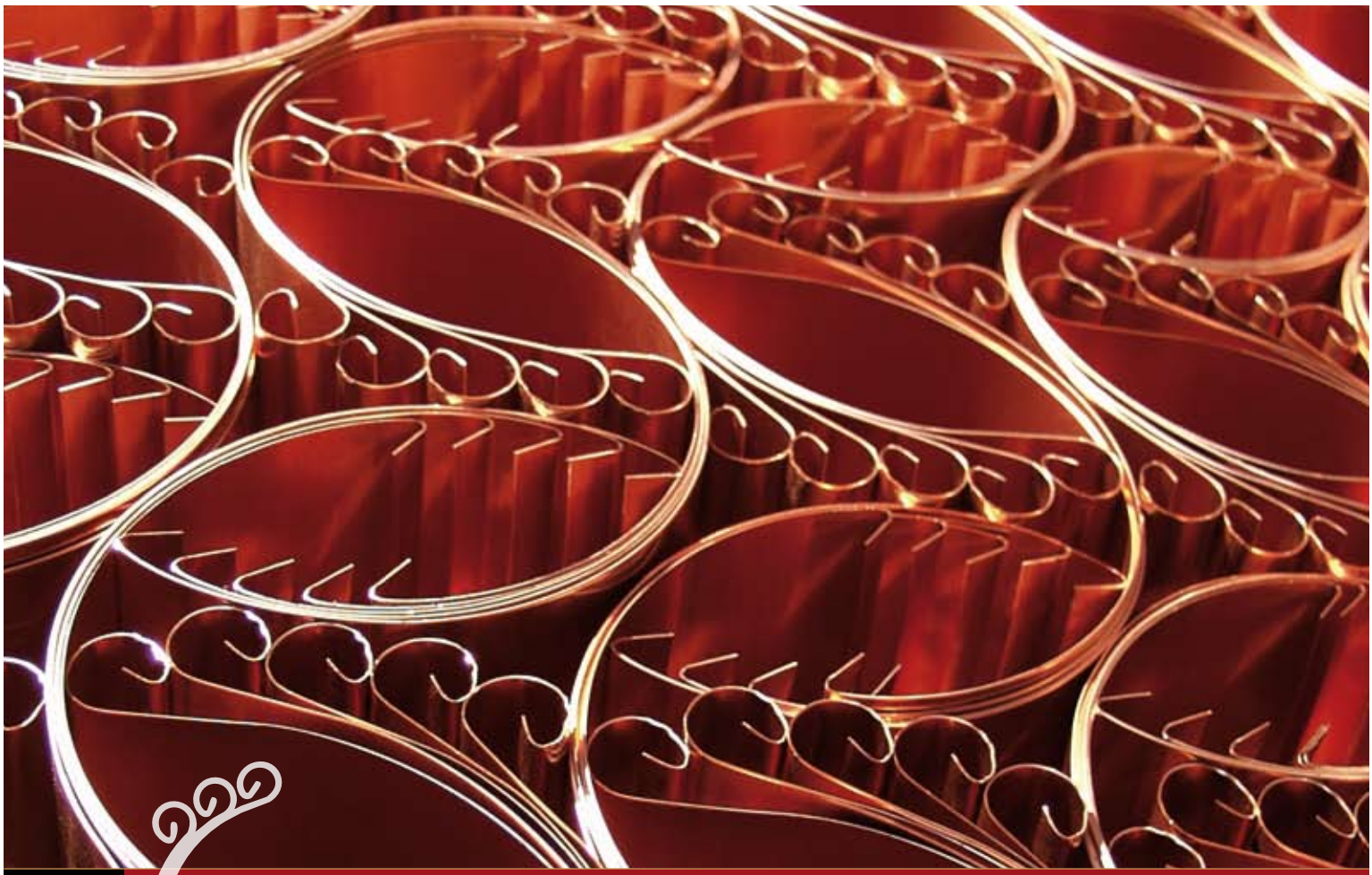

Edition 08

COPPER GUTTER SYSTEMS

RENNER GERMANY

Copper gutters made in Bamberg, Germany

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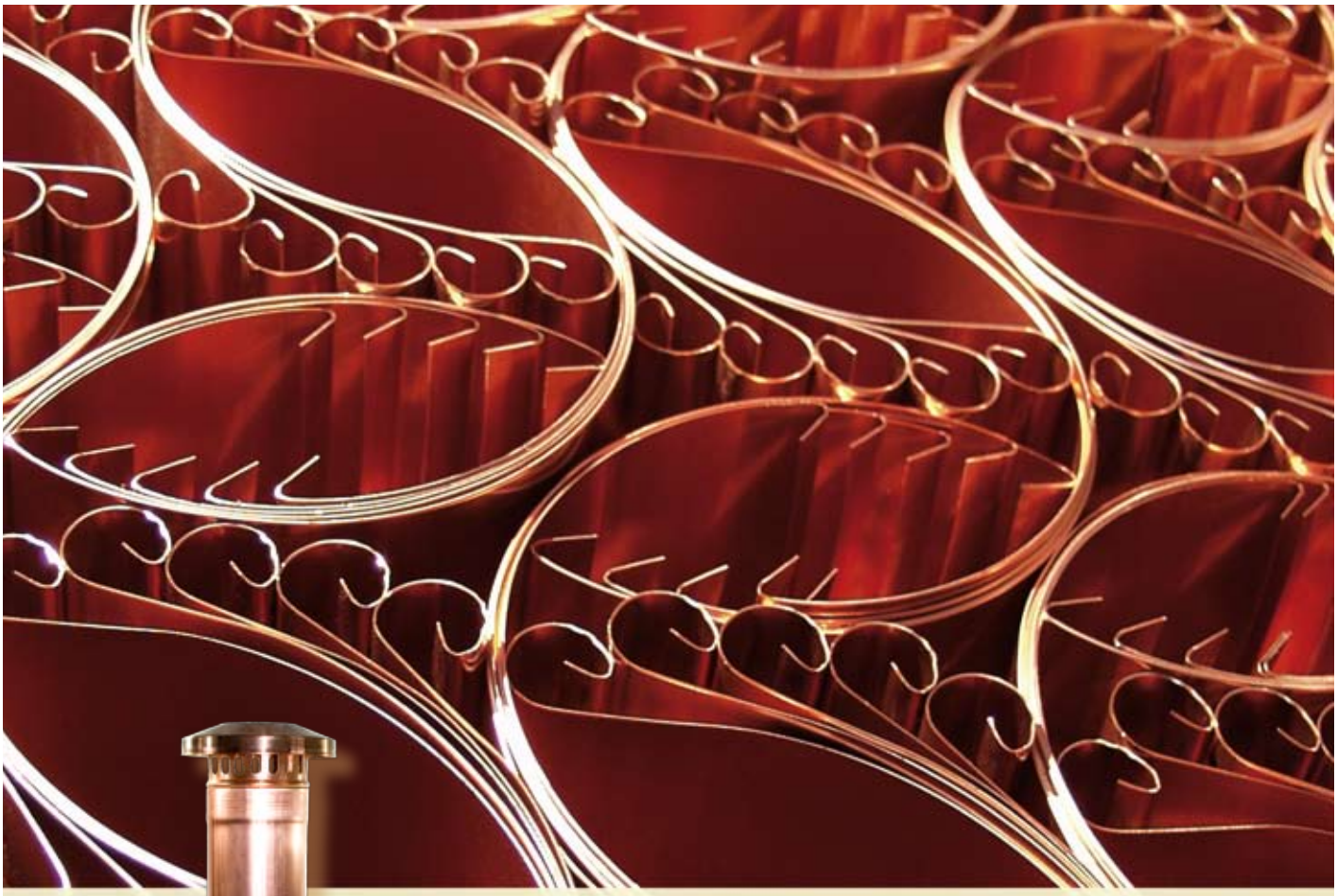


Why copper guttering?

Copper was mankind's first metal and was used during the Stone Age over 10,000 years ago. Over the course of the millennia, mankind became increasingly proficient at handling this metal, deploying it for the most varied tasks – for example, hammering, heating, forging or mixing it with other metals to create alloys such as lead, silver or pewter.

The discovery that copper and tin could easily be mixed provided the name for an era: the Bronze Age. All great cultures and civilizations worked with copper. The Colossus of Rhodes was made from copper and the Ancient Egyptians used copper for their water pipes.

But the name for copper actually came from the Romans, which they called "aes cyprium", which later became "cuprum", the origin of today's "copper".

There are very few materials that maintain their technical function and shape over extremely long periods of time. These include copper, a material that creates its own protective layer and that – with its patina – only reveals its full design qualities during the aging process.

It is remarkable that around 40% of all copper applications are in construction. And there are countless further copper alloys, of which brass and bronze, in particular are being increasingly deployed in architecture.

Quality, durability and beauty have been the compelling attributes of this material for centuries. Copper has been used as a roof and wall cladding material for buildings since time immemorial. In addition to the functional characteristics, one of the primary reasons for this is undoubtedly its aesthetic qualities.

To this end, its – as a result of weathering – constantly changing patina influences the appearance of a building, whereby the original coppery sheen of the metal gradually develops into a sequence of warm, brown shades before the external surface acquires its characteristic green.

We hope that you will love this catalog. And that you will love this guttering system with the ***MADE IN GERMANY*** seal of quality.
An external roof drainage system that excels in terms of its unique, top-quality material, a guttering system that stands out with regards to function, excellence and exquisite quality.

Upgrade your roof with Renner copper guttering. Give your roof the crowning glory it deserves.

100 years of family tradition with state-of-the-art production facilities, as well as highly-skilled engineers and highly-qualified commercial staff, providing our partners with fast and uncomplicated onsite support.

The dimensions of the products, parts and components indicated in this catalog may vary slightly from the actual dimensions due to production variables, without affecting their function.

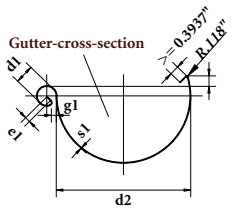
round halfround rectangular

1. Gutter, halfround

As a bracket-mounted gutter, this form of guttering is by far the most popular design, as it offers the most favourable prerequisites for water drainage. The rounded guttering always guides the water towards the center, ensuring lower soiling (e.g. leaves) even in the case of minimal flow speeds.

In terms of material efficiency, the semi-round version is also the most favorable form, and this also applies to the resistance against mechanical loads and impacts, such as ice and freezing. The standard lengths are 10 and 18 feet.

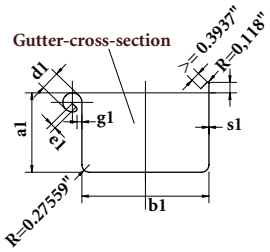
German size	Available dimensions	e1	d1	d2	g1	Gutter cross sektion
	[oz]	[inch]	[inch]	[inch]	[inch]	[square inch]
200	18	0.20	0.63	3.15	0.20	3.88
250	18	0.28	0.71	4.13	0.20	6.67
280	20	0.28	0.71	5.00	0.24	9.77
333	20	0.35	0.79	6.02	0.24	14.26
400	20	0.35	0.87	7.56	0.24	22.48
500	20	0.35	0.87	9.84	0.24	37.98

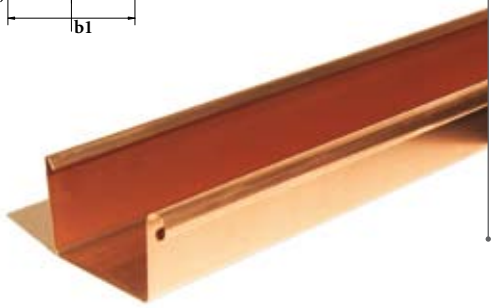


2. Gutter, rectangular

The rectangular gutter is also used for bracket-mounted systems. Its form is predominantly determined by design considerations. As its flow properties are - due to the flat flow of the water - less favorable than in the case of the semi-round gutter, they should always be installed with a sufficient slope.
This type also comes in the standard lengths of 10 and 18 feet.

German size	Available Dimensions	a1	b1	d1	e1	g1	Gutter cross sektion
	[oz]	[inch]	[inch]	[inch]	[inch]	[inch]	[square inch]
200	18	1.65	2.76	0.63	0.20	0.20	4.50
250	18	2.17	3.35	0.71	0.28	0.20	7.29
333	20	2.95	4.72	0.79	0.35	0.24	13.95
400	20	3.54	5.91	0.87	0.35	0.24	20.93
500	20	4.33	7.87	0.87	0.35	0.24	34.10





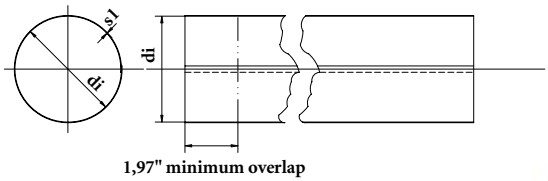
For use with the respective guttering type, we offer both round and square copper downspouts, available in various size ranges. The standard length is 10 feet.

The longitudinal seam comes in various designs: ***Soft welded, braised, seamless welded, with seam***

The seamed and welded downspouts have a slightly conical design, so that the individual sections can be inserted into each other to a depth of at least 1.97 inches. The seamless welded downspouts are equipped with a socket end. For this reason, using a simple tool or the downleader coupling allows even the smallest residual pieces to be used.

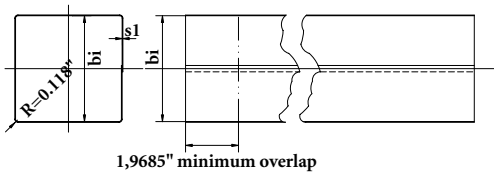
3. Downspout, round

German size	Available Dimensions	di
	[oz]	[inch]
60	18	2.25
76	18	3
87	18	3.5
100	18	4
120	20	5
150	20	6

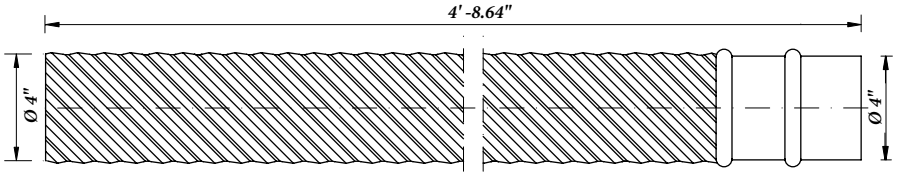


4. Downspout, rectangular

German size	Available Dimensions	di
	[oz]	[inch]
60	18	2.25
80	18	3.15
100	18	4
120	20	5

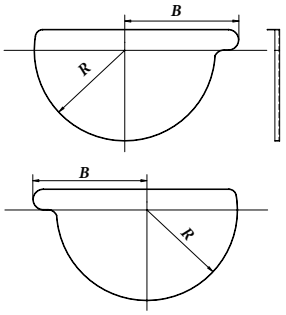


5. Downspout, twisted



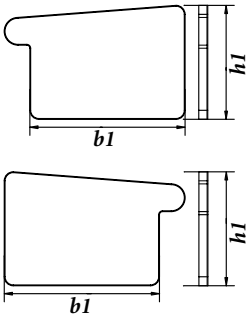
6. Endcap, round

German size	For gutter	R	B
	[Ø]	[inch]	[inch]
200	3.15	1.57	2.36
250	4.13	2.05	2.82
280	5.00	2.48	3.25
333	6.02	2.99	3.94
400	7.56	3.74	4.70
500	9.84	4.88	5.32



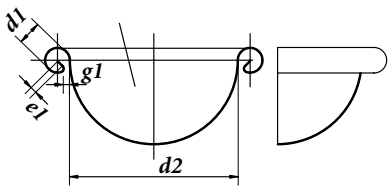
7. Endcap, rectangular

German size	For gutter	h1	b1
	[Ø]	[inch]	[inch]
200	2.76	1.96	2.76
250	3.35	2.56	3.35
333	4.72	3.34	4.72
400	5.91	3.93	5.91
500	7.87	4.72	7.87



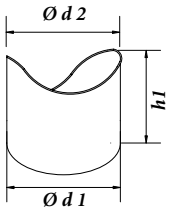
8. Endcap, round (bullnose)

German size	d2	d1	e1	g1
	[inch]	[inch]	[inch]	[inch]
200	3.15	0.71	0.24	0.20
250	4.13	0.71	0.28	0.20
280	5.00	0.71	0.28	0.20
333	6.02	0.79	0.35	0.24
400	7.56	0.87	0.35	0.24
500	9.84	0.87	0.35	0.24



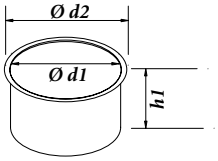
9. Mini outlet drop for halfround gutters

German size	d1	d2	h1
	[inch]	[inch]	[inch]
60	2.25	2.66	2.30
76	3.00	3.35	2.93
87	3.5	4.02	2.99
100	4.00	4.45	3.03
120	5.00	5.27	3.50



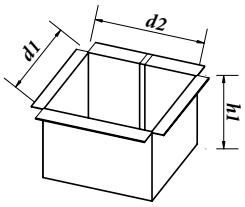
10. Mini outlet drop for rectangular gutters

German size	d1	d2	h1
	[inch]	[inch]	[inch]
60	2.25	2.68	1.87
76	3.00	3.28	2.36
87	3.50	3.77	3.11
100	4.00	4.25	2.36



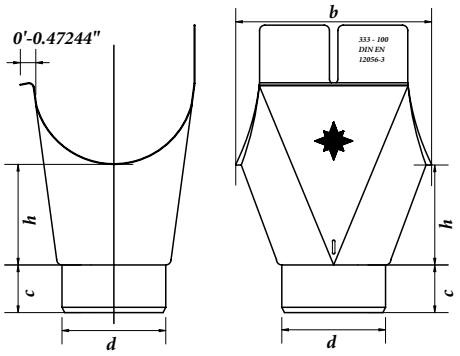
11. Mini outlet drop, rectangular

German size	d 1	d 2	h 1
	[inch]	[inch]	[inch]
80	3.15	3.15	2.76
100	4.00	4.00	3.31



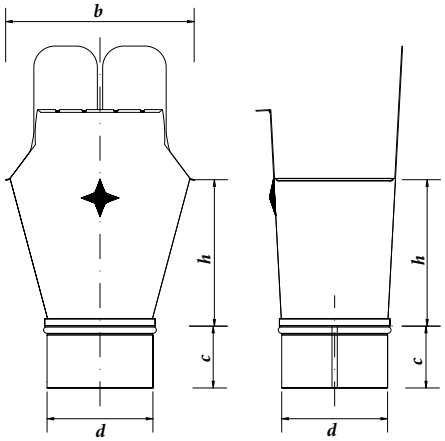
12. Star outlet drop for halfround gutter to round downspout

For gutter Ø [inch]	pipe Ø [inch]	d [inch]	b [inch]	h [inch]	c [inch]
3.15	2.25	2.25	5.12	3.03	1.18
4.13	2.25	2.25	5.01	2.36	1.57
4.13	3	3	6.50	2.95	1.38
5.00	3	3	6.30	3.15	1.57
5.00	3.5	3.5	7.24	3.15	1.77
5.00	4	4	7.24	2.95	1.97
6.02	3	3	7.28	3.54	1.57
6.02	3.5	3.5	7.28	3.74	1.77
6.02	4	4	7.48	3.54	1.97
7.56	4	4	8.27	4.13	1.97
7.56	5	5	8.27	4.13	1.97



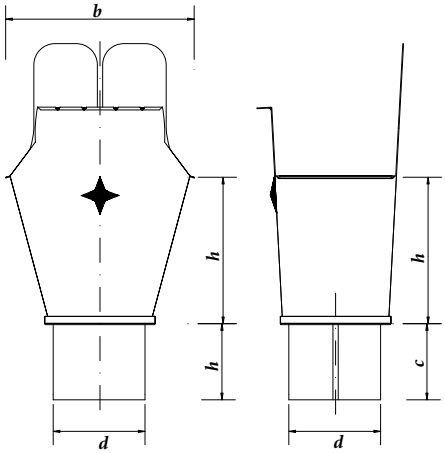
13. Star outlet drop for rectangular gutter to round downspout

For gutter Ø [inch]	pipe Ø [inch]	d [inch]	b [inch]	h [inch]	c [inch]
2.76	2,25	2,25	4.76	4,13	1.67
3.35	3	3	5.75	4.49	1.77
4.72	4	4	7.20	6.02	1.97
5.91	5	5	8.46	8.07	1.97



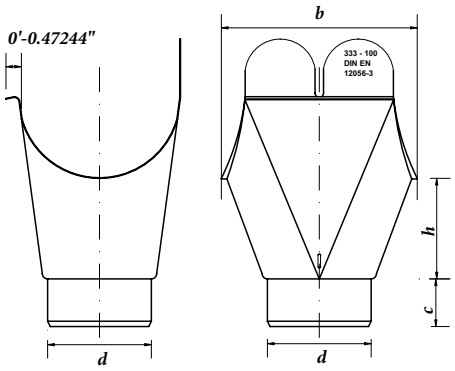
14. Star outlet drop for rectangular gutter to rectangular downspout

For gutter Ø [inch]	pipe Ø [inch]	d [inch]	b [inch]	h [inch]	c [inch]
2.76	2.25	2.25	4.76	4.13	1.67
3.35	3.15	3.15	5.75	4.49	1.77
4.72	4	4	7.20	6.02	1.97
5.91	5	5	8.46	8.07	1.97



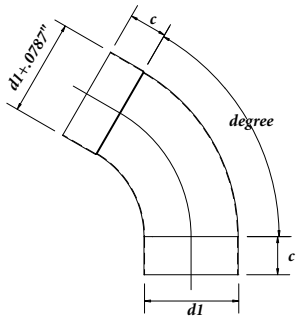
15. Plain outlet drop

For gutter Ø [inch]	pipe Ø [inch]	d [inch]	b [inch]	h [inch]	c [inch]
3.15	2.25	2.25	5.12	3.03	1.18
4.13	3	3	6.50	2.95	1.38
5.00	3	3	6.30	3.15	1.57
5.00	3.5	3.5	7.24	3.15	1.77
5.00	4	4	7.24	2.95	1.97
6.02	3	3	7.28	3.54	1.57
6.02	3.5	3.5	7.28	3.74	1.77
6.02	4	4	7.68	3.54	1.77
7.56	4	4	8.27	4.13	1.97
7.56	5	5	8.27	4.13	1.97
9.84	6	6	12.01	5.91	2.36



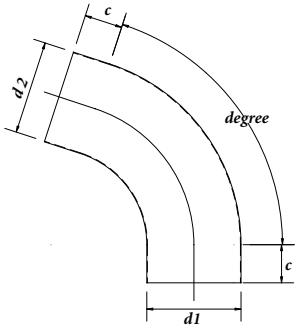
16. Elbow, round

German size	Grad	d1	c
	[degree]	[inch]	[inch]
60	40/72/85	2.25	1.18
76	40/72/85	3.0	1.77
87	40/72/85	3.5	1.77
100	40/72/85	4	1.77
120	40/72/85	5	1.77
150	72	6	1.77



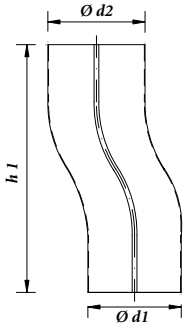
17. Elbow, rectangular

German size	Grad	d1	d2	c
	[degree]	[inch]	[inch]	[inch]
80	72	3.15	3.15	1.18
100	72	4.00	4.00	1.57



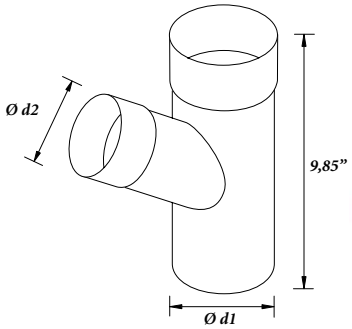
18. Offset

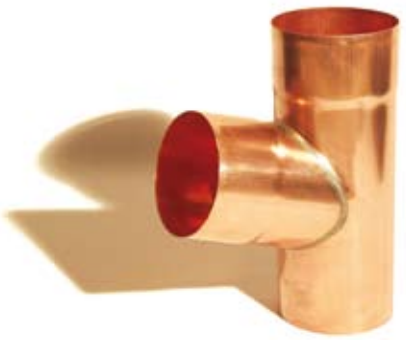
German size	d 1	h 1
	[inch]	[inch]
76	3.00	8.46
87	3.50	9.65
100	4.00	10.24
120	5.00	10.43



19. Two-way downspout (“Y”)

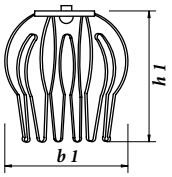
German size	Grad	d1/d2	alternative d2	alternative d2
	[degree]	[inch]	[inch]	[inch]
60	60/72/87	2.25	-	-
76	60/72/87	3.0	2.25	-
87	60/72/87	3.5	3.0	2.25
100	60/72/87	4.0	3.5	3.0
120	60/72/87	5.0	4.0	3.5





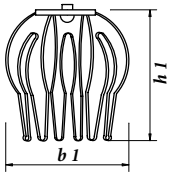
20. Drain screen, copper

German size	b1	h1
	[inch]	[inch]
60	2.25	3.4
80	3.00	3.5
100	4.00	4.6
120	5.00	4.7
150	6.00	5.7



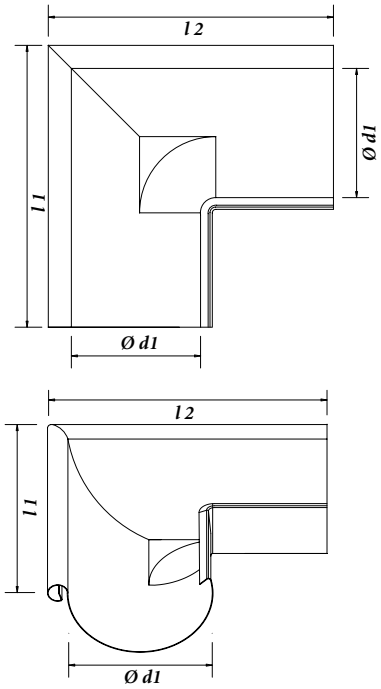
21. Drain screen, stainless steel

German size	b1	h1
	[inch]	[inch]
60	2.25	3.4
80	3.00	3.5
100	4.00	4.6
120	5.00	4.7
150	6.00	5.7



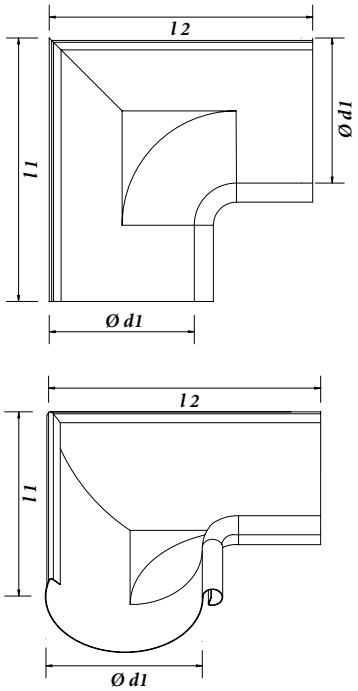
22. Miters, outside halfround

German size	d 1	l1	l2
	[inch]	[inch]	[inch]
200	3.15	9.84	9.84
250	4.13	11.8	11.8
280	5.00	11.8	11.8
333	6.00	11.8	11.8
400	7.56	12.60	12.60
500	9.84	13.39	13.39



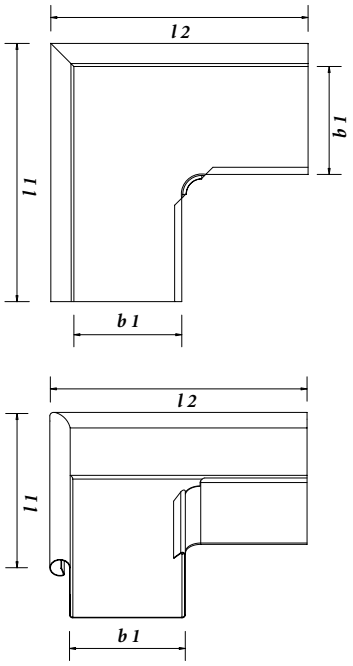
23. Miters, inside halfround

German size	d 1	l1	l2
	[inch]	[inch]	[inch]
200	3.15	9.45	9.45
250	4.13	10.63	10.63
280	5.00	11.80	11.80
333	6.00	11.80	11.80
400	7.56	12.60	12.60
500	9.84	13.39	13.39



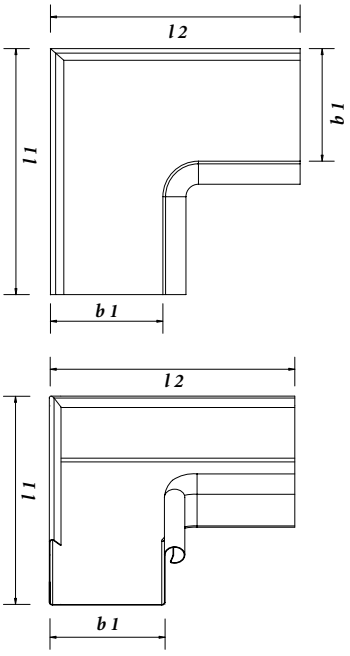
24. Miters, rectangular outside

German size	b1	l1	l2
	[inch]	[inch]	[inch]
200	2.76	11.80	11.80
250	3.35	11.80	11.80
333	4.72	11.80	11.80
400	5.91	11.80	11.80
500	7.87	11.80	11.80



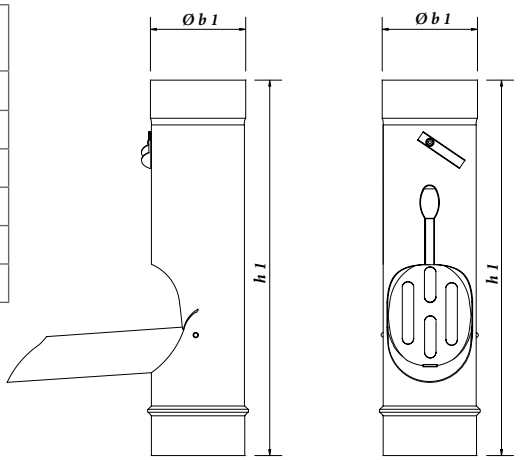
25. Miters, rectangular inside

German size	b1	l1	l2
	[inch]	[inch]	[inch]
200	2.76	11.8	11.8
250	3.35	11.8	11.8
333	4.72	11.8	11.8
400	5.91	11.8	11.8
500	7.87	11.8	11.8



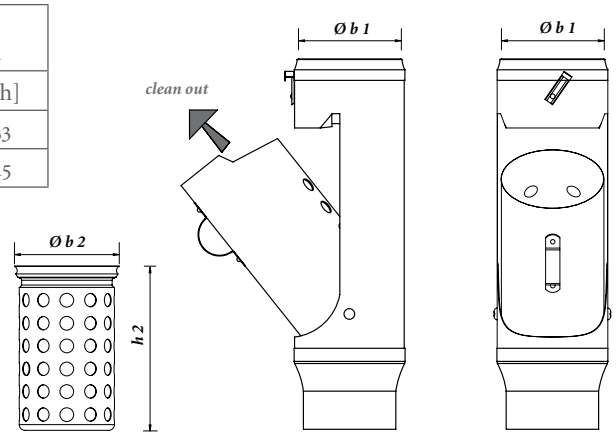
26. Inline cleanout

German size	b1	h1
	[inch]	[inch]
60	2.25	15.75
76	3	15.75
87	3.5	15.75
100	4	15.75
120	5	15.75



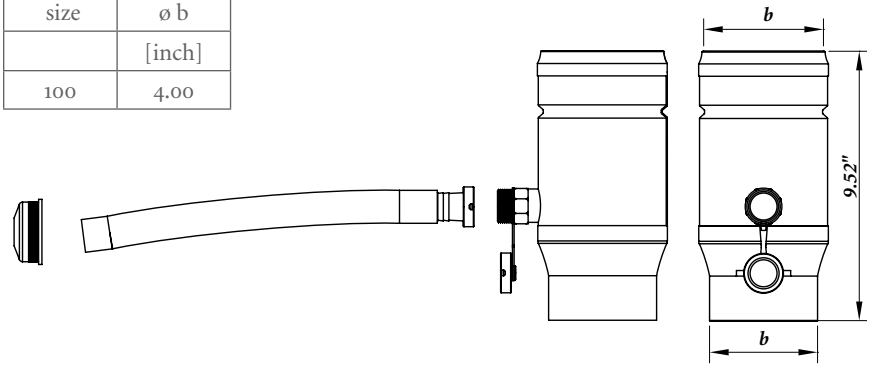
27. Inline cleanout with removable basket

German size	b1	h1
	[inch]	[inch]
76	3.00	17.33
100	4.00	15.15



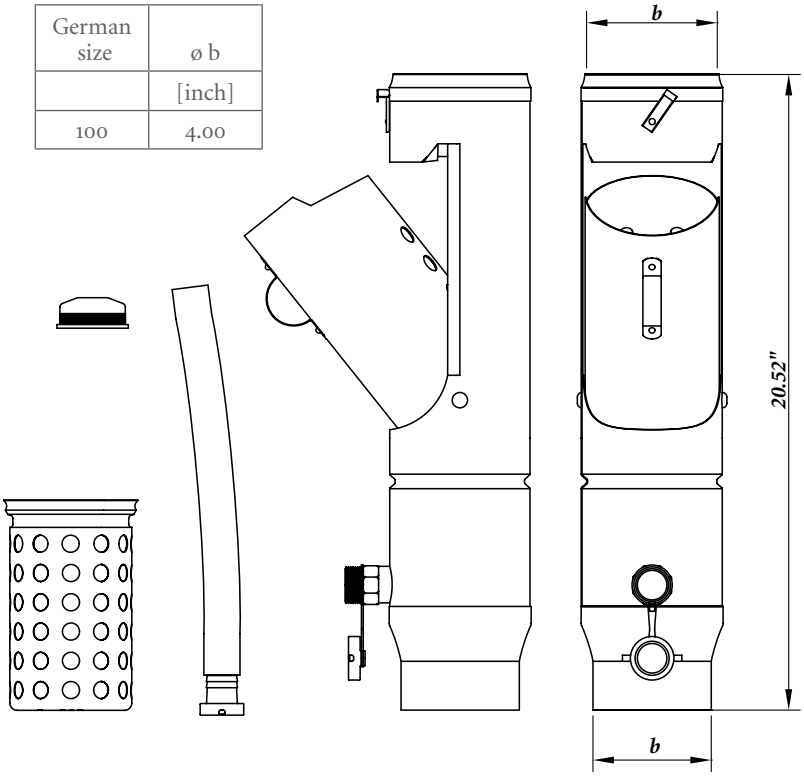
28. Inline cleanout with hose connection

German size	ø b
	[inch]
100	4.00

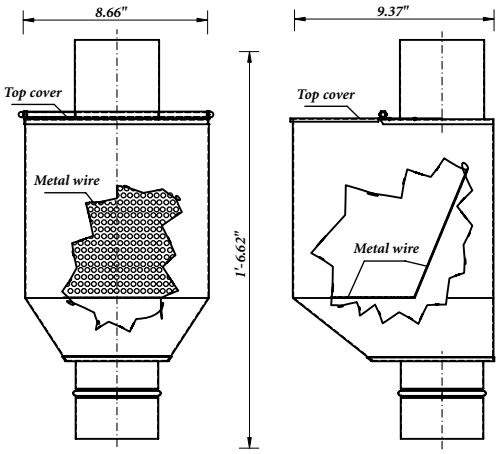


29. Inline cleanout with removable basket and hose connection

German size	ø b
	[inch]
100	4.00

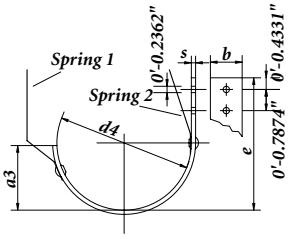


30. Special bin with trapped door



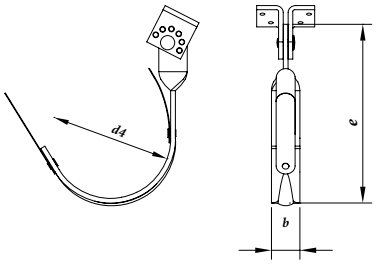
31. Fascia hanger, halfround

German size	Material thickness b x s	d4	a3	e
	[inch]	[inch]	[inch]	[inch]
280	1.18 x 0.16	5.00	2.40	4.92
333	1.18 x 0.16	6.02	2.91	4.92
400	1.18 x 0.16	7.56	3.66	4.92



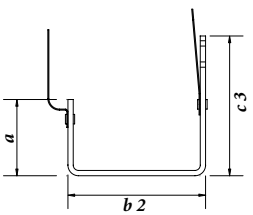
32. Fascia hanger, halfround with souldering outfit

German size	Material thickness b x s	d4	e
	[inch]	[inch]	[inch]
280	1.18 x 0.16	5.00	7.42
333	1.18 x 0.16	6.02	7.83
400	1.18 x 0.16	7.56	9.18

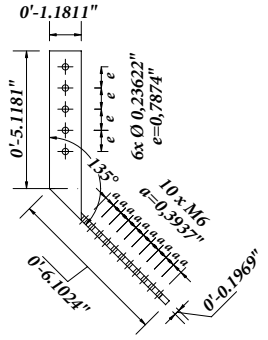


33. Fascia hanger, rectangular

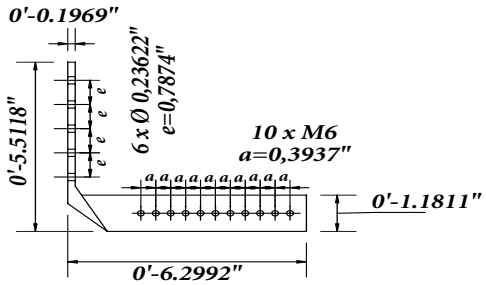
German size	Material thickness b x s	b2	a5	c3
	[inch]	[inch]	[inch]	[inch]
333	1.18 x 0.16	4.72	2.44	4.88
400	1.18 x 0.16	5.91	3.03	5.21



34 . Rafter tail, 135°

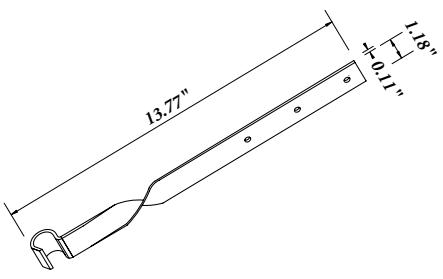


35. Rafter tail, 90°



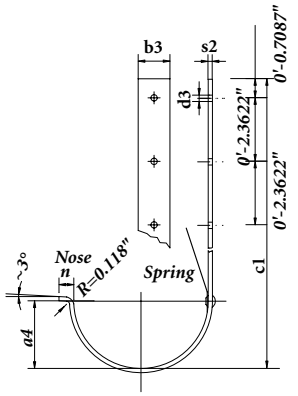
36. Heavy twisted bead holder

German size	available for halfround gutter	available for rectangular gutter
	[inch]	[inch]
200	3.15	2.76
250	4.13	3.35
280	5.00	-
333	6.02	4.72



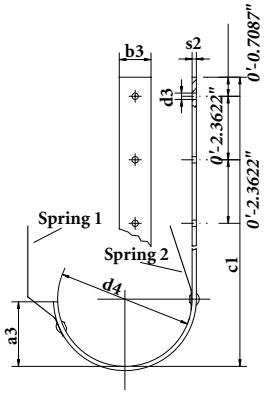
37. Heavy hanger, halfround with nose & spring

German size	Material thickness	d4	a4	c1
	(inch)	(inch)	(inch)	(inch)
200	0.98 x 016	3.15	1.46	9.06
250	0.98 x 016	4.13	1.97	11.02
280	1.18 x 0.19	5.00	2.40	11.42
333	1.18 x 0.19	6.02	2.91	11.81
400	1.18 x 0.19	7.56	3.66	13.39
500	1.57 x 0.19	9.84	4.88	14.76



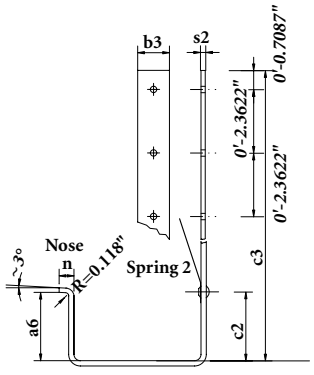
38. Heavy hanger, halfround with 2 springs

German size	Material thickness	d4	a3	c1
	(inch)	(inch)	(inch)	(inch)
200	0.98 x 016	3.15	1.46	9.06
250	0.98 x 016	4.13	1.97	11.02
280	1.18 x 0.19	5.00	2.40	11.42
333	1.18 x 0.19	6.02	2.91	11.81
400	1.18 x 0.19	7.56	3.66	13.39
500	1.57 x 0.19	9.84	4.88	14.76



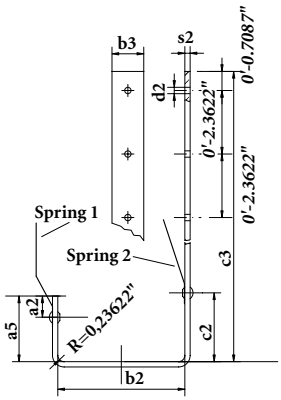
39. Heavy hanger, rectangular with nose & spring

German size	Material thickness	b2	a6	c3
	[inch]	[inch]	[inch]	[inch]
200	0.98 x 016	2.76	1.22	9.06
250	0.98 x 016	3.35	1.73	11.02
333	1.18 x 0.19	4.72	2.44	11.81
400	1.18 x 0.19	5.91	3.03	12.99
500	1.57 x 0.19	7.87	3.82	13.78



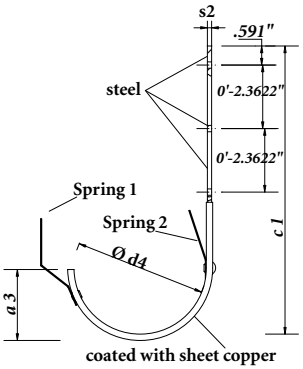
40. Heavy hanger, rectangular with 2 springs

German size	Material thickness	b2	a6	c3
	[inch]	[inch]	[inch]	[inch]
200	0.98 x 0.16	2.76	1.22	9.06
250	0.98 x 0.16	3.35	1.73	11.02
333	1.18 x 0.19	4.72	2.44	11.81
400	1.18 x 0.19	5.91	3.03	12.99
500	1.57 x 0.19	7.87	3.82	13.78



41. Heavy hanger, copper coated, halfround with 2 springs

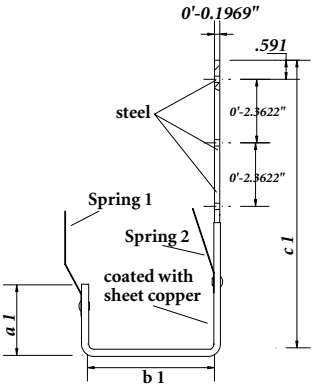
German size	Material thickness	d4	a3	c1
	(inch)	(inch)	(inch)	(inch)
280	0.98 x 0.23	5.00	2.52	11.42
333	0.98 x 0.23	6.02	3.03	11.81
400	1.98 x 0.31	7.56	3.78	13.39



Note: For more information regarding the material please see the technical information on page 30

42. Heavy hanger, copper coated, rectangular with 2 springs

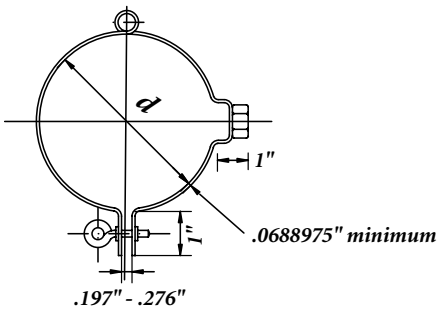
German size	Material thickness	b1	a1	c1
	(inch)	(inch)	(inch)	(inch)
333	0.98 x 0.23	4.72	2.44	11.81
400	0.98 x 0.31	5.91	3.03	12.99



Note: For more information regarding the material please see the technical information on page 30

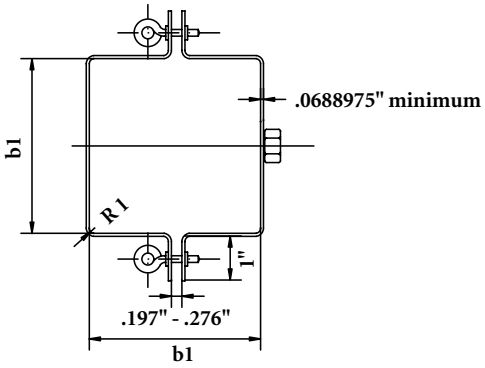
43. Bracket, halfround with screw M10

German size	d
	[inch]
60	2.25
76	3
87	3.5
100	4
120	5
150	6



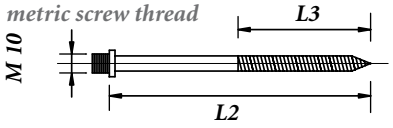
44. Bracket, rectangular with screw M10

German size	b1
	[inch]
60	2.25
80	3.15
100	4
120	5



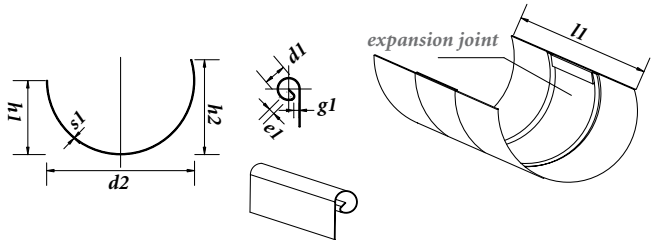
45. Boltscrew M10

German size	L 2	L 3
	[inch]	[inch]
80	3.15	2.95
100	3.94	2.95
140	5.51	2.95
180	7.09	2.95



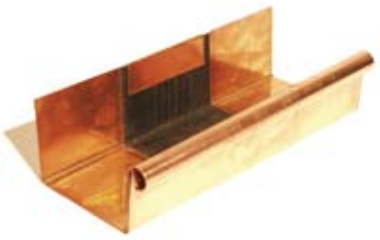
46. Expansion joints, halfround

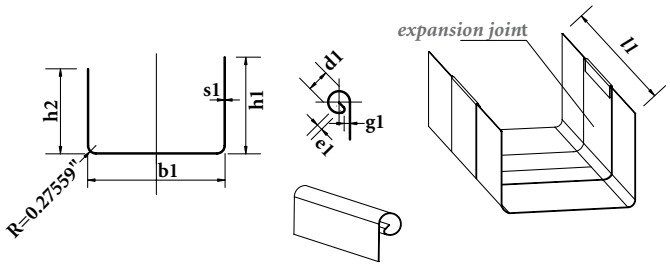
German size	d 2	h 1	h 2	l 1	d1	e1	g1	s 1
	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[oz]
200	3.15	1.57	1.89	11.81	0.63	0.20	0.20	18
250	4.13	2.09	2.48	11.81	0.71	0.28	0.20	18
280	5.00	2.52	2.91	11.81	0.71	0.28	0.20	18
333	6.02	3.03	3.43	11.81	0.79	0.35	0.24	18
400	7.56	3.78	3.91	11.81	0.87	0.35	0.24	20
500	9.84	4.92	5.20	11.81	0.87	0.35	0.24	20



47. Expansion joints, rectangular

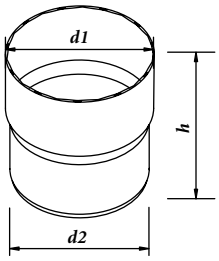
German size	b 1	h 1	h 2	l 1	d1	e1	g1	s 1
	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[inch]	[oz]
200	2.76	1.89	1.57	11.81	0.63	0.20	0.20	18
250	3.35	2.48	2.09	11.81	0.71	0.28	0.20	18
333	4.72	3.27	2.87	11.81	0.79	0.35	0.24	18
400	5.91	3.86	3.46	11.81	0.87	0.35	0.24	20
500	7.87	5.04	4.25	11.81	0.87	0.35	0.24	20





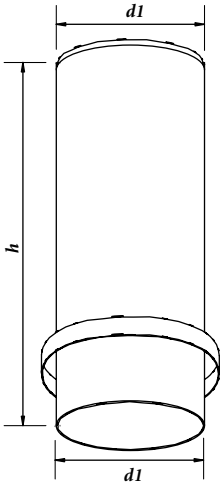
48. Downleader coupling

German size	d1	d2	h
	Ø [inch]	Ø [inch]	[inch]
60	2.25	2.21	4.33
76	3.00	2.85	4.33
87	3.50	3.31	4.33
100	4.00	3.62	4.33
120	5.00	4.53	4.33



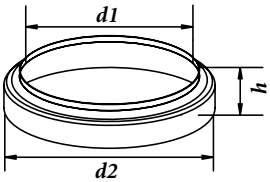
49. Sliding piece with cap

German size	d1	h
	Ø [inch]	Ø [inch]
76	3.00	9.65
87	3.50	9.65
100	4.00	9.65
120	5.00	9.65



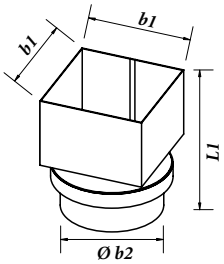
50. Cap for boot

German size	pipe	h	d1	d2
	[Ø]	[inch]	[inch]	[inch]
60	2.25	1.10	2.25	4.63
76	3	1.10	3	4.63
87	3.5	1.10	3.5	4.63
100	4	0.90	4	4.63
120	5	1.02	5	5.83

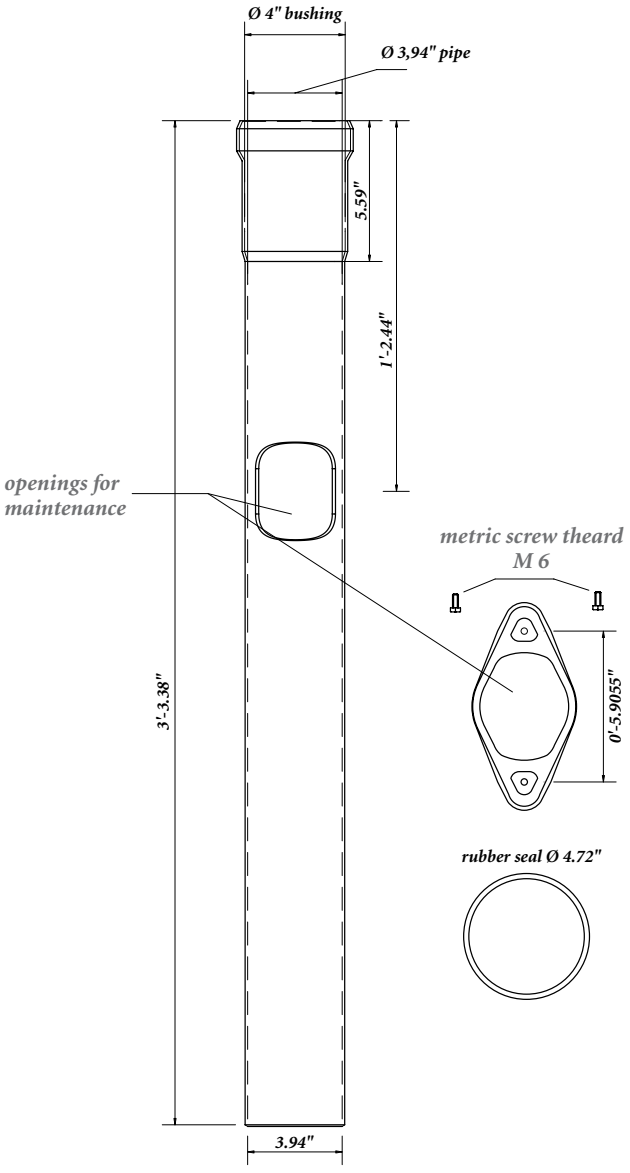


51. Transition piece, rectangular/round

German size	b 1	b 2	l 1
	[inch]	[inch]	[inch]
80	3.26	3.11	5.12
100	4.10	3.84	5.12



52. Heavy boot with door

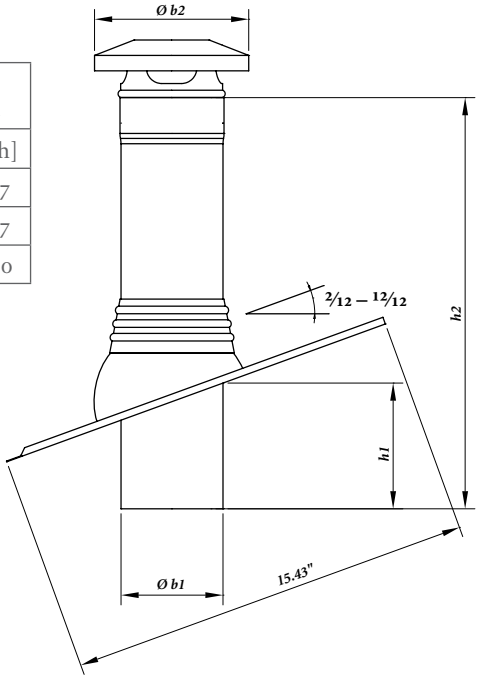


53. Ventilation pipe with copper sheet, **flexible**

German size	b1	h1	b2	h2
	[degree]	[inch]	[inch]	[inch]
76	3.00	4.87	5.91	17.77
100	4.00	4.82	5.91	17.77
120	5.00	3.48	6.54	18.00

Applicable for roofpitches

from 2/12 – 12/12

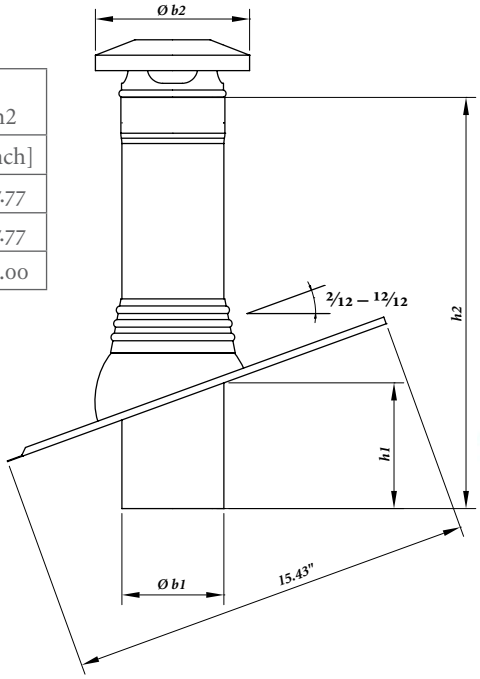


54. Ventilation pipe with lead sheet, **flexible**

German size	b1	h1	b2	h2
	[degree]	[inch]	[inch]	[inch]
76	3.00	4.87	5.91	17.77
100	4.00	4.82	5.91	17.77
120	5.00	3.48	6.54	18.00

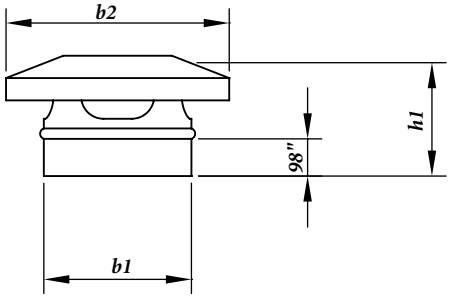
Applicable for roofpitches

from 2/12 – 12/12



55. Cap for ventilation pipe

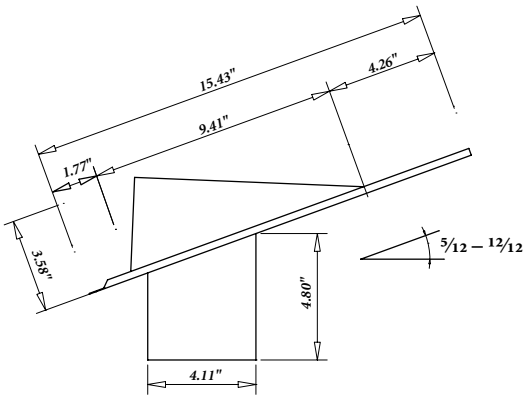
German size	b1	h1	b2
	[inch]	[inch]	[inch]
76	2.96	3.00	5.91
100	3.91	3.00	5.91
120	4.70	3.22	6.54

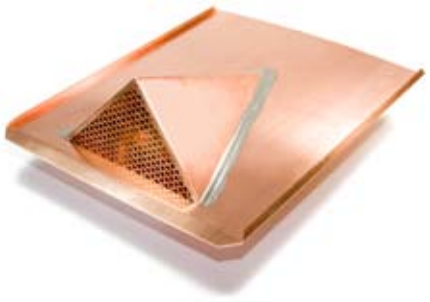


56. Ventilation pipe *"Atlantic"*

Applicable for roofpitches

from 5/12 – 12/12

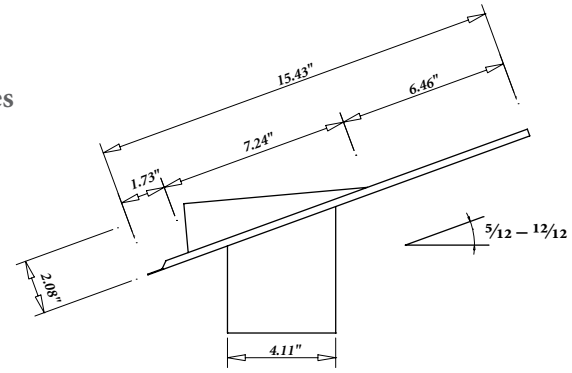




57. Ventilation pipe *"Rocky Mountain"*

Applicable for roofpitches

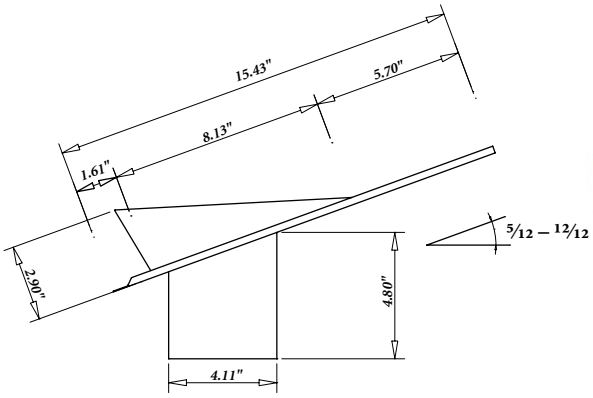
from 5/12 – 12/12

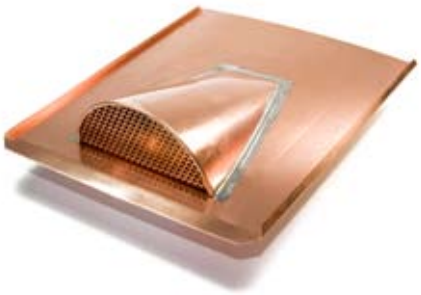


58. Ventilation pipe *"Pacific"*

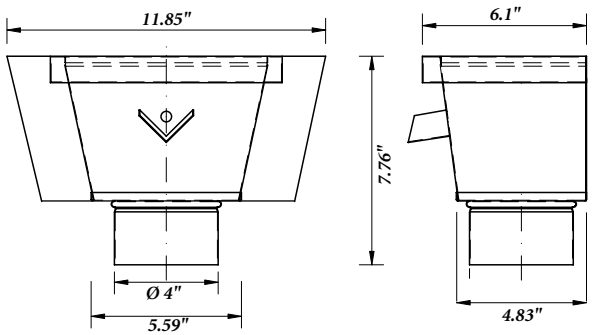
Applicable for roofpitches

from 5/12 – 12/12

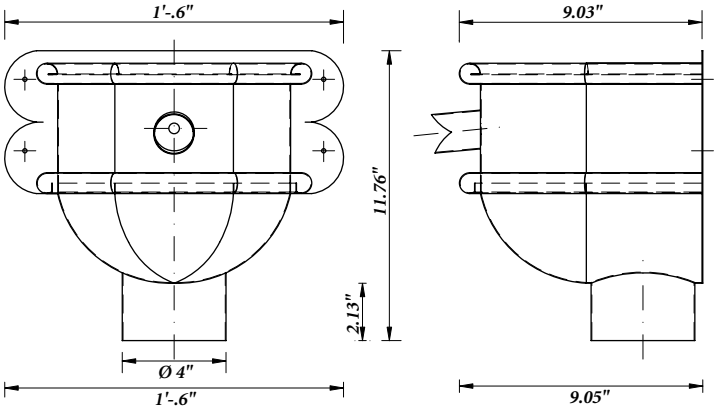




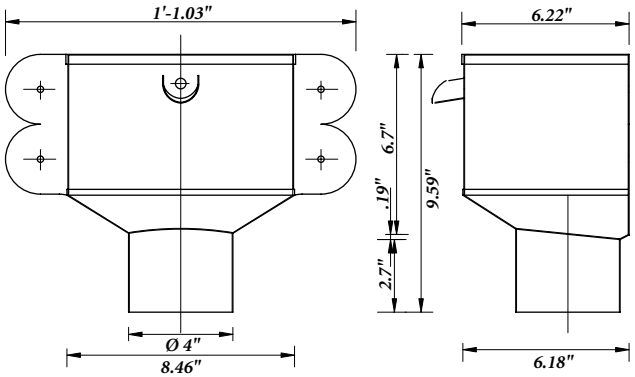
59. Cologne



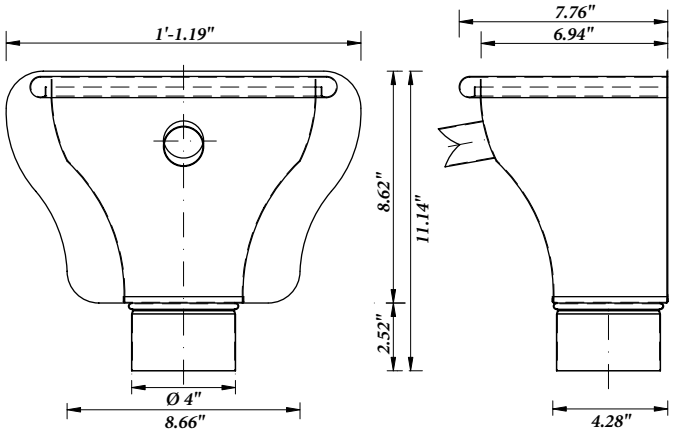
60. Duesseldorf



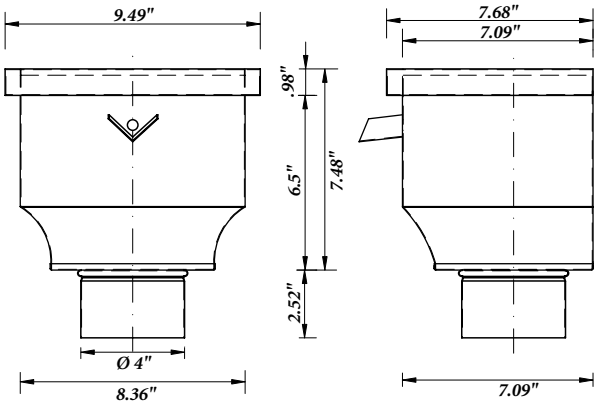
61. Hamburg



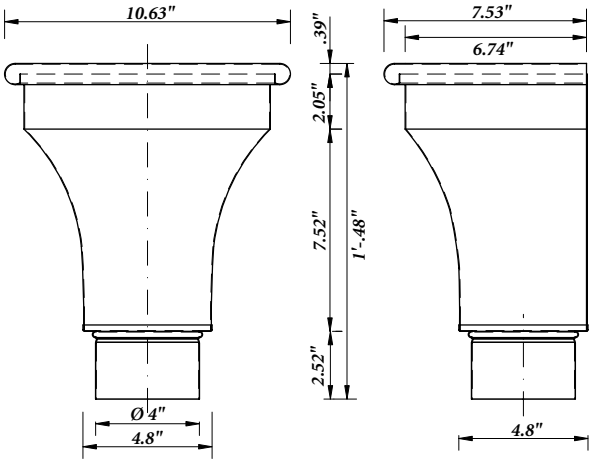
62. Berlin



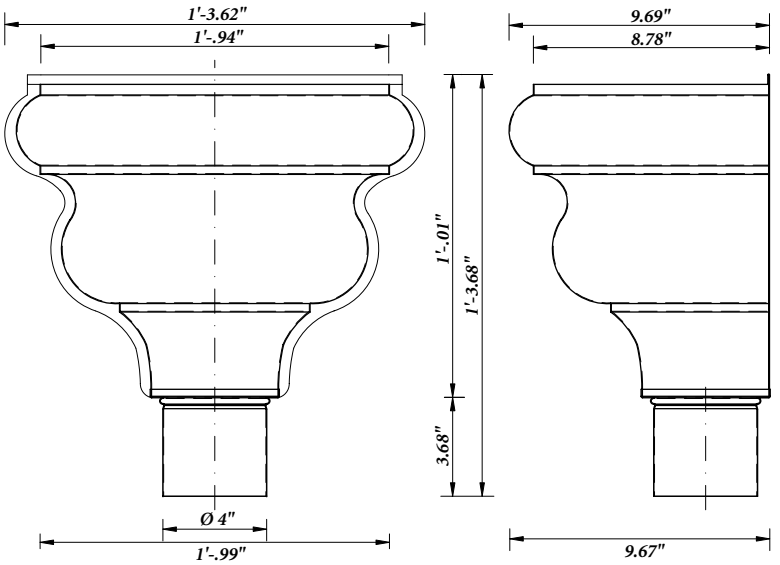
63. Frankfurt



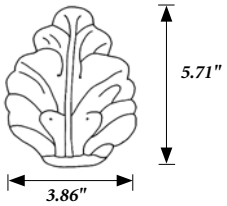
64. Paris



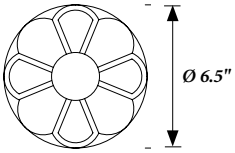
65. Masterpiece



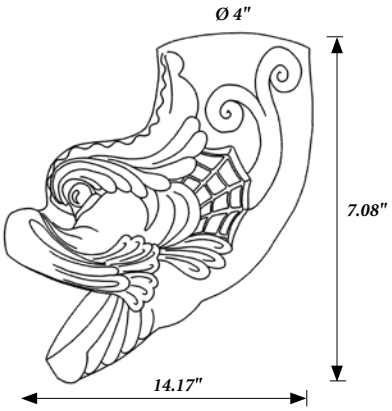
66. Ornamental leaf



67. Ornamental flower



68. Ornamental fishhead



69. Coils & sheets

70. Tool for pipe expanding

available for round downspouts [inch]:	Ø 3"	Ø 4"	Ø 5"

71. Tool to bend hangers

72. Tool for boltscrews

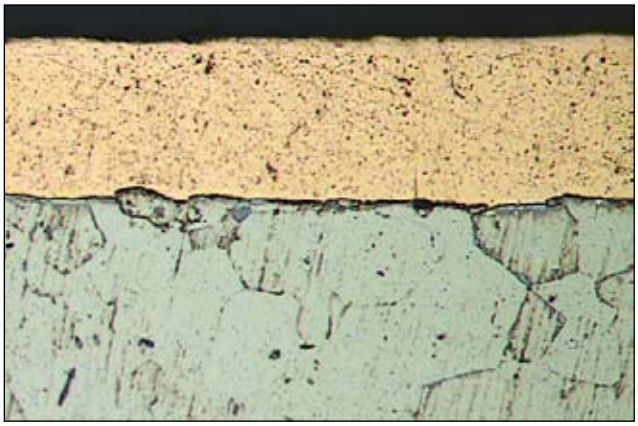
RENNER GUTTER SOLUTION

made from Copper Clad Stainless

Gutter formed with RENNER GS

Copper Stainless Steel

*Photomicrograph of **RENNER** GS (100x)*



*Photomicrograph of **RENNER** GS showing the integrity of the bond (500x)*

RENNER GS delivers all of the beauty, durability, and integrity of solid copper at lower cost, while also providing the additional advantages of lower weight, greatly reduced expansion, faster soldering, and complete formability.

RENNER GS is a metallurgically bonded metallic composite strip produced by roll bonding. The roll-bonding process is based on solid-state welding technology, requiring no adhesive or brazing alloys to achieve a clean, permanent, bond. The clad material has excellent bond integrity due to the nature of the metallurgical bond that develops between the copper and stainless steel layers.

RECOMMENDED APPLICATIONS

• ***Roofing*** *(standing seam, batten seam, flat seam)*
Weathers to the intermediate brown and then to the same desirable green patina as solid copper. Lends itself to easy fabrication of standing seam, batten seam, and Bermuda seam roofing styles. Has the strength of stainless steel

• ***Mansards***
Everything you admire in copper plus everything you expect in stainless steel. Can be cut to any desired length because it is available in coil form. Desired effect, ease of handling , and economy can all be balanced for optimum results.

• ***Rain Drainage*** *(gutters, downspouts)*
Will accept severe forming. Stainless steel core provides greater resistance to erosion problems in the bends and elbows of gutters and downspouts.

• ***Flashing*** *(base, counter, cap, eave, valley, through wall)*
Cuts, forms, and installs easily. Compatible with all types of mortar and mortar additives. Fully annealed copper clad stainless steel is strong and easy to use. The architect can carry the copper theme throughout the sheet metal work.

• ***Fascia***
Compatible with all custom and standard fascia designs.

ADVANTAGES

• ***Endures***
Since the bond occurs at the atomic level, Copper Clad Stainless is as strong as the metals themselves. It has high resistance to corrosion and erosion and needs no protective coating when set in mortar or concrete.

• ***High strength***
Since the core of the Copper Clad Stainless is stainless steel the material has a significantly higher strength than solid copper. Equivalent strength to solid copper can be achieved with a much thinner material by using Copper Clad Stainless.

• ***Weighs less/costs less***
Copper Clad Stainless saves construction costs all the way down the line. Less weight means easier handling, less fatigue, more material installed in less time, and the material cost less expensive than solid copper.

• ***Solders easier***
The lower thermal conductivity of the stainless steel core retains the heat of the joint thus permitting the use of smaller, cooler irons at higher speeds.

• ***Takes any form***
Gutters, downspouts, cornices, as well as other intricate shapes are easily formed to bring beauty, quality, and durability to any installation.

DESIGN SPECIFICATIONS

• ***Description***
Copper Clad Stainless is composed of a 20% thickness of copper metallurgically bonded at the atomic level to an 80% core of Type 430 stainless steel. It is fully annealed. The copper thickness was designed to offer more than 60 years of service in the most aggressive environments.

• ***Installation***
Install in accordance with recognized construction sheet metal practices. It is readily cut, formed, soldered, welded, riveted, nailed, and otherwise worked by conventional sheet metal methods.

• ***Forming***
Fully annealed Copper Clad Stainless forms like other soft construction metals. It can be bent flat on itself (180° bend – zero radius) at all standard gauges.

• ***Soldering***
Copper Clad Stainless is readily soft soldered using 50-50 or higher tin content solder. Mild fluxes for soldering copper are used. Smaller cooler irons can be used, resulting in faster soldering speeds.

• ***Cutting***
Conventional hand and power tools are used. For best results, cutting edges should be kept sharp and shears should be closely aligned.

• ***Mechanical Fasteners***
All mechanical fasteners (nails, screws, bolts, rivets, etc.) used should be either copper, stainless steel, brass, or bronze.

• ***Maintenance***
Final cleaning is not normally required except to remove solder flux residues, which form a premature green patina in affected areas. When desirable, final cleaning usually can be accomplished with a detergent and water. In the case of heavy deposits, a mild abrasive cleanser is recommended. No routine maintenance is required.

• ***Specifying Copper Clad Stainless***
Copper Clad Stainless is a superior product for any concealed, exposed, or special application where metal is indicated or required by the design. Simply indicate the location and configuration in the usual manner and identify the material as Copper Clad Stainless.

• ***Design Compatibility***
Copper Clad Stainless is compatible with most building materials. However, contact with aluminum or carbon steel should be avoided as these metals may deteriorate when in contact with copper.

The dimensions of the products, parts and components indicated in this catalog may vary slightly from the actual dimensions due to production variables, without affecting their function.

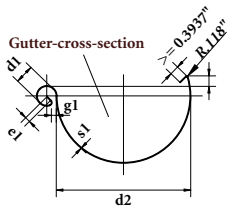
round *halfround* *rectangular*

73. Gutter, halfround *(Renner Gutter Solution)*

As a bracket-mounted gutter, this form of guttering is by far the most popular design, as it offers the most favourable prerequisites for water drainage. The rounded guttering always guides the water towards the center, ensuring lower soiling (e.g. leaves) even in the case of minimal flow speeds.

In terms of material efficiency, the semi-round ve on is also the most favorable form, and this also applies to the resistance against mechanical loads and impacts, such as ice and freezing. The standard lengths are 10 and 18 feet.

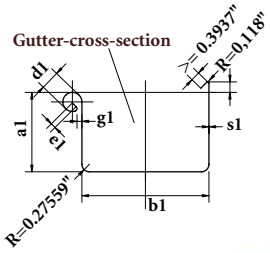
German size	Available dimensions	e1	d1	d2	g1	Gutter cross sektion
	[oz]	[inch]	[inch]	[inch]	[inch]	[square inch]
250	14.6	0.28	0.71	4.13	0.20	6.67
280	14.6	0.28	0.71	5.00	0.24	9.77
333	14.6	0.35	0.79	6.02	0.24	14.26
400	14.6	0.35	0.87	7.56	0.24	22.48
500	14.6	0.35	0.87	9.84	0.24	37.98

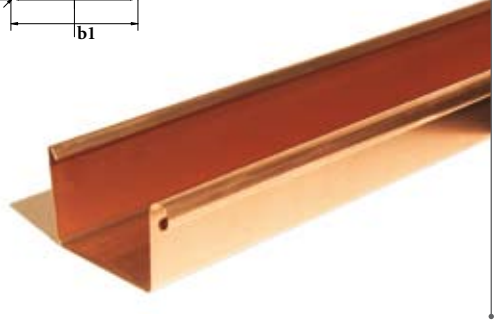


74. Gutter, rectangular *(Renner Gutter Solution)*

The rectangular gutter is also used for bracket-mounted systems. Its form is predominantly determined by design considerations. As its flow properties are - due to the flat flow of the water - less favorable than in the case of the semi-round gutter, they should always be installed with a sufficient slope.
This type also comes in the standard lengths of 10 and 18 feet.

German size	Available Dimensions	a1	b1	d1	e1	g1	Gutter cross sektion
	[oz]	[inch]	[inch]	[inch]	[inch]	[inch]	[square inch]
250	14.6	2.17	3.35	0.71	0.28	0.20	7.29
333	14.6	2.95	4.72	0.79	0.35	0.24	13.95
400	14.6	3.54	5.91	0.87	0.35	0.24	20.93
500	14.6	4.33	7.87	0.87	0.35	0.24	34.10





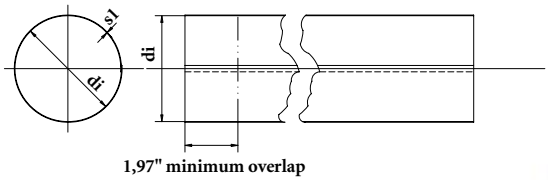
For use with the respective guttering type, we offer both round and square copper downspouts, available in various size ranges. The standard length is 10 feet.

The longitudinal seam comes in various designs: ***Soft welded, braised, seamless welded, with seam***

The seamed and welded downspouts have a slightly conical design, so that the individual sections can be inserted into each other to a depth of at least 1.97 inches. The seamless welded downspouts are equipped with a socket end. For this reason, using a simple tool or the downleader coupling allows even the smallest residual pieces to be used.

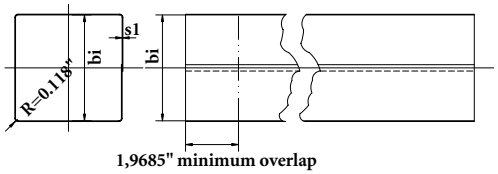
75. Downspout, round *(Renner Gutter Solution)*

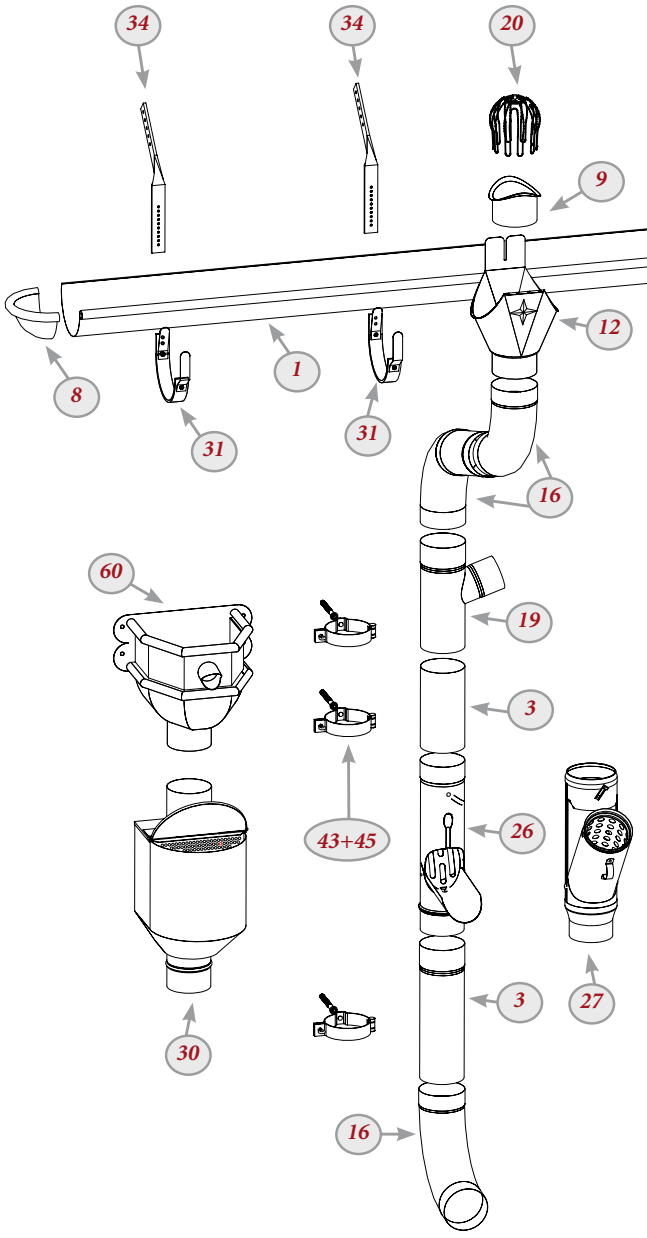
German size	Available Dimensions	di
	[oz]	[inch]
80	14.6	3.15
100	14.6	4
120	14.6	5



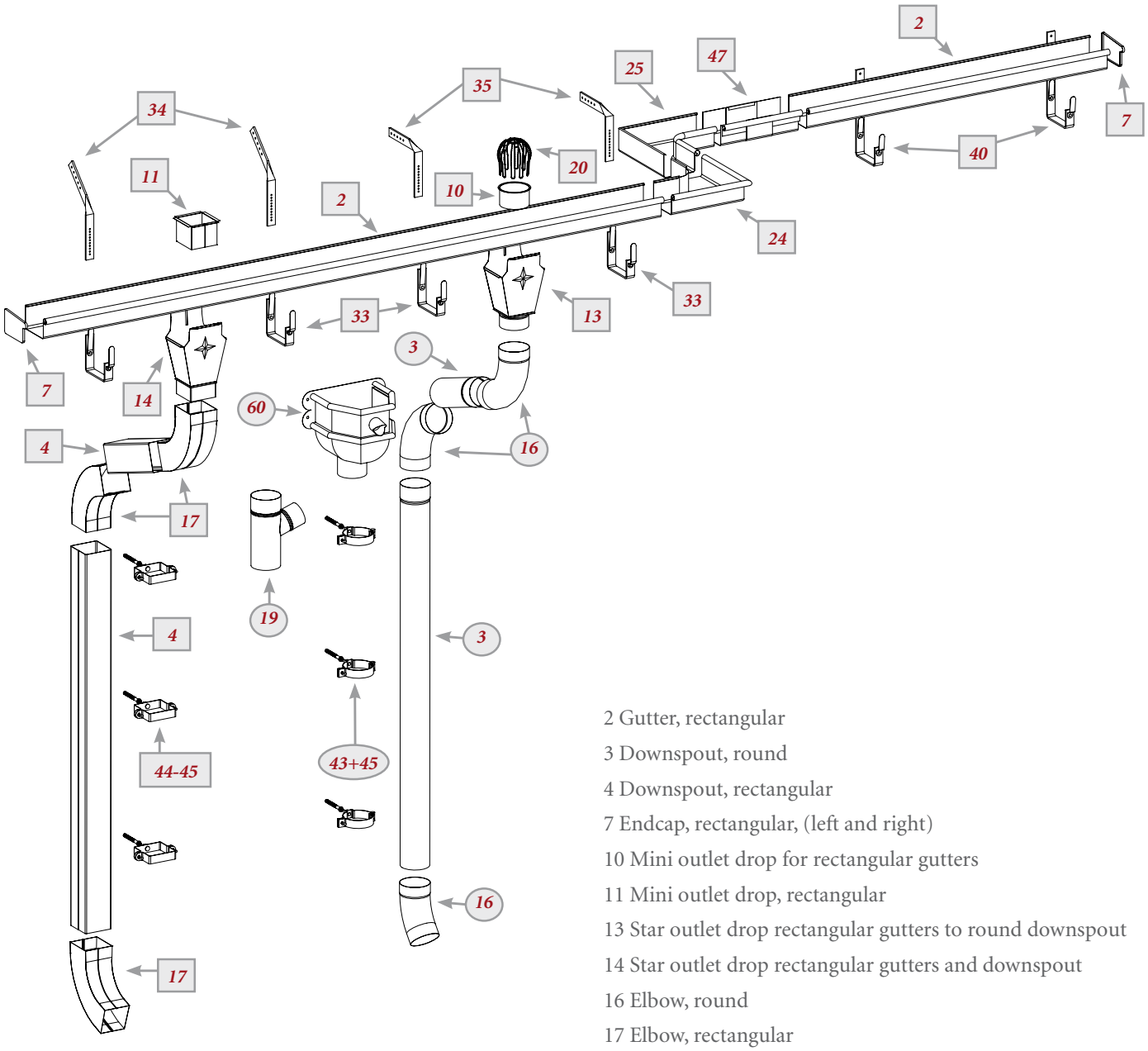
76. Downspout, rectangular *(Renner Gutter Solution)*

German size	Available Dimensions	di
	[oz]	[inch]
80	14.6	3.15
100	14.6	4
120	14.6	5



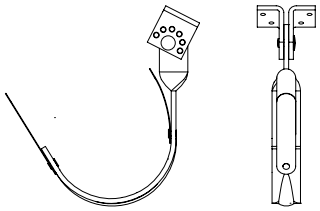


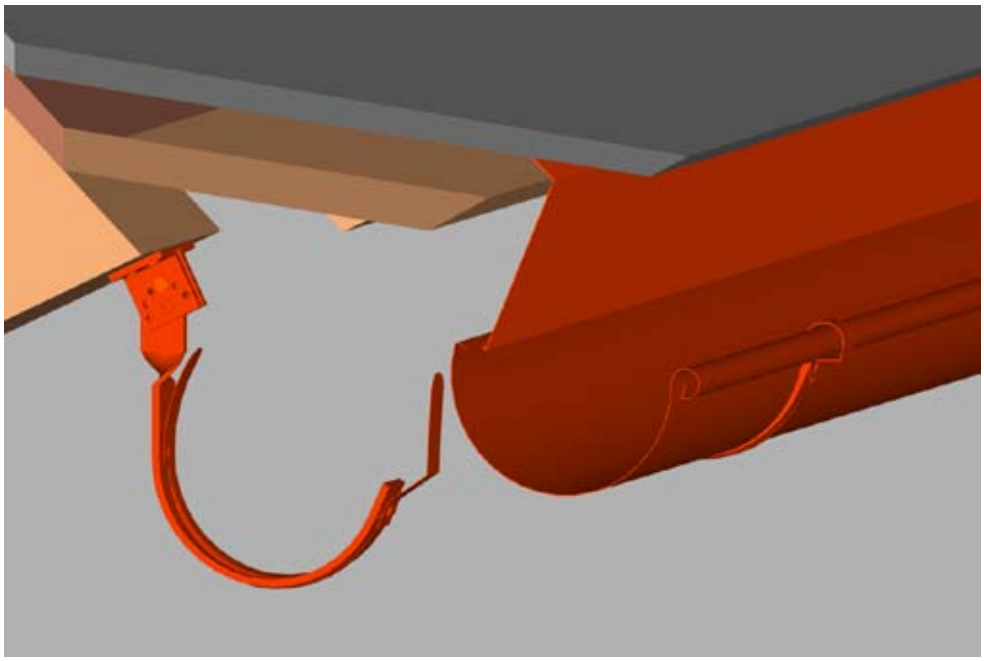
1 Gutter, halfround
3 Downspout, round
6 Endcap, round
8 Endcap, round (bullnose)
9 Mini outlet drop for halfround gutters
12 Star outlet drop for halfround gutter to round downspout
16 Elbow, round
19 Two-way downspout (“Y”)
20 Drain screen copper
22 Miters, outside halfround
23 Miters, inside halfround
26 Inline cleanout
27 Inline cleanout with removable basket
30 Special bin with drapped door
31 Fascia hanger, halfround
34 Rafter tail, 135°
35 Rafter tail, 90°
38 Heavy hanger, halfround with 2 springs
43 Bracket, halfround with screw M10
45 Boltscrew, M10
60 Leaderbox, Duesseldorf



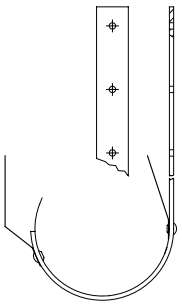
2 Gutter, rectangular
3 Downspout, round
4 Downspout, rectangular
7 Endcap, rectangular, (left and right)
10 Mini outlet drop for rectangular gutters
11 Mini outlet drop, rectangular
13 Star outlet drop rectangular gutters to round downspout
14 Star outlet drop rectangular gutters and downspout
16 Elbow, round
17 Elbow, rectangular
19 Tow-way downspout
20 Drain screen, copper
24 Miters outside, rectangular
25 Miters inside, rectangular
33 Fascia hanger, rectangular
34 Rafter tail, 135°
35 Rafter tail, 90°
40 Heavy hanger, rectangular with 2 springs
43 Bracket, halfround with screw M10
44 Bracket, rectangular with screw M10
45 Boltscrew, M10
47 Expansion joint, rectanguar
60 Leaderbox, Duesseldorf

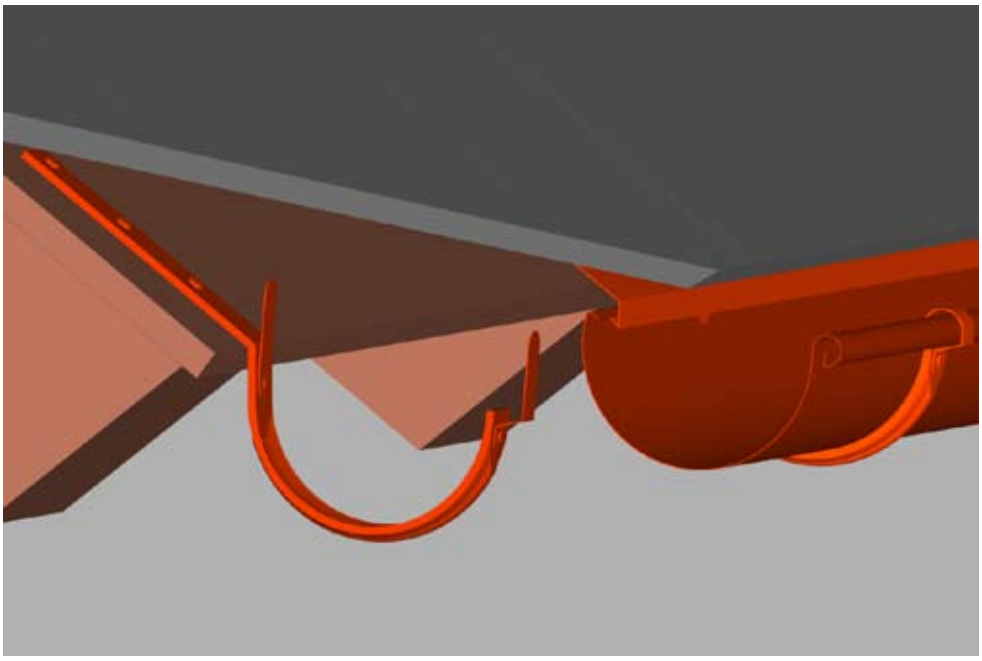
1. Example: Fascia hanger souldering outfit



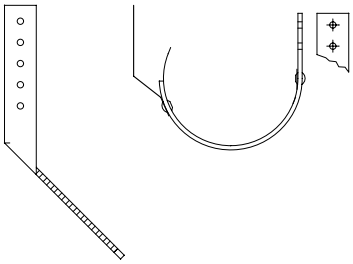


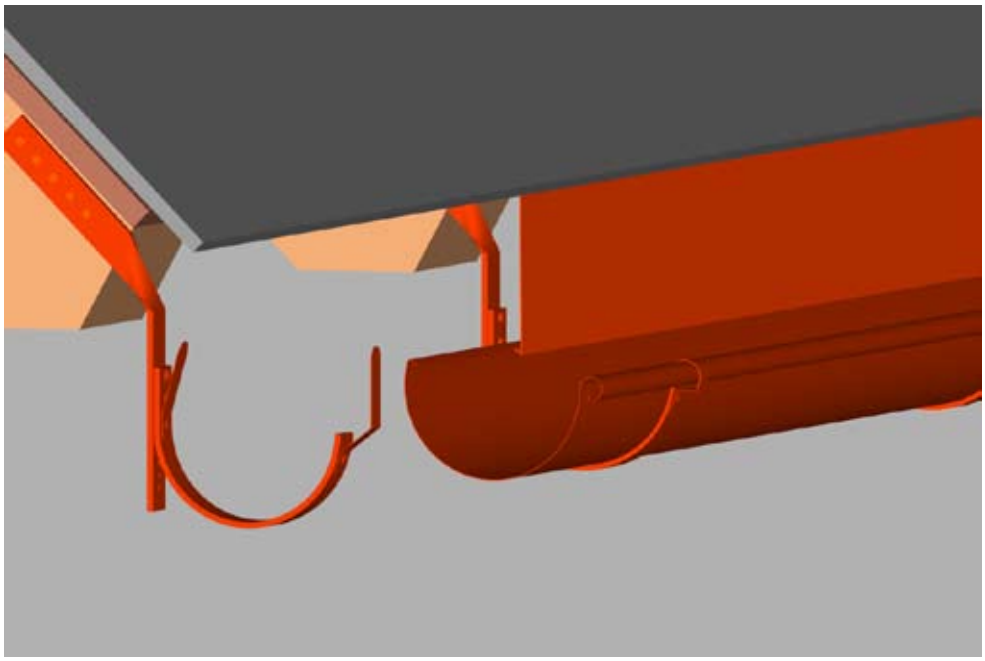
2. Example: Heavy Hanger with two springs



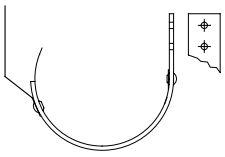


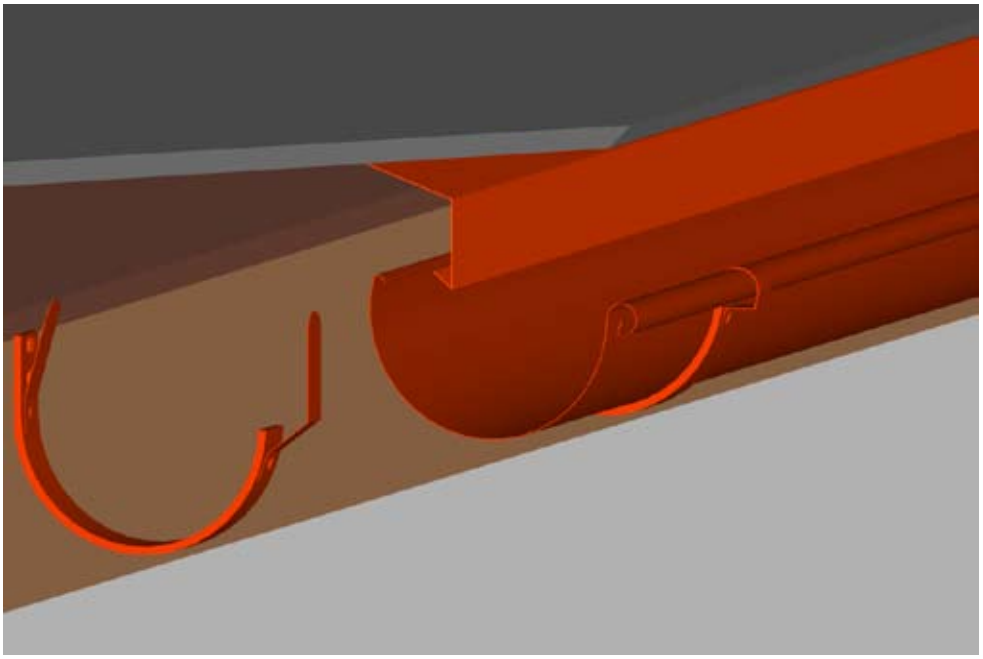
3. Example: Fascia hanger with rafter tail



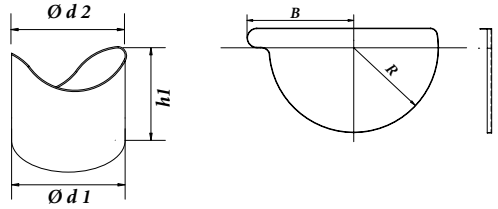


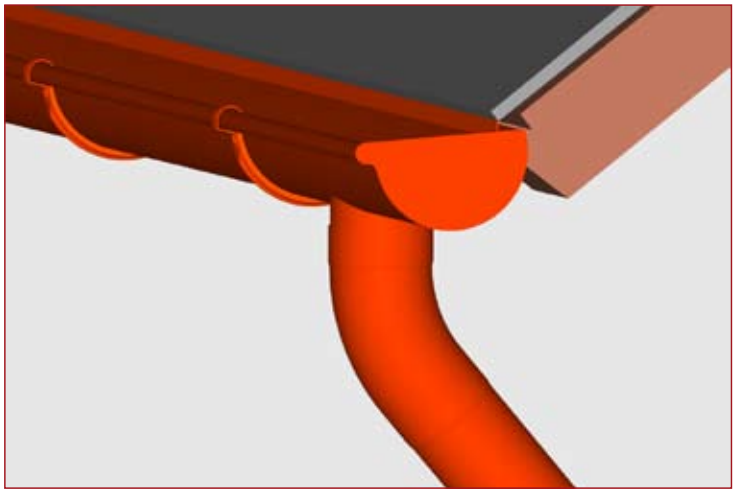
4. Example: Fascia hanger



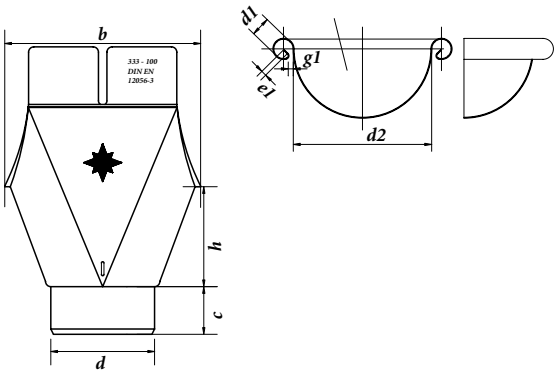


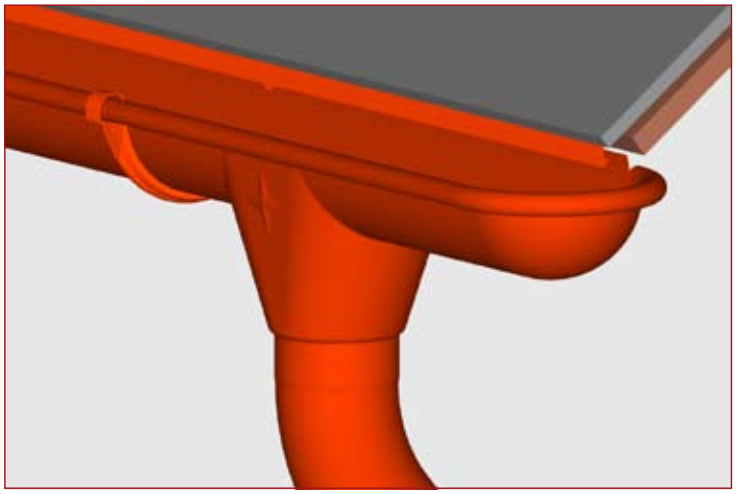
5. Example: Flat endcap & mini outlet drop



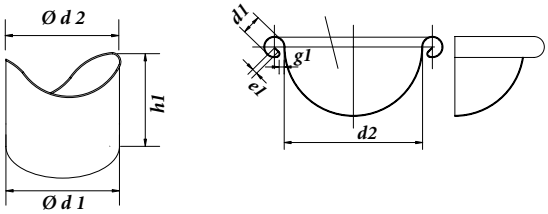


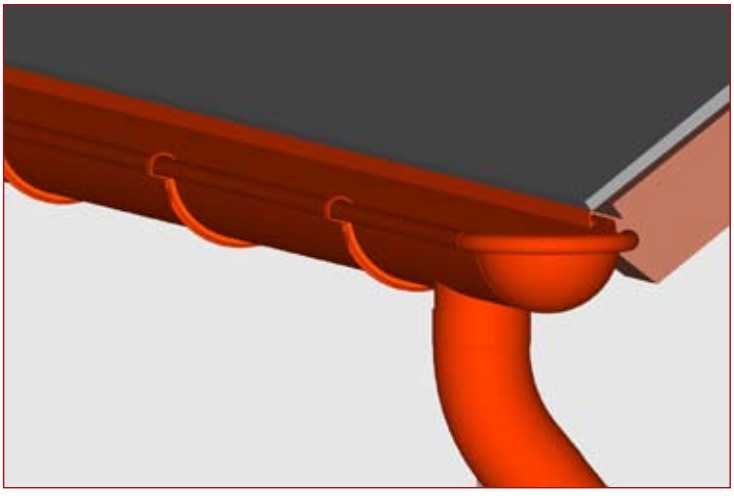
5. Example: Round endcap & star outlet drop



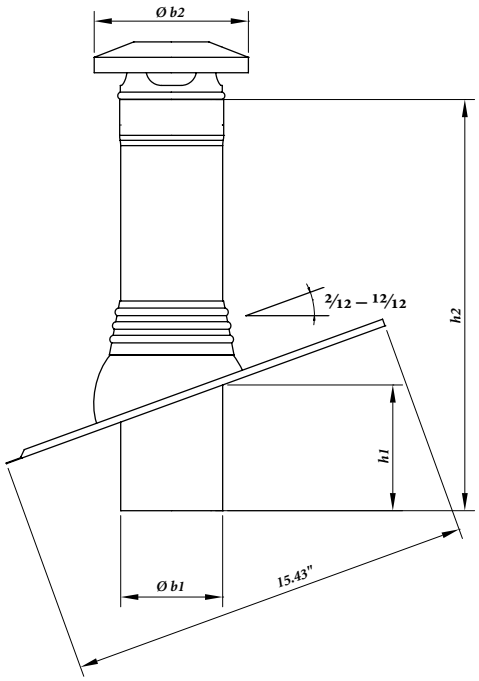


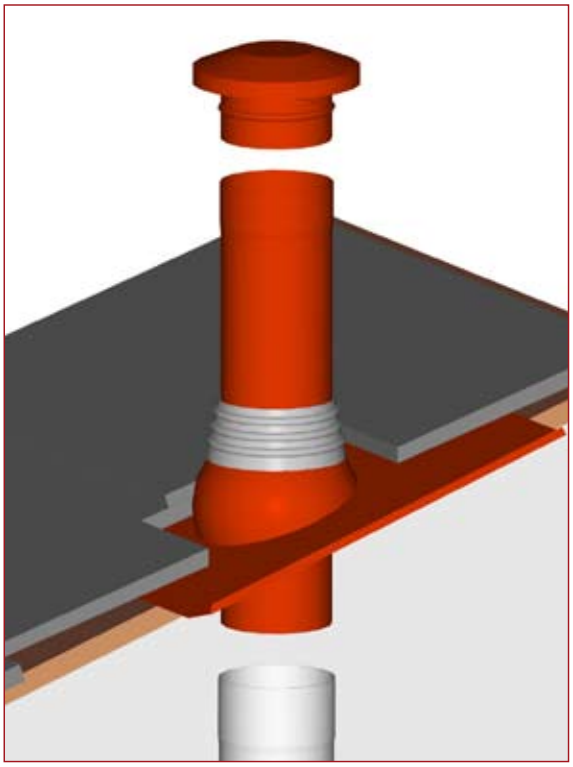
5. Example: Round endcap & mini outlet drop

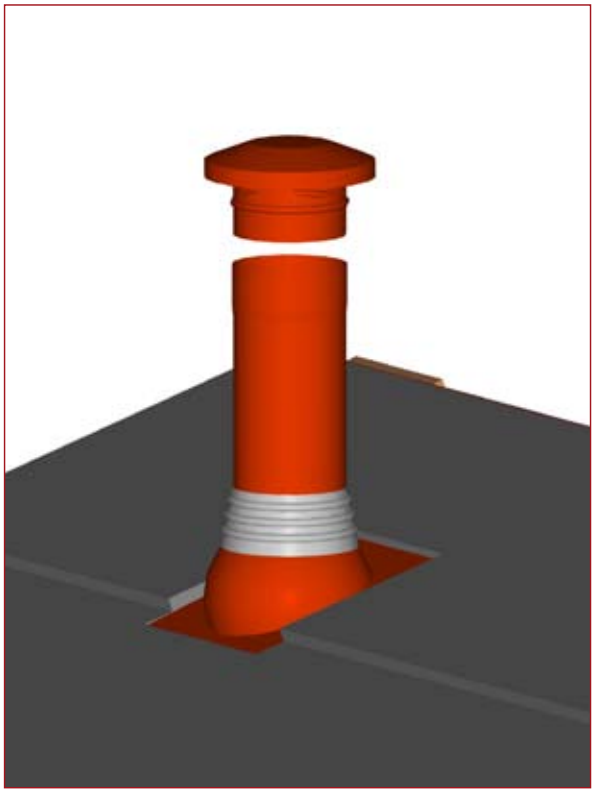




6. Example: Ventpipe



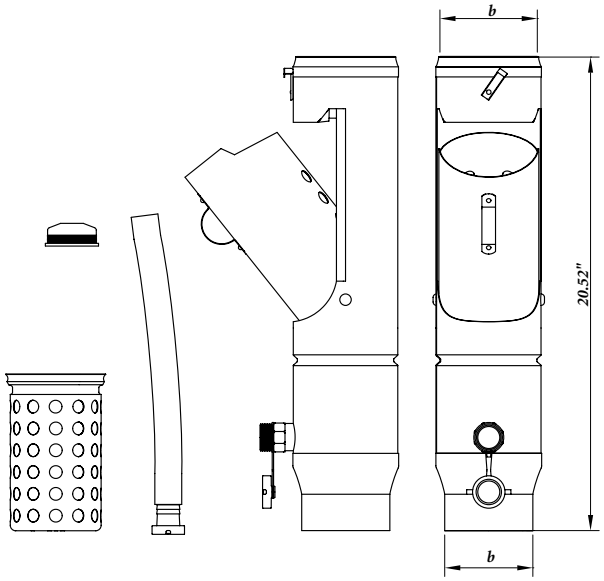




Your advantage:

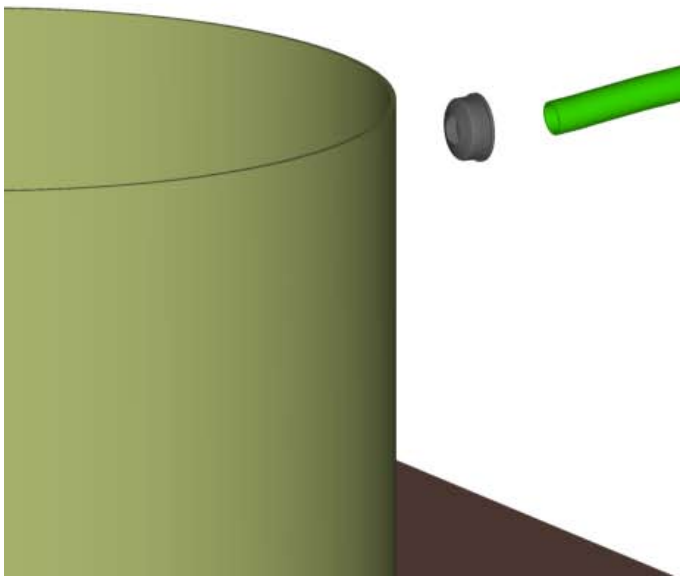
RENNER ventpipes cover roofpitches from 2/12 – 12/12 all in one.

7. Example: Inline Cleanout

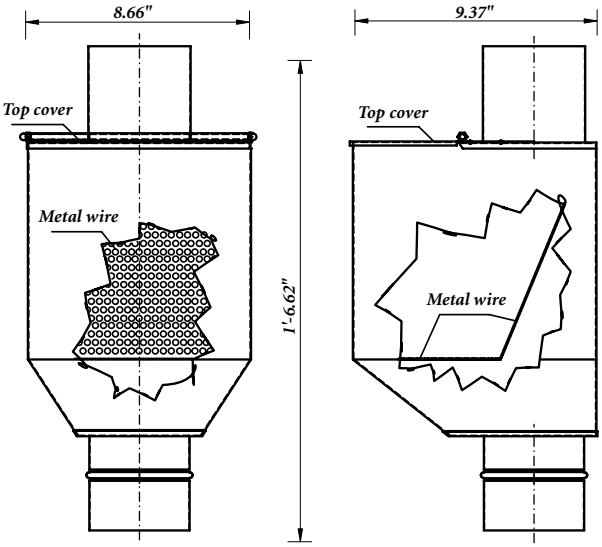


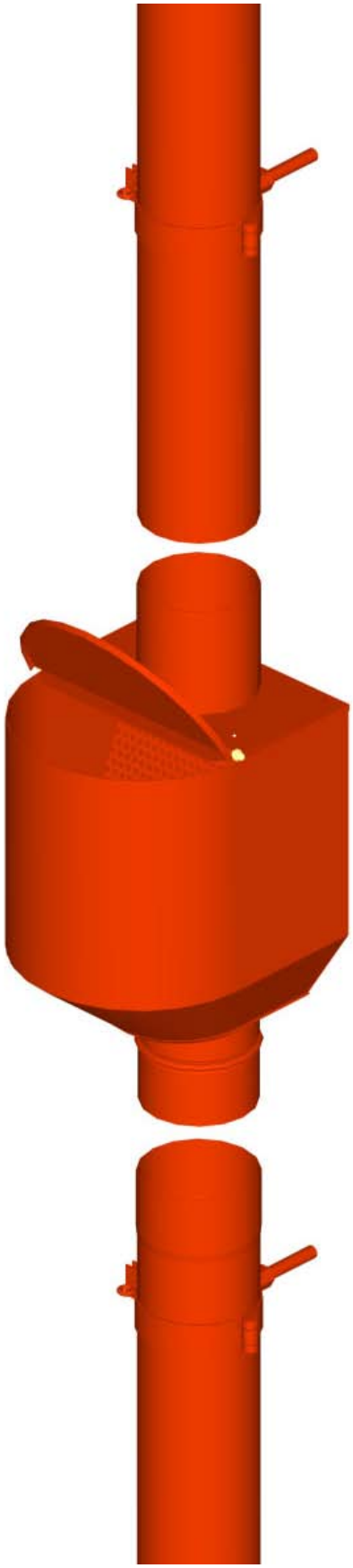
Your advantage:

Channel and save your rainwater!



8. Example: RENNER special bin

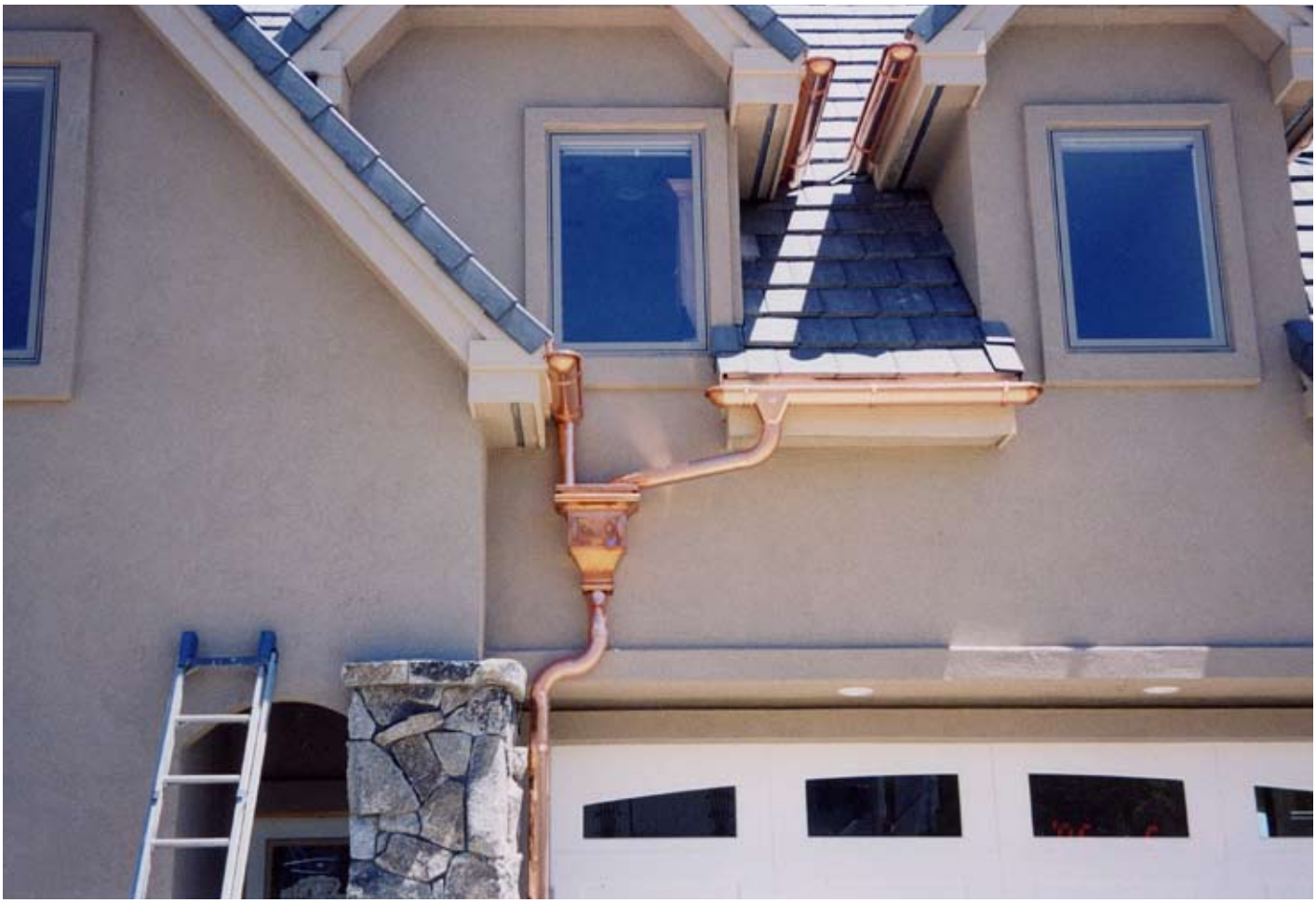




Your advantage:

This special bin collects leaves for a clean downspout!

To this end, its – as a result of weathering – constantly changing patina influences the appearance of a building, whereby the original coppery sheen of the metal gradually develops into a sequence of warm, brown shades before the external surface acquires its characteristic green.



THE COPPER COATED HANGERS

• The copper coated hangers

The copper coated hanger support is a proven component that has been used for private and public buildings in Germany for decades. Contact corrosion between the galvanized hook iron and the copper cladding is impossible as a result of a double seam and the welt-like seal of the copper mantle.

Furthermore, the extremely familiar standard potential is not given in practice, as the high-avidity zinc forms an inorganic coating with oxygen and carbon dioxide after only a short period.

In the galvanizing plant, the formation of these coatings is promoted by chromating the zinc surface directly following galvanization.

TECHNICAL INFORMATION

• Material Designation

EN mark	DIN Werkst.-Nr. / Bez.	BS	ASTM	AFNOR	UNI	JIS
Cu-DHP	2.0090 / SF - Cu	C 106	CDA 122			

• Chemical analysis

Cu	Fe	NI	Pb	Al	P	Zn	Mn	Cd	Te
min 99.9	-		-	-	0.015 - 0.040	-	-	-	-

• Physical Properties

Density: 8.9 g/cm³
Coefficient of Thermal Expansion: 17.7 10^{-6}/K
Electrical Conductivity: 45-52 m/Ohm*mm²
Thermal Conductivity: 344.0 W/mk
Modulus of Elasticity: 132 KN/m²
Soft annealing temp.: 350-500 °C
Stress relieving temp.: 150-200 °C

• Mechanical Properties (EN 1652)

Temper CW 024 A	thickness	Tensile Strength	Yield Strength	Elongation %	
R / H	mm	N / mm²	$Rp_{0.2}$ N / mm ²	A_{50}	$A_{(>2.5\,mm)}$
R 200/H 040	> 5	200 - 250	100 max		42
R 220/H 040	0.2 - 5	220 - 260	140 max	33	42
R 240/H 090	0.2 - 15	240 - 300	180 min	8	15
R 290/H 090	0.2 - 15	290 - 360	250 min	4	6
R 360/H 110	0.2 - 2	360 min	320 min	2	

• Fabrication Properties

Corrosion Resistance: Not resistant to oxidizingacids, hydous ammonia, halogenated gases, seawater, hydrogen sulfide
Capacity of being cold worked: Excellent
Soldering/brazing: Excellent
Resistance welding: Excellent
Gas shield arc welding: Fair

SAFETY INFORMATION FOR RENNER GUTTER-SYSTEMS

- Always store RENNER product safely and in accordance with best practice. Keep them away from children.
- Never use rainwater for drinking water. It might contain bacteria, dirt or may be contaminated.
- Check your local building code and regulations before you design your roof drain system, or before you get started.
- Always make sure you work from a safe and secure platform or ladders.
- Always check the area underneath your working space and secure this area to make sure nobody gets hurt if you drop something.
- If you don't feel you can complete this work safely, call a local contractor.
- Always wear approved safety goggles and gloves; beware of sharp edges.
- Always use approved fasteners.
- Never install or work on lose, damaged or under dimensioned roof material or roof structures.
- When you install the rain gutters, check the slope , and make sure the collected water can run off without causing damage.
- Never mix RENNER products with other gutter systems.
- Never modify – unless recommended by RENNER.
- Beware of cut edges – might be extremely sharp.
- Dispose of leftovers and off-cut safely and in accordance with best practices.
- Never leave any parts or tools unsecured on your roof, they might fall down causing serious damage or hurt somebody.
- Never do installation work alone, always work in a team.
- Check for power lines.
- Never install on icy or slippery roofs or in windy weather conditions.

THE COMPANY

der Renner RB BAMBERG

GUTTERS • DOWNSPOUTS • ACCESSORIES • COILS & SHEETS • TOOLS

Your vendor:

Custom Home Accessories, Inc.
11300 Trade Center Drive, Ste. A
Rancho Cordova, CA 95742 USA
1-800-265-0041
Fax 916-635-0228
www.customhomex.com

Andreas Renner GmbH & Co.KG *Copper gutters made in Bamberg, Germany*

RB BAMBERG