting rosette

Chain attachment



Cutting chain 5m

Spare parts

Nazwa

	Nozzle turbine
	DLF-WT drive head
	Guides (skids) 500-600/650-800
	Nozzle body
	Cutting rosette
	Chain attachment
	Cutting chain
	Ceramic drive inserts D3M8 (M8)



Ceramic inserts

The use of stainless ceramic inserts in high-pressure nozzles has a decisive impact on the quality of sewer pipe cleaning and on the stability of the pump parameters. The high abrasion resistance of the ceramic elements ensures a long service life of the nozzle, especially in pumps using water recycling.

The wear of the nozzles results in an immediate pressure drop in the nozzle and thus in a reduced cleaning effectiveness. The inserts are available in a wide range of diameters.



Technical parameters

	[D1M8]	[D1M10]	[D2M10]	[D2M12]	[D3M4]*	[D3M6]	[D3M8]	[D3M12]	[D4M12]
 Junction	M8	M10	M10x1,0	M12x1,5	M4	M6	M8	M12	G1/4"
	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8	0,8
	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0	1,0
	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3	1,3
	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6	1,6
Ø	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8	1,8
	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0	2,0
	2,2	2,2	2,2	2,2	-	-	2,2	2,2	2,2
	2,5	2,5	2,5	2,5	-	-	2,5	2,5	2,5
	3,0	3,0	3,0	3,0	-	-	3,0	3,0	3,0

* wkładki z otworami wierconymi bez wkładki ceramicznej

Equipment and accessories



ZO Rotary joint

Made of stainless steel, the rotary joint reduces the stress in the high-pressure hose and protects the nozzles against rotation in the sewer. It is recommended in particular for low-jet nozzles.

The joint ensures smooth operation and excellent flow dynamics.



1" → 5/4"



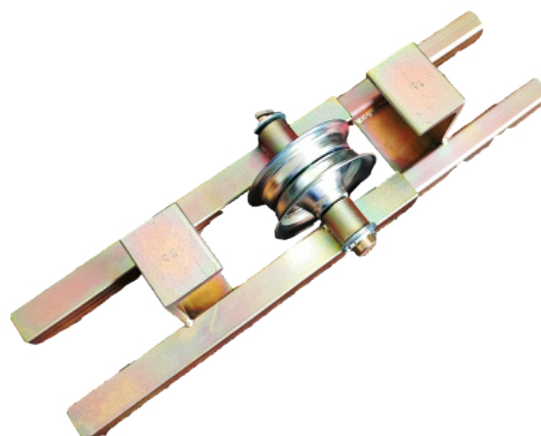
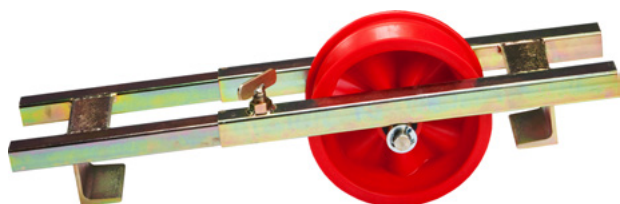
1" → 1"



Roller Roller for wells

The design protects the hose against friction against the edge of the well and additionally centers the hose vertically. The roller has an extendable frame that allows it to be locked on the well manhole, and a wheel made of plastic mounted on a pin.

The structure is made of steel covered with anti-corrosion coating.





BANANA elbow hose protector

Simple construction ensuring optimal protection of rubber and plastic hoses. The frame is made of steel and covered with anti-corrosion coatings. The use of high-quality polyethylene covering protects against mechanical damage and hose abrasions.

The structure is available in two sizes: BN-1/2 (1/2" and 3/4" hoses) and BN-1 (1" and 5/4" hoses). The set includes 8m of guiding rope.



BANANA B-Roll elbow hose protector

A structure that protects the hose against the effects of friction on the lower edge of the sewage well. The structure is equipped with three rollers made of high-quality plastic. The rollers facilitate the hose's sliding

while protecting it against abrasion and mechanical damage. The frame is made of steel, covered with anti-corrosion coatings.



Equipment and accessories



IP

Air Injector

A device that reduces the density of transported sewage. Air is sucked in through a tube located at the tip of the suction pipe.

The sucked air thins the pumped sewage, thus reducing the resisting forces of thick sediments and supporting the operation of the suction pump.

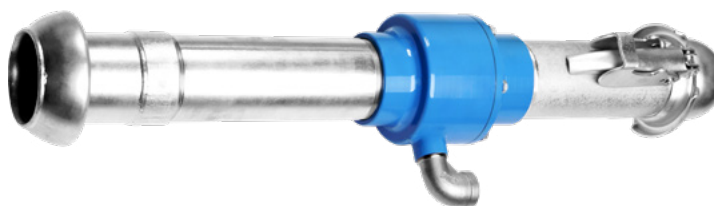


IW

Water injector

A device used to assist the suction pump in pumping out sewage and debris from large depths. A supply of water pressure to the injector causes a rapid increase in negative pressure and thus

very fast sucking of sewage. This increases the force of extraction of debris from sewage.



IS

Suction injector

A device made of an aluminum alloy, used to pump water (sewage) from sewage wells, flooded basements and small tanks.

Used when pump parameters are low. Possibility to buy a hose.



Equipment and accessories



Reduction

Reducing nozzle hose connector. Made of stainless steel, heat treated.

We adjust the reductions to connect the nozzle with the pressure hose.



Technical parameters

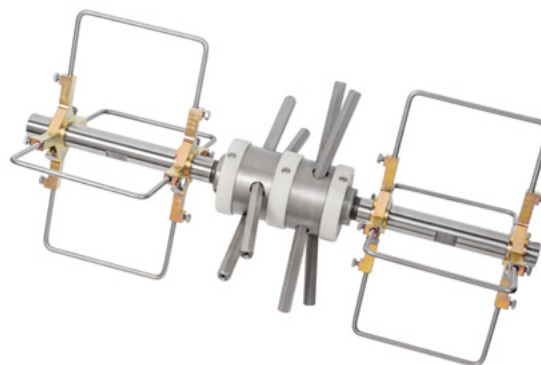
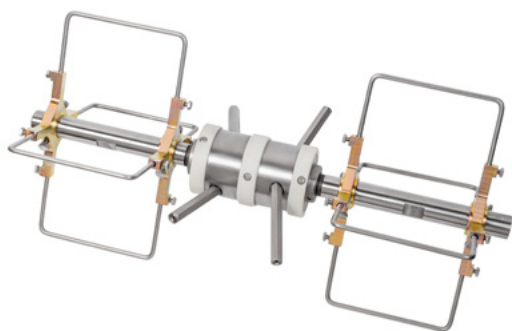
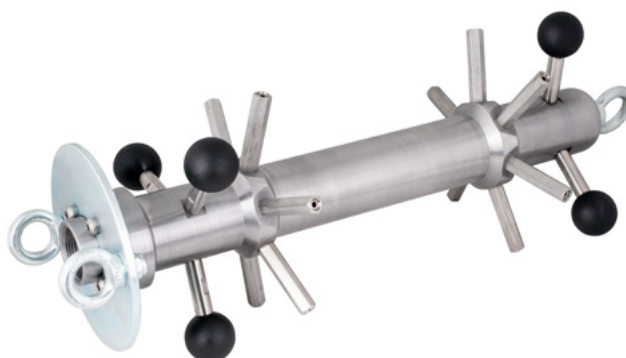
Threads in the nozzle	Thread on the hose
1/2"	3/4"
1/2"	1"
3/4"	1/2"
3/4"	1"
3/4"	5/4"
1"	1/2"
1"	3/4"
1"	5/4"
5/4"	3/4"
5/4"	1"



Nozzles for cleaning drilled wells

We offer several solutions for cleaning of drilled wells and inspection chambers in which we use elements with rotating jets or non-rotating jets.

We always design devices to meet specific customer expectations, focusing on equipment capabilities and the type of repair works carried out.





Valves for pumps and pressure converters

We have expanded our commercial offerings with valves for pressure converters for Kaiser KDU 148 pumps, valves for URACA KD 716 pumps and URACA KD 708/713/716/718/P3-45 combined valves.

The valves we produce have passed positive tests on specialist installations and have gained the trust of valued companies providing sewage network cleaning services in the country. Our offer includes sealants and springs.



KDU 148



KDU 716



URACA KD 708/713/716/718/P3-45

Notes



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