

# CATALOGUE GUTTER SYSTEMS KJG





### **POWERFUL PARTNER FOR YOUR ROOF**



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# PREMIUM HALF-ROUND GUTTER SYSTEM



A half-round gutter system is a type of a drainage system used to collect and drain rainwater from roofs. This system consists of half-round roof gutters that are located below the edge of the roof, and of gutter downpipes that carry water from the gutters to the drains.

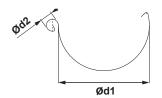






## TECHNICAL DATA HALF-ROUND GUTTER SYSTEM KJG



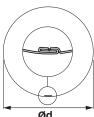


### **ROOF GUTTER DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Developed width (mm)	200	250	280	333	400	500
Ød1	80	105	127	153	192	250
Ød2	16	18	18	20	22	22

### **INNER FALZ**

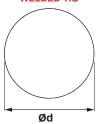


### **ROOF DOWNPIPE DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Dimensions	60	80	100	120	150
Nominal dimension Ød (mm)	60	80	100	120	150

#### **WELDED TIG**



### **ROOF DOWNPIPE DIMENSIONS**

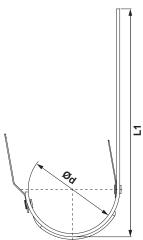
(dimensions and dimensional tolerances according to EN 612)

Dimensions	60	80	100	120
Nominal dimension Ød (mm)	60	80	100	120

### **ROOF BRACKET DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Dimensions (mm)	L1	Ød
200	290	80
250	310	105
280	345	127
333 – 510	345	153
333 – 550	385	153
333 – 610	445	153
400	400	192



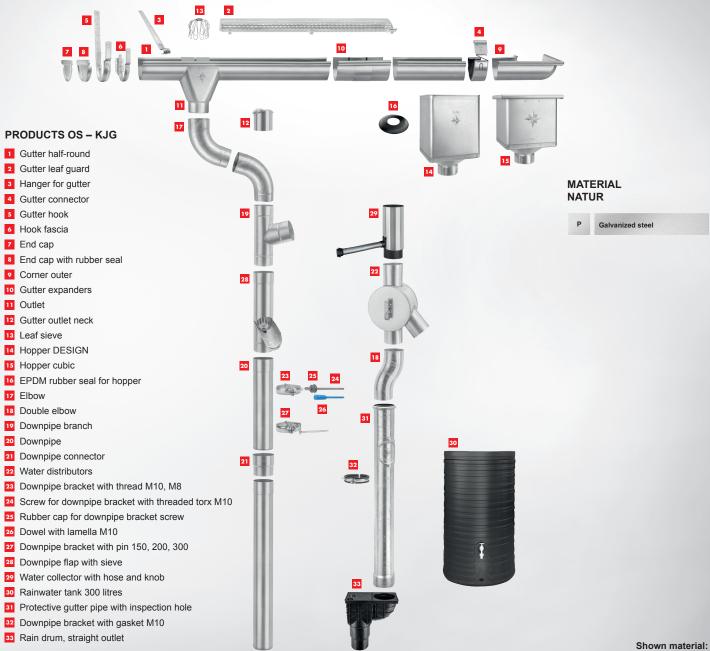




**OS 1** 

### HALF-ROUND GUTTER SYSTEM GALVANIZED STEEL - NATUR





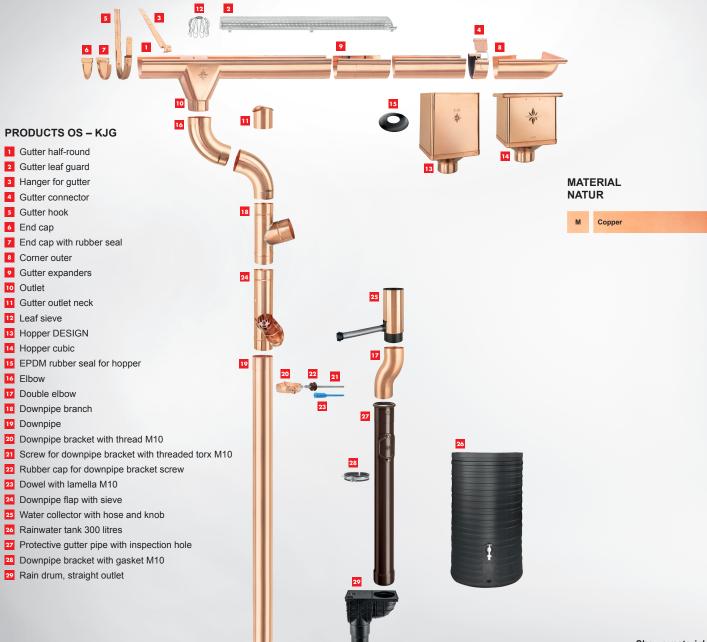




OS 2

## HALF-ROUND GUTTER SYSTEM COPPER – NATUR





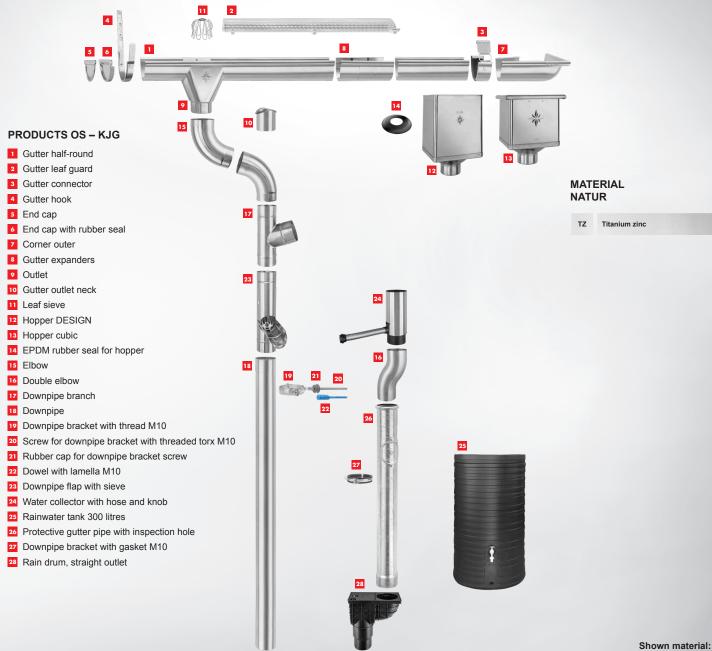






### HALF-ROUND GUTTER SYSTEM TITANIUM ZINC – NATUR











### HALF-ROUND GUTTER SYSTEM STAINLESS STEEL – NATUR









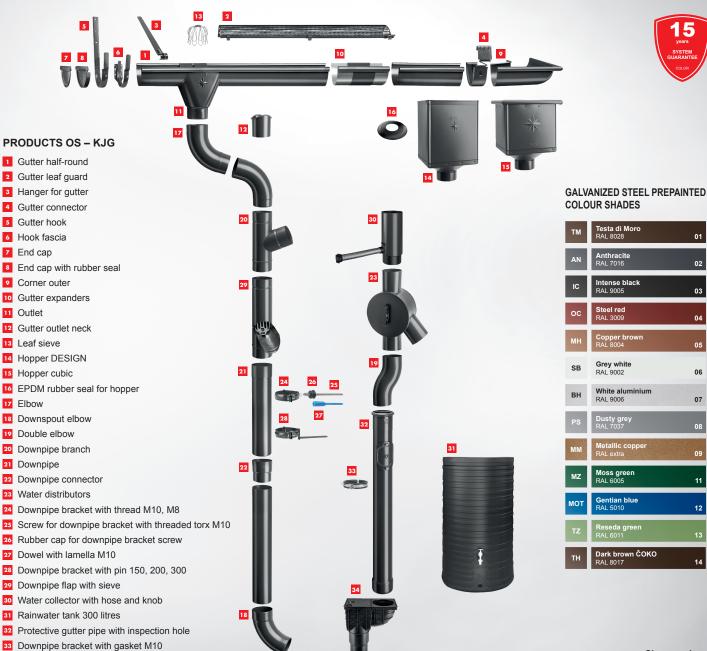
34 Rain drum, straight outlet

OS 5

### HALF-ROUND GUTTER SYSTEM







Shown color: Anthracite – RAL 7016



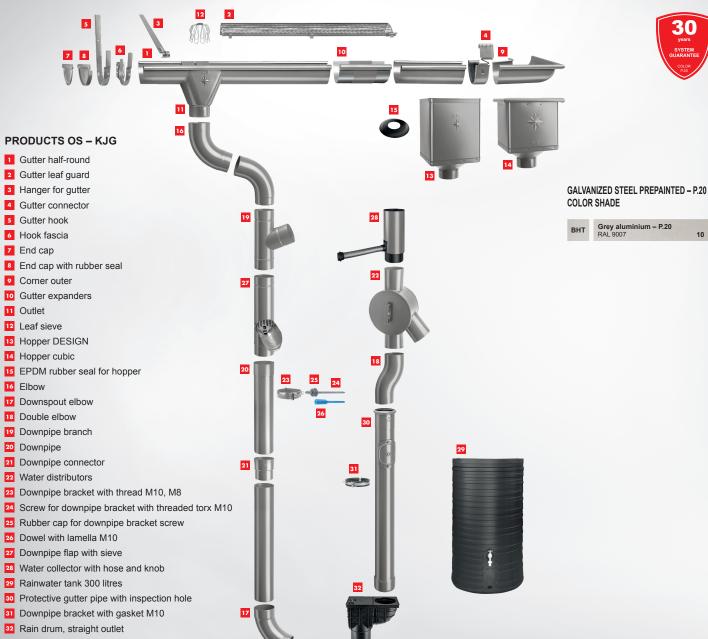


OS 6

### HALF-ROUND GUTTER SYSTEM











OS 7

### HALF-ROUND GUTTER SYSTEM

GALVANIZED STEEL PREPAINTED - P.25 3D EFFECT





Shown color: Anthracite – P.25 – RAL 7016

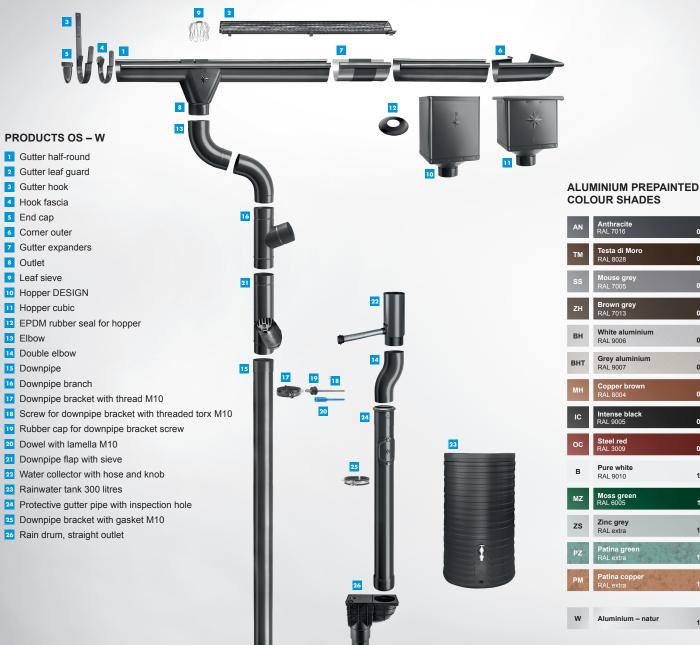






# HALF-ROUND GUTTER SYSTEM ALUMINIUM PREPAINTED – POLYESTER





Shown color: Anthracite – RAL 7016

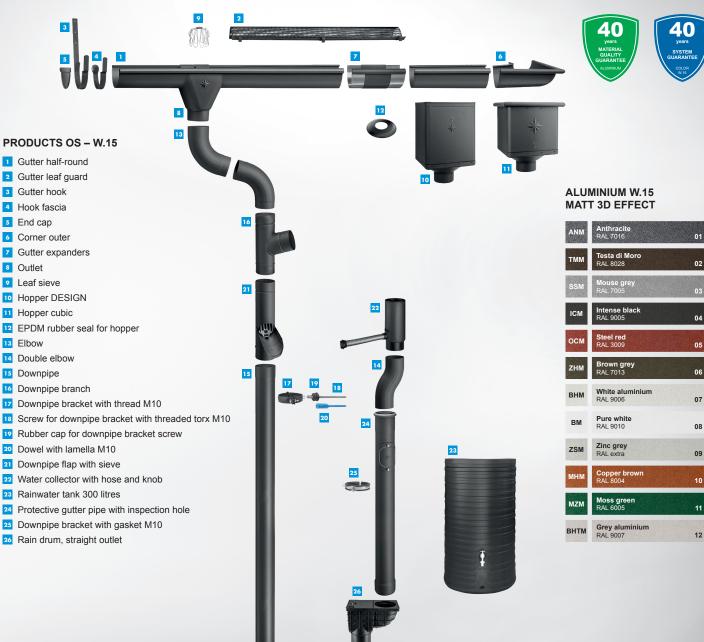




OS 9

## HALF-ROUND GUTTER SYSTEM ALUMINIUM PREPAINTED W.15 – 3D EFFECT





Shown color: Anthracite W.15 – RAL 7016



# **PREMIUM**SQUARE GUTTER SYSTEM



A square gutter system is a drainage system with square roof gutters that are located under the edge of the roof. This type of system offers a modern and elegant appearance, which is especially suitable for contemporary and minimalist architectural styles.

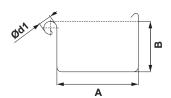
The square shape of the gutters allows for better use of the volume to drain water, which increases their capacity compared to semicircular gutter system. The system consists of square roof gutters, downpipes and other components such as drain pots brackets. We manufacture the square gutter system in various materials, it is available in v various colours and sizes to match the facade and roofing.



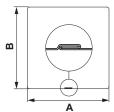


# TECHNICAL DATA SQUARE GUTTER SYSTEM KJG

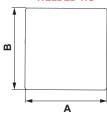


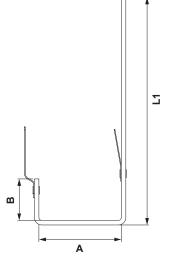


### **INNER FALZ**



### **WELDED TIG**





### **ROOF GUTTER DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Developed width (mm)	200	250	333	400	500
A	70	85	120	150	200
В	42	55	75	90	110
Ød1	16	18	20	22	22

### **ROOF DOWNPIPE DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Dimensions	80 x 80	100 x 100	120 x 120	150 x 150
Nominal dimension (mm)	80	100	120	150

### **ROOF DOWNPIPE DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Dimensions	80 x 80	100 x 100
Nominal dimension (mm)	80	100

### **ROOF BRACKET DIMENSIONS**

(dimensions and dimensional tolerances according to EN 612)

Dimensions (mm)	L1	A	В
200	275	72	28
250	302	87	38
333	351	123	55
400	384	153	68
500	355	202	88

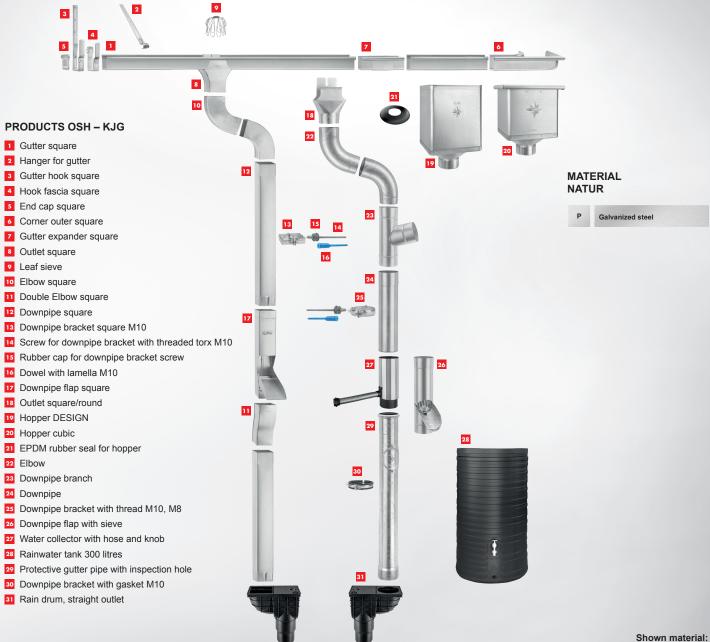






### **SQUARE GUTTER SYSTEM** GALVANIZED STEEL - NATUR





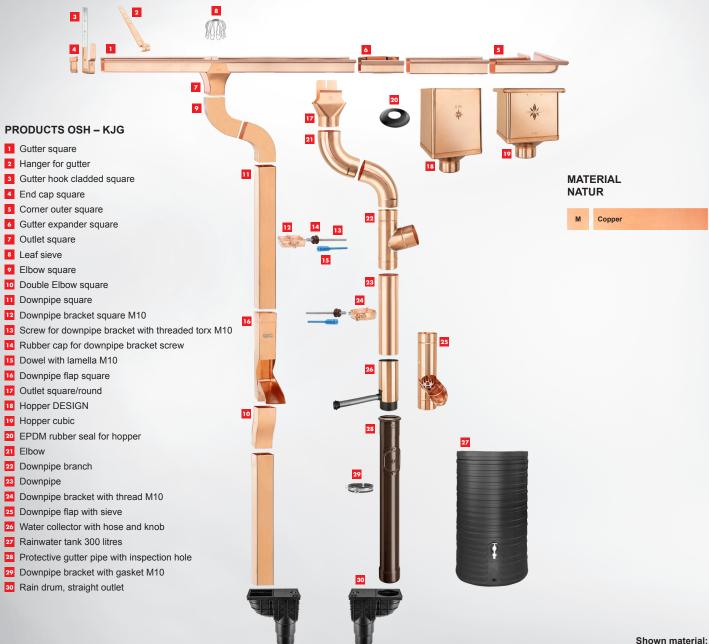






### SQUARE GUTTER SYSTEM COPPER – NATUR





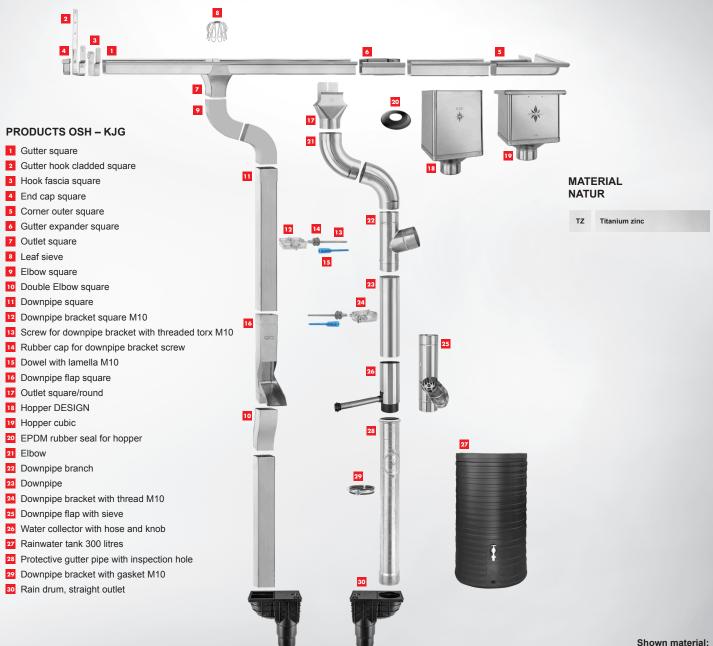






### SQUARE GUTTER SYSTEM TITANIUM ZINC – NATUR











### **SQUARE GUTTER SYSTEM**

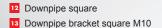




29

28

### 4 Hook fascia square 5 End cap square 6 Corner outer square Gutter expander square Outlet square 9 Leaf sieve 10 Elbow square



Screw for downpipe bracket with threaded torx M10

15 Rubber cap for downpipe bracket screw

16 Dowel with lamella M10 Downpipe flap square

11 Double Elbow square

18 Outlet square/round

19 Hopper DESIGN

20 Hopper cubic

21 EPDM rubber seal for hopper

22 Elbow

23 Downpipe branch

24 Downpipe

Downpipe bracket with thread M10, M8

26 Downpipe flap with sieve

27 Water collector with hose and knob

28 Rainwater tank 300 litres

29 Protective gutter pipe with inspection hole

30 Downpipe bracket with gasket M10

31 Rain drum, straight outlet

TM	Testa di Moro RAL 8028	01
AN	Anthracite RAL 7016	02
IC	Intense black RAL 9005	03
ос	Steel red RAL 3009	04
МН	Copper brown RAL 8004	05
MH SB	Copper brown RAL 8004 Grey white RAL 9002	05
	RAL 8004  Grey white	



Shown color: Anthracite - RAL 7016



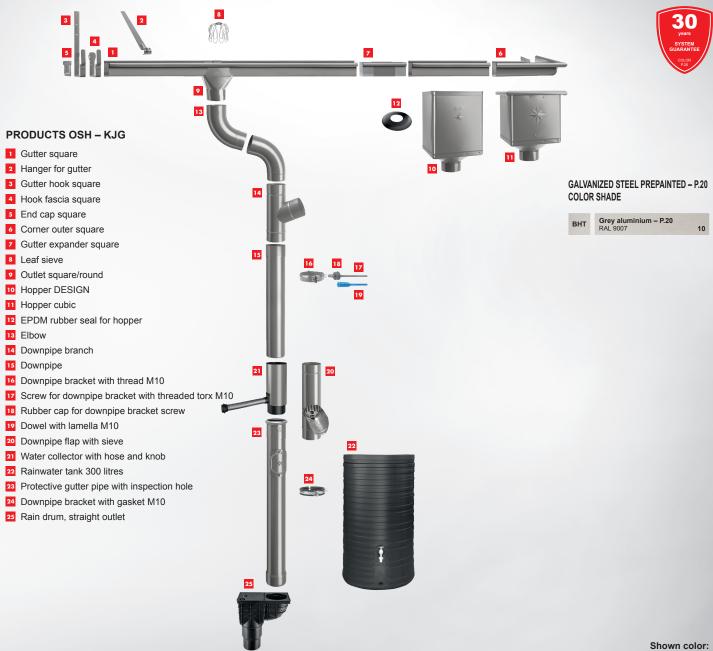




### **SQUARE GUTTER SYSTEM**









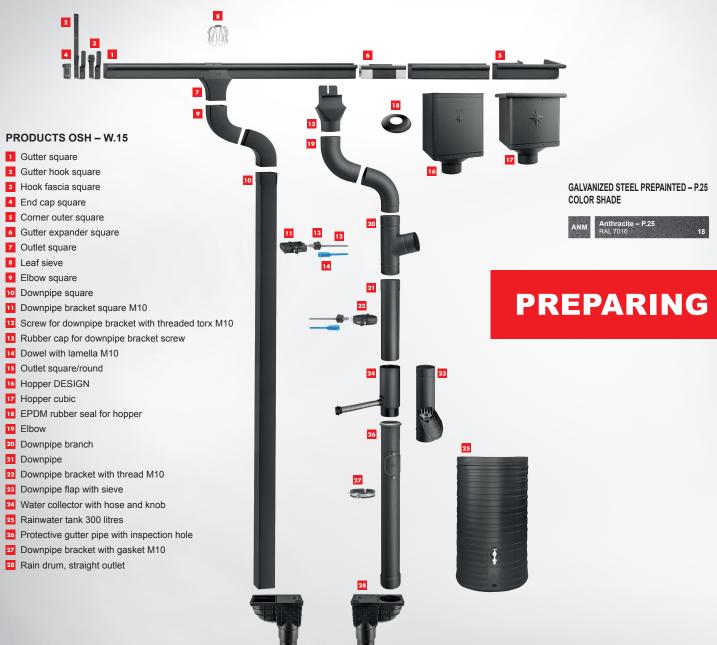


OSH 6

### **SQUARE GUTTER SYSTEM**

GALVANIZED STEEL PREPAINTED - P.25 3D EFFECT





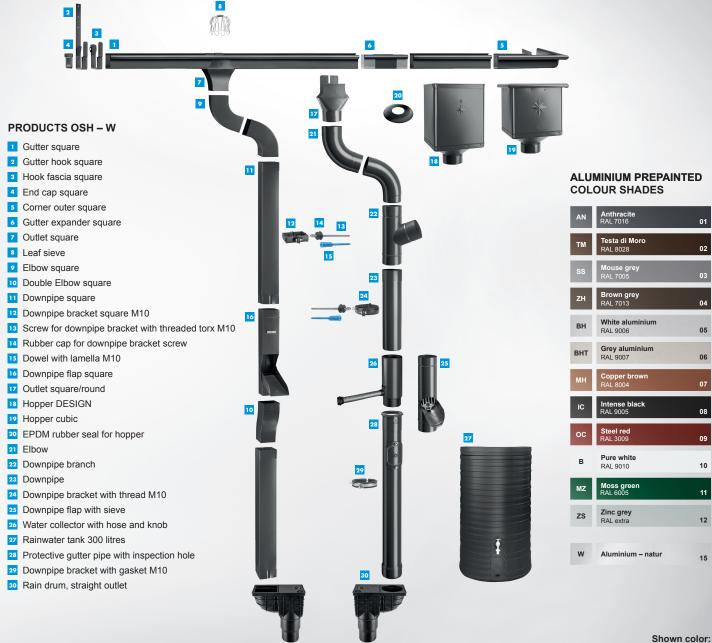






### SQUARE GUTTER SYSTEM ALUMINIUM PREPAINTED – POLYESTER







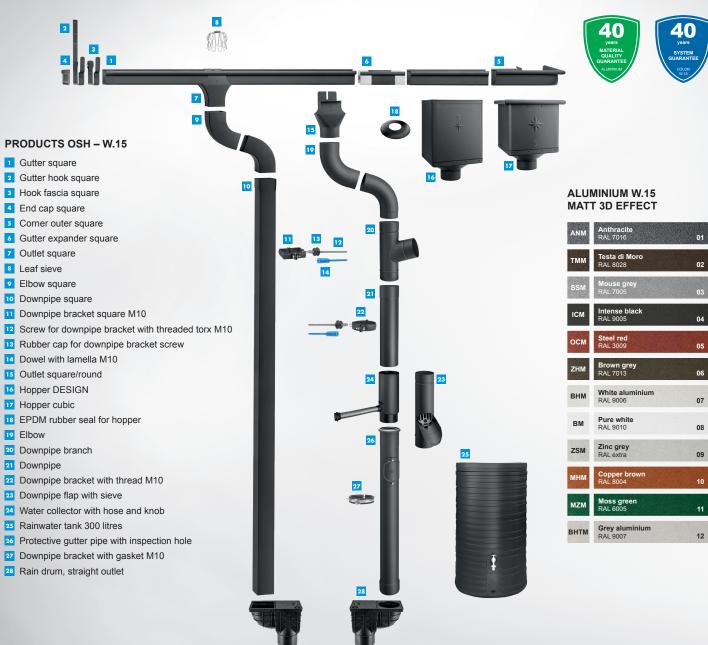


### OSH 8

### SQUARE GUTTER SYSTEM







Shown color: Anthracite W.15 – RAL 7016







## ACCESSORIES DOWNPIPE BRACKETS – ACCESSORIES













Stainless steel screw for downpipe bracket M6 x 20

Screw for downpipe bracket M8 x 30

Screw for downpipe bracket with threaded torx M10

Dowel M10

Dowel with lamella M10











Combiscrew torx M10

Insulation dowel M10

Insulating dowel tip of the brick without insulation

Insulating dowel tip of the brick with insulation

Stainless steel UNI platform to attach OB M10







Downpipe bracket mounting plate M10



Rubber cap for downpipe bracket screw



Dowel for downpipe bracket square pim 7x7



Screw for Downpipe bracket with threaded M8



Dowel M8





# **ACCESSORIES**GUTTER SYSTEM

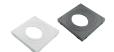




Rain drum, straight outlet



Rain drum, side outlet



Univer. downpipe entry cov.



Plastic downpipe sleeve



Special sealant for tinsmiths



Drip edge



Coil perforated 80 mm / 5 mm / 30 m



Coil perforated 100 mm / 5 mm / 30 m



Grid gutter ridge



Tear-off rivet



Rainwater tank 300 litres



Chrome drain tap 3/4" rainwater tank



Soldering tin



Paint correction spray 400 ml



Paint correction galvanized steel 20 ml

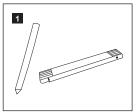


## TINSMITH TOOLS FOR HALF-ROUND GUTTER SYSTEM

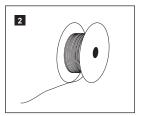


### **TOOLS**

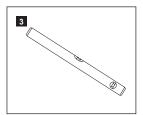
Choose the appropriate tools based on the purpose of the installation.



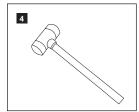
Tinsmith pencil and folding ruler



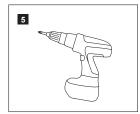
Tinsmith chalk line



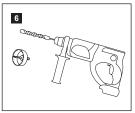
Spirit level



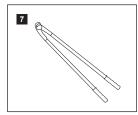
Rubber mallet



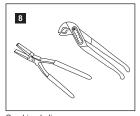
Cordless screwdriver



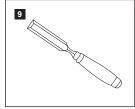
Drilling machine



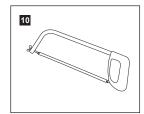
Pliers for bending roof gutter brackets



Combined pliers



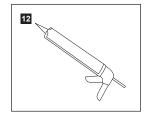
Chisel



Metal and wood saw



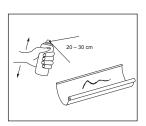
Sheet metal shears



Extrusion gun for cartridges

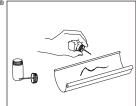
### **CORRECTION SPRAY AND PAINT**

For minor scratches, use a correction spray or paint.



### **CORRECTION SPRAY KJG®**

- 1 Clean the surface
- 2 Shake the spray can thoroughly
- 3 Spray thin coats from a distance of 20 30 cm evenly



### PAINT CORRECTION KJG®

- 1 Clean the surface
- 2 Shake the bottle with the brush really thoroughly
- 3 Carefully apply the correction paint



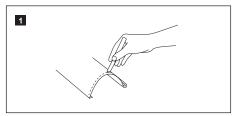


### **INSTALLATION** HALF-ROUND GUTTER END CAPS

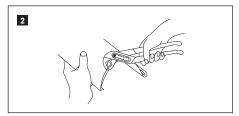


### HALF-ROUND GUTTER END CAP

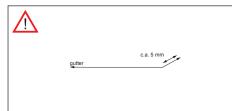
Designed for folding.



Measure approximately 5 mm from the end of the gutter and mark the spot

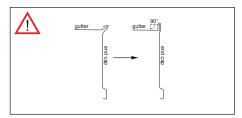


Along the entire length of the mark, bend approximately 5 mm from the edge using pliers.





Slide on the gutter end cap and tap it around the entire perimeter to secure it to the gutter.



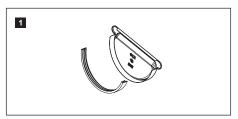
Uzavrite jemne falz plochými kliešťami. Pozor: nepoškriabte farbu!

4

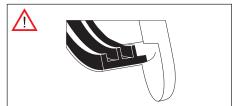


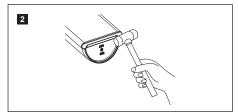
### HALF-ROUND GUTTER END CAP WITH RUBBER SEAL

Designed for easy insertion.



Insert the rubber seal. Make sure it is oriented correctly - see the picture. Only in this position the joining is properly secured.





Fit the end cap onto the gutter and gently tap it into place on the gutter.

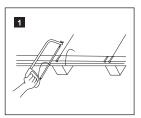


### INSTALLATION HALF-ROUND GUTTER HOOK

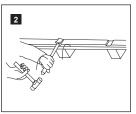


### HALF-ROUND GUTTER HOOK

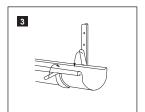
Tinsmith solution for installation on battening.



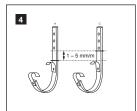
Cut notches for the gutter bracket according to the spacing of the individual rafters.



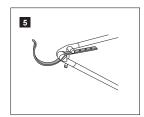
Cut out or mill the notch for the gutter bracket.



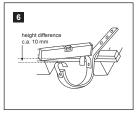
Fit the end gutter brackets A and C to the ends of the gutters so that they overlap, and bend the gutter bracket adapters of the gutter brackets. Then remove the gutter from the gutter bracket again while keeping the gutter bracket adapters closed.



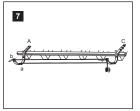
Based on the slope (1 - 5 mm/m), mark the highest and lowest points on brackets A and C to determine the bending point.



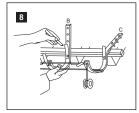
Using hook-bending pliers, bend the outer gutter brackets A and C at the marked points.



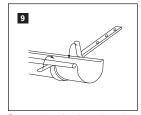
Check that the gutter height difference of approximately 10 mm is maintained.



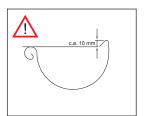
Install the first gutter bracket (A) into the prepared notch at the lowest point, and the last gutter bracket (C) at the highest point. Stretch a string between the two brackets and tighten it.



Align the gutter brackets (B) between the strings, mark the bending point, bend the gutter bracket, and install it into the notches.

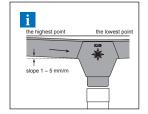


Remove the string, insert the gutter and secure it by bending both the gutter bracket adapters (first the front adapters, then the rear ones).



### HEIGHT DIFFERENCE OF THE ROOF GUTTER

The height difference of the roof gutter allows accumulated rainwater to drain over the front edge of the gutter.



### **SLOPE**

Install the roof gutter bracket with a slope of 1 – 5 mm/m.

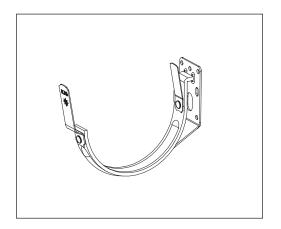


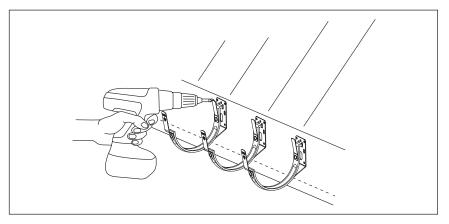
### INSTALLATION HALF-ROUND HOOK FASCIA

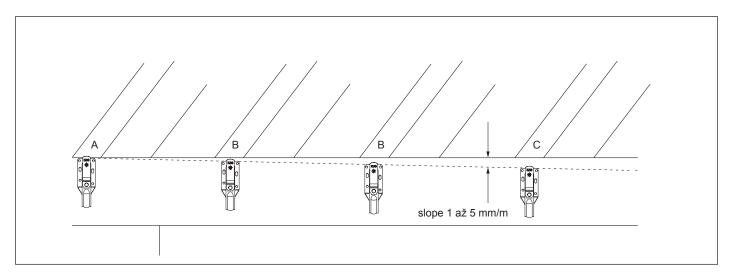


### HALF-ROUND HOOK FASCIA

Designed for front-mounted installation on a vertical board.







- Install the first (A) and last (C) front-mounted brackets at spaced distances matching the rafters. Pay attention to the slope 1 5 mm/m!
- 2 Stretch a string between the front-mounted brackets (A, C) and align the individual brackets according to the string to ensure the correct slope. Install the front-mounted brackets at spaced distances matching the rafter spacing.
- 3 Remove the string and insert the gutter.
- 4 Secure the gutter in the front-mounted brackets by bending both gutter bracket adapters (first the front adapters, then the rear ones).

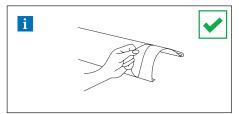


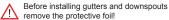
### INSTALLATION GUTTER HALF-ROUND

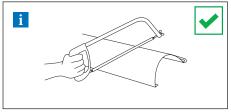


### **EXPANSION**

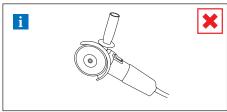
Linear expansion causes materials to expand and contract at different temperatures.



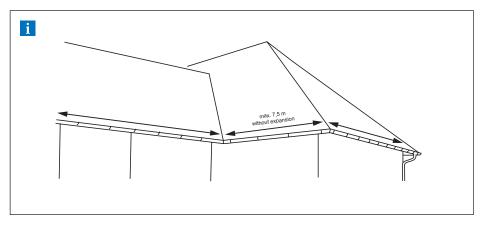




A saw must be used to shorten the gutter!



The use of a grinder is not allowed!



### **MAXIMUM SIDE LENGTH**

Maximum roof side length for proper compensation of linear expansion: 15 m.

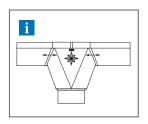
For corner spacings, half the length always applies.

### **MATERIAL EXPANSION**

Information on thermal expansion of individual materials can be found on page 44.

### **OPTIONS FOR JOINTS OF HALF-ROUND ROOF GUTTERS**

Options for joints that can be used for compensating the linear expansion of individual materials.



### LOOSE CONNECTION OF GUTTERS IN THE GUTTER OUTLET

Gutter overlap: 80 mm.



### **GUTTER CONNECTOR**

Roof gutter connector with a 5 mm gap between gutters serves as an expansion joint.



### INSTALLATION GUTTER EXPANDERS AND ENDLESS TAPES



### **DILATATION JOINERS**

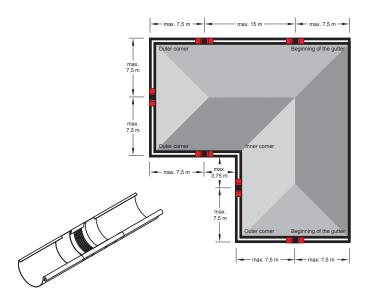
Dilatation are a flexible solution for thermal expansion caused by variability in external conditions.

#### **GUTTER EXPANDERS**

Installation example: eaves gutter with a developed width up to 500 mm. The expansion gutter must be installed at a spacing of 15 meters. For external corners and the gutter's starting point, half the standard value applies: maximum 7,5 m. For internal corners, one quarter of the standard value applies: maximum 3,75 m. For other materials and dimensions, refer to the table below. Corners are always considered as fixed points.

#### **GUTTER EXPANDERS**

Developed	Aluminium	Galvanized steel, Titanium
gutter width	Aluminium	zinc, Copper, Stainless steel
< 500	12	15
> 500	8	10



#### Note on installation of the expansion point gutter.

When installing using soldering, first cover the central rubber section with a damp cloth (to prevent heat transfer into the central rubber part). A minimum distance of 6 cm from the central rubber section must be maintained. In all cases, avoid direct contact of the rubber with an open flame.

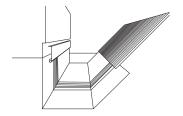
#### **ENDLESS TAPES**

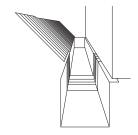
**Internal installation:** mounted onto gutters without bonding to the substrate, roofs with non-standard profiles, and sheet-metal cladding of masonry.

#### **ENDLESS TAPES**

Developed gutter width	Aluminium	Galvanized steel, Titanium zinc, Copper, Stainless steel
< 500	8	10
> 500	6	8

For the gutter external corner or beginning, half of the standard value applies. For an internal corner, one quarter of the standard value applies.





Note on installation of the expansion point strip. During bending and installation of expansion elements, make sure that:

- The bending jaws have a radius of at least 2 mm.
- For sheet metal thickness of 1 mm or more, the bending radius must be at least 5 mm.
- During bending, the jaws must be adjusted to the thickness the central rubber section (3 – 4 mm) to prevent a shearing effect – rubber damage.
- The rubber central section must not be compressed or damaged during bending.
   To prevent this, an aluminium sheet strip (2 5 mm thick) should be bent and mounted onto the jaws as protection. This provides a larger bending radius and helps prevent damage to the central rubber section.



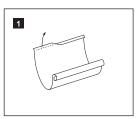


# JOINING HALF-ROUND ROOF GUTTERS

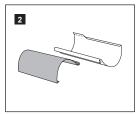


### Α

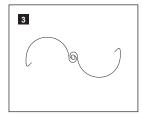
### BONDING



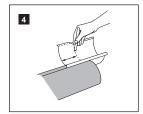
Bend out a return water groove using flat pliers.



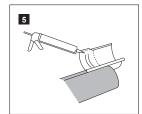
Join the gutters to each other using hemmed edges (overlap approx. 80 mm).



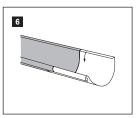
Join both gutters by overlapping their hemmed edges.



Ensure sufficient overlap of the gutters and mark it accordingly.



Apply the special roofing sealant SCH-SPENGLER 390 in two rows onto the clean and dry surface of the gutter (marked area), with a minimum width of 8 mm.



Place the gutters together and bend back the return water groove using flat pliers.





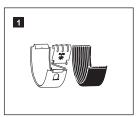
### **JOINING ROOF GUTTERS USING A CONNECTOR**



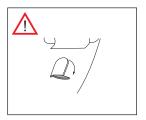
### **GUTTER CONNECTOR**

Gutter connector with a locking mechanism for gutters sized according to EN 612

2



Open the locking mechanism on the gutter connector.

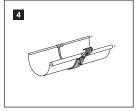


Paste in the rubber seal approximately 3 mm below the cutout and allow it to slightly overlap at the front.

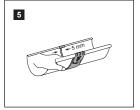


Slide the hemmed edge connector all the way to the marked point (not required during repairs). Leave a 5 mm gap between the gutters to allow for proper expansion.

3



With light counter-pressure on the inside, hook the clip over the hemmed edge and snap it into place (audible click!). Close the locking mechanism.



With light counter-pressure on the inside, hook the clip over the hemmed edge and snap it into place (audible click!). Close the locking mechanism.



## INSTALLATION HALF-ROUND GUTTER OUTLET

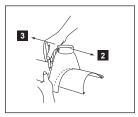


### Α

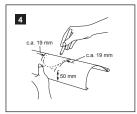
### **EASY INSTALLATION OF A GUTTER OUTLET**



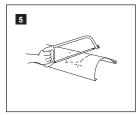
Place the gutter outlet onto the gutter. Trace its outline on the gutter to the right and left.



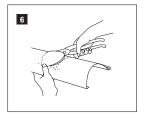
Shift the gutter outlet 19 mm to both sides and trace it again.



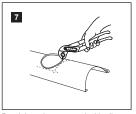
Measure 50 mm from the edge of the gutter and mark the spot. Create a circular outline that matches the inner shape of the gutter outlet (see the picture).



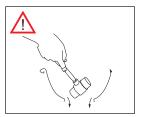
Cut through the centre using a hacksaw.



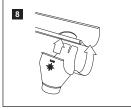
Cut out the opening using sheet metal shears.



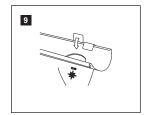
Bend the edges upward with pliers and create a hem.



Tap the edges of the opening inside the gutter with a rubber mallet.



Attach the gutter outlet by hooking it so that the holes in the gutter and outlet are aligned.



Secure the outlet firmly to the gutter.





### INSTALLATION HALF-ROUND GUTTER OUTLET

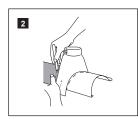


### В

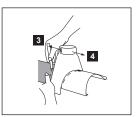
### **INSTALLATION OF A HALF-ROUND GUTTER OUTLET**



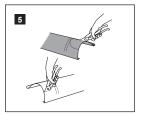
Insert the gutters 80 mm into each other, notice: do not use any adhesive! On the upper gutter, mark 40 mm (A, centred in relation to the mark of 80 mm).



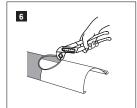
Position the gutter outlet centred at the 40 mm mark (A). Trace its outline on the gutter to the right and left



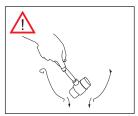
Measure 19 mm from the mark and shift it inward (both left and right). From the edge of the gutter, measure 50 mm upwards and mark the spot. Connect this point with the inner marking of the outlet in a circular line.



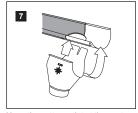
Cut out the resulting half-rounds on both gutters using sheet metal shears (complete the half-round on the second gutter).



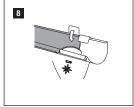
Slide the gutters together again with an 80 mm overlap. Use pliers to bend the edges.



Tap around the edges of the opening inside the gutter using a rubber mallet.



Hang the gutter outlet at the centre of the roof gutter.



Secure the gutter outlet firmly to the roof gutter.





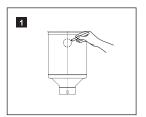
### INSTALLATION HOPPER



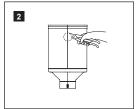
### Α

### **INSTALLATION ON A FACADE**

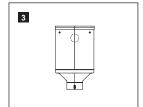
Hopper eccentric



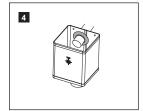
Create an opening: measure the diameter and mark it on the appropriate side of the collection outlet.



Cut out the opening using sheet metal shears.



Mark the fastening holes (min. 20 mm from the edge). And drill the holes.



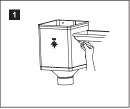
Fix the gutter outlet using suitable fastening materials.
Tip: Attach the EPDM sealing rubber of the gutter outlet.

### В

### **INSTALLATION ON A GUTTER**

2

Hopper



Place the gutter outlet against the gutter at the desired height and trace the gutter opening from the outside.



to create the opening, reduce the lower marking of the gutter by 5 mm. Cut out the resulting outer section (grey area shown in the picture) using sheet metal shears.



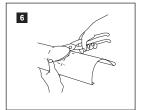
Bend the lower edge of the opening outward using sheet metal shears (see the picture). Repeat the individual steps for the opposite side of the gutter outlet: mark, cut out and bend the edge.



Prepare the opening on the gutter: mark the width of the gutter outlet at the desired location on the gutter.



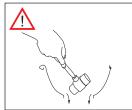
Mark 50 mm from the edge of the gutter, and 19 mm on both sides inside the gutter outlet (A). Connect the individual marks.



Cut out the opening using sheet metal shears.



Insert the gutter into the collection outlet, then hang both the collection outlet and the gutter onto the hooks.



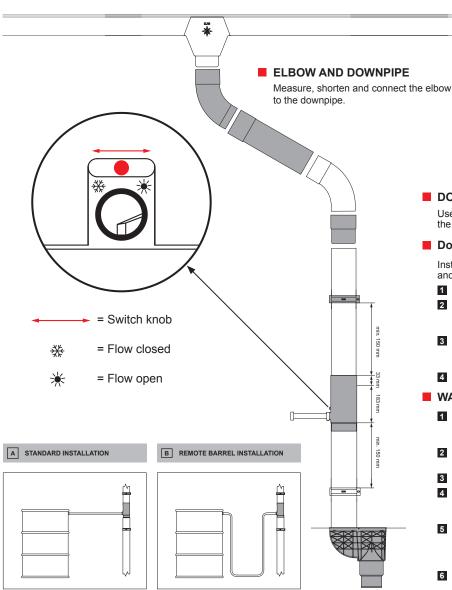
Create a hem on the edges of the opening inside the gutter using a rubber mallet.

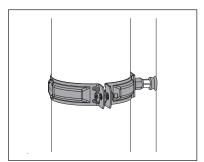


### ASSEMBLY HALF-ROUND GUTTER SYSTEM KJG



#### **EXAMPLES OF APPLICATIONS OF THE HALF-ROUND GUTTER SYSTEM KJG**





Downpipe bracket with thread M10. Installation on an example of solid brick (without thermal requirements).

#### DOWNPIPE CONNECTOR

Use a downpipe connector to join the cut sections of a downpipe.

#### ■ Downpipe bracket with thread M10

Installation using M10 lamellar anchor plugs and a TORX M10 threaded tip.

- 1 Pre-drill a hole with a diameter of 10 mm.
- Fit the anchor plug. If the hole is too shallow, drill it deeper. Do not shorten the anchor plug – the connection would not be strong enough.
- Place a rubber cap onto the TORX M10 threaded tip of the bracket and screw it in. The cap seals the drilled hole.
- 4 Screw on the bracket with the M10 nut.

#### ■ WATER COLLECTOR WITH HOSE AND KNOB

- Determine the location for the container: the top line indicates indicates the height of the container, the water level is marked with a wave symbol.
- To install the water collector: cut the downpipe along the indicated lines (see the picture).
- 3 Deburr both ends of the downpipes.
- Fit the removable top part onto the upper section of the downpipe and slide it into place. Then attach the bottom part.
- Insert the water collector into the lower downpipe; slide the upper part of the collector downward. Do not fix the collector permanently, otherwise cleaning will not be possible.
- **6** Drill a hole in the container at the same height as the automatic diverter.



# TECHNICAL AND INFORMATION AIDS







### RECOMMENDED DIMENSIONS GUTTER SYSTEM

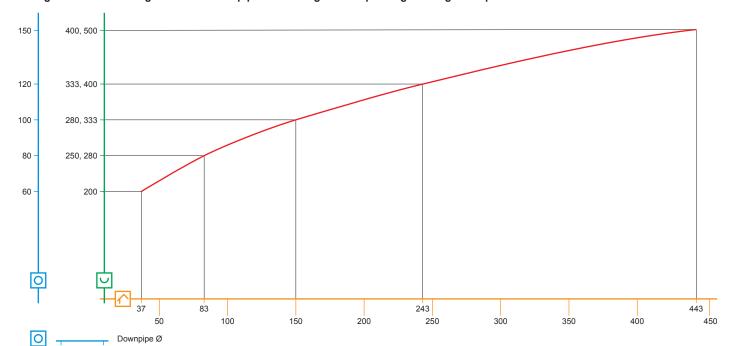


Table to determine the size of downpipes and roof gutters depending on the ground-plan size of the roof area to be drained.

Roof ground-plan area in m²	O Downpipe Ø	□ Roof gutter
0 – 37	60	200
37 – 83	80	250, 280
83 – 150	100	280, 333
150 – 243	120	333, 400
243 – 443	150	400, 500

The maximum ground-plan area of the roof intended for drainage corresponding to one downpipe located at the end of the gutter slope. Placing the downpipe in the middle of the roof gutter (centrally) increases efficiency by 60 %. If one downpipe is not enough for a given area, the number of downpipes on a given roof gutter shall be increased.

#### Nomogram for determining the size of downpipes and roof gutters depending on the ground-plan size of the roof area to be drained.



Roof ground-plan area in m2



### **MATERIALS KJG**



### Weight of metals for given thicknesses

Material	0,50 mm	0,55 mm	0,60 mm	0,65 mm	0,70 mm	0,80 mm	1,00 mm	1,50 mm
Galvanized steel	3,93 kg/m²	4,32 kg/m²	4,71 kg/m²	5,10 kg/m²	5,50 kg/m²	6,28 kg/m²	7,86 kg/m²	11,79 kg/m²
Galvanized steel prepainted	3,93 kg/m <sup>2</sup>	4,32 kg/m²	4,71 kg/m²	5,10 kg/m <sup>2</sup>	5,50 kg/m²	6,28 kg/m²	7,86 kg/m²	11,79 kg/m²
Aluminium	1,35 kg/m²	1,49 kg/m²	1,62 kg/m²	1,75 kg/m²	1,89 kg/m²	2,16 kg/m²	2,70 kg/m <sup>2</sup>	4,05 kg/m²
Aluminium prepainted	1,35 kg/m²	1,49 kg/m²	1,62 kg/m²	1,75 kg/m²	1,89 kg/m²	2,16 kg/m²	2,70 kg/m <sup>2</sup>	4,05 kg/m²
Titanium zinc	3,60 kg/m <sup>2</sup>	3,96 kg/m²	4,32 kg/m²	4,68 kg/m²	5,04 kg/m²	5,76 kg/m²	7,20 kg/m <sup>2</sup>	10,80 kg/m²
Titanium zinc Patina	3,60 kg/m <sup>2</sup>	3,96 kg/m²	4,32 kg/m²	4,68 kg/m²	5,04 kg/m²	5,76 kg/m²	7,20 kg/m <sup>2</sup>	10,80 kg/m²
Copper	4,46 kg/m²	4,90 kg/m²	5,35 kg/m²	5,80 kg/m²	6,25 kg/m²	7,14 kg/m²	8,93 kg/m <sup>2</sup>	13,39 kg/m²
Copper Patina	4,46 kg/m²	4,90 kg/m²	5,35 kg/m²	5,80 kg/m²	6,25 kg/m <sup>2</sup>	7,14 kg/m²	8,93 kg/m <sup>2</sup>	13,39 kg/m²
Stainless steel	3,95 kg/m <sup>2</sup>	4,34 kg/m²	4,74 kg/m²	5,13 kg/m²	5,53 kg/m²	6,32 kg/m²	7,90 kg/m²	11,85 kg/m²

Weights refer to 1 m² of sheet metal

### Material thermal expansion of used metals

Temperature	10 °C	20 °C	30 °C	40 °C	50 °C	60 °C	70 °C	80 °C	90 °C	100 °C
Galvanized steel	0,12 mm/m	0,24 mm/m	0,36 mm/m	0,48 mm/m	0,60 mm/m	0,72 mm/m	0,84 mm/m	0,96 mm/m	1,08 mm/m	1,20 mm/m
Galvanized steel prepainted	0,12 mm/m	0,24 mm/m	0,36 mm/m	0,48 mm/m	0,60 mm/m	0,72 mm/m	0,84 mm/m	0,96 mm/m	1,08 mm/m	1,20 mm/m
Aluminium	0,24 mm/m	0,48 mm/m	0,72 mm/m	0,96 mm/m	1,20 mm/m	1,44 mm/m	1,68 mm/m	1,92 mm/m	2,16 mm/m	1,20 mm/m
Aluminium prepainted	0,24 mm/m	0,48 mm/m	0,72 mm/m	0,96 mm/m	1,20 mm/m	1,44 mm/m	1,68 mm/m	1,92 mm/m	2,16 mm/m	2,40 mm/m
Titanium zinc	0,22 mm/m	0,44 mm/m	0,66 mm/m	0,88 mm/m	1,10 mm/m	1,32 mm/m	1,54 mm/m	1,76 mm/m	1,98 mm/m	2,40 mm/m
Titanium zinc Patina	0,22 mm/m	0,44 mm/m	0,66 mm/m	0,88 mm/m	1,10 mm/m	1,32 mm/m	1,54 mm/m	1,76 mm/m	1,98 mm/m	2,20 mm/m
Copper	0,17 mm/m	0,34 mm/m	0,51 mm/m	0,68 mm/m	0,85 mm/m	1,02 mm/m	1,19 mm/m	1,36 mm/m	1,53 mm/m	1,70 mm/m
Copper Patina	0,17 mm/m	0,34 mm/m	0,51 mm/m	0,68 mm/m	0,85 mm/m	1,02 mm/m	1,19 mm/m	1,36 mm/m	1,53 mm/m	1,70 mm/m
Stainless steel	0,16 mm/m	0,32 mm/m	0,48 mm/m	0,64 mm/m	0.80 mm/m	0,96 mm/m	1,12 mm/m	1,28 mm/m	1,44 mm/m	1,60 mm/m

Material expansion is given in millimetres per meter, the temperature is in degrees Celsius



### **MATERIALS KJG**



### Metals you can use together for construction

Material	Galvanized steel	Galvanized steel prepainted	Aluminium	Aluminium prepainted	Titanium zinc	Titanium zinc Patina	Copper	Copper Patina	Stainless steel
Galvanized steel	~	~	~	~	<b>~</b>	~	×	×	<b>~</b>
Galvanized steel prepainted	~	~	<b>~</b>	~	<b>~</b>	~	×	×	<b>~</b>
Aluminium	~	~	~	~	<b>~</b>	~	×	×	<b>~</b>
Aluminium prepainted	~	~	~	~	~	~	×	×	<b>~</b>
Titanium zinc	~	~	<b>~</b>	~	~	~	×	×	<b>~</b>
Titanium zinc Patina	~	~	~	~	~	~	×	×	<b>~</b>
Copper	×	×	×	×	×	×	<b>~</b>	~	<b>~</b>
Copper Patina	×	×	×	×	×	×	<b>~</b>	~	<b>~</b>
Stainless steel	~	~	<b>~</b>	~	~	~	<b>~</b>	~	<b>✓</b>

<sup>✓ =</sup> connection possible

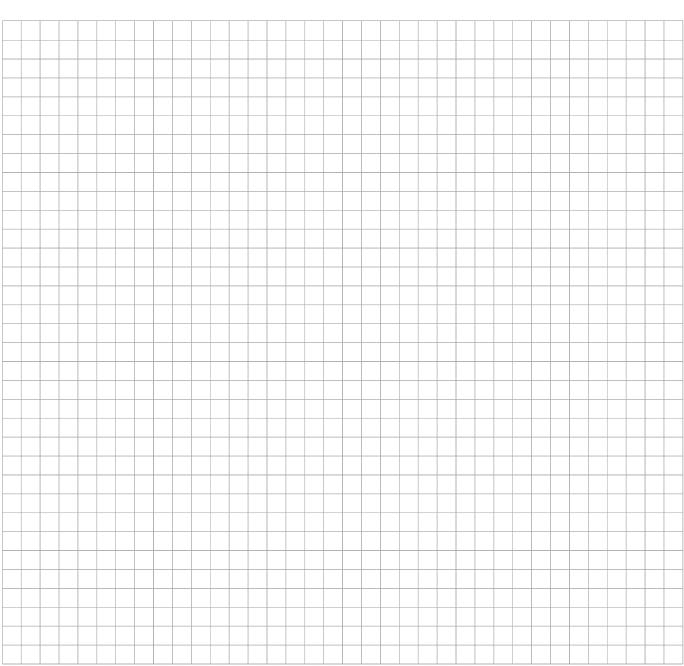
X = connection not possible





# PLACE FOR STRONG THOUGHTS









# PLACE FOR STRONG THOUGHTS



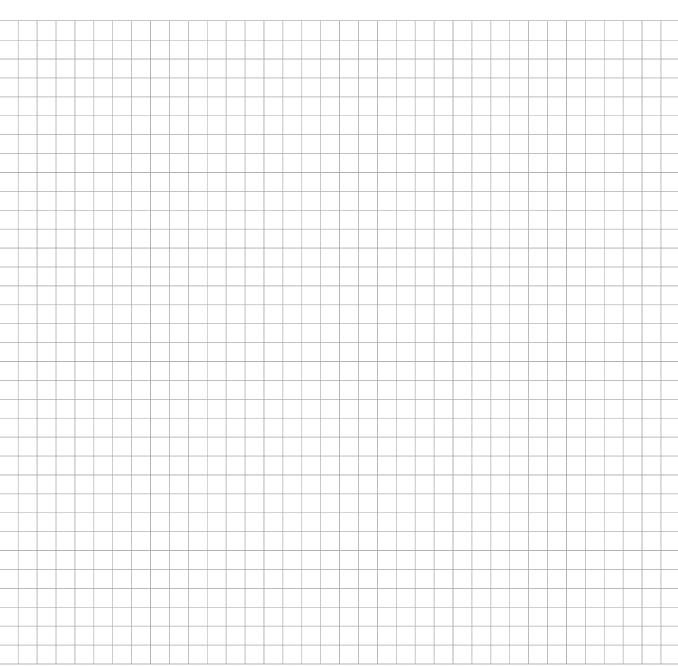






# PLACE FOR POWERFUL IDEAS



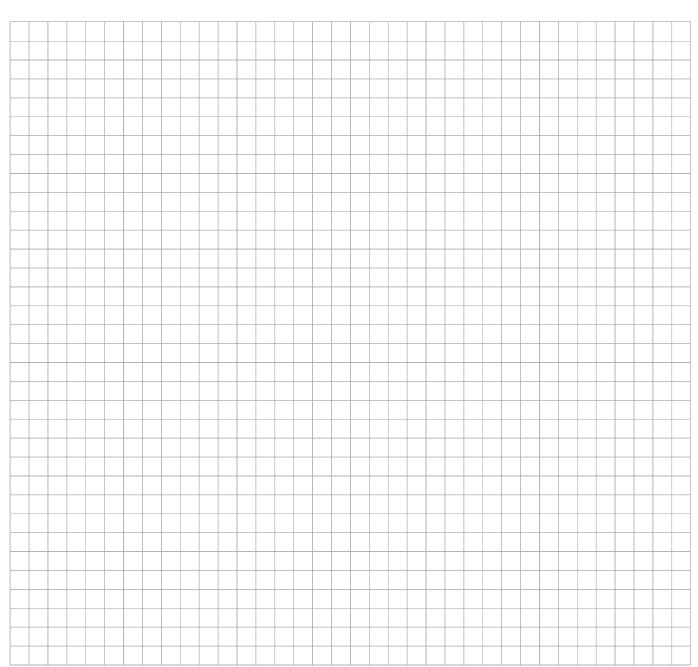






# PLACE FOR POWERFUL IDEAS







# OWN TRANSPORT TO THE CONSTRUCTION SITE





### **10 REASONS TO CHOOSE KJG**

- 1. Quality products with a long tradition
- 2. Complete roof system
- 3. Wide range of materials
- 4. Simple installation
- 5. Delivery directly on request
- 6. Resistant to weather conditions
- 7. Aesthetic appearance
- 8. KJG®
- 9. Own paint shop
- 10. References



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Telefón: +421 32 774 34 10

Web: www.kjg.sk

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Bratislava, Rybničná 49

Nitra, Cabajská 23

Banská Bystrica, Zvolenská cesta 14

Turčin - Donji Kneginec, Ulica kralja Andrije II. 4 (Croatia)