

BLÜCHER® Roof Drainage Systems

Product catalogue for roof drains and pipes



BLÜCHER®

K E E P I N G U P T H E F L O W

STAINLESS STEEL DRAINAGE SYSTEMS



Safe solutions

BLÜCHER® stainless steel drainage products are installed in almost any kind of construction project, from multi-storey apartments and food processing factories to hospitals and on board prestigious cruise liners. We have specialised our competencies within four main segments:

Housing

Commercial

Industrial

Marine

The BLÜCHER® drainage system is a modular system providing numerous possible product combinations.

BLÜCHER® Drain

Floor drains for light- to heavy-duty flow and load applications.

BLÜCHER® Channel

Standard, modular or customised channels and kitchen channels for all flow and load applications.

BLÜCHER® EuroPipe

Push-fit drainage pipe-work system for soil, waste and rainwater.

Customised solutions

To ensure that any drainage requirement can be fulfilled we are always ready to solve your special request.

Strong products

All BLÜCHER® drainage products are produced in stainless steel grade AISI 304 or optionally grade AISI 316L. This material is ideally suitable for high-quality drainage systems:

- Fire resistant
- High strength - low weight
- Environmentally friendly

Furthermore it is corrosion resistant, resistant to impacts and thermal stress and requires little maintenance.

In the BLÜCHER® drainage products the inherent qualities of stainless steel are enhanced by careful product design resulting in:

- Long product life expectancy
- Excellent hygienic properties
- Easy installation
- Whole-life cost advantages
- Excellent flow capacities

All BLÜCHER® products are chemically descaled and passivated in order to enhance the natural corrosion resistance and provide a uniform matt-silver surface finish.

All stainless steel components are manufactured from recycled materials and are 100% recyclable.

Danish quality

Founded in Denmark in 1965, BLÜCHER has developed into a leading manufacturer of stainless steel drainage systems. Today, BLÜCHER is an international company with subsidiaries and representations worldwide. The BLÜCHER Group employs more than 350 staff worldwide.

Customers all over the World appreciate our know-how, dedicated service and common sense.

Through quality stainless steel products and drainage solutions that lead waste water away, BLÜCHER is committed to the promise of keeping up the flow.

The BLÜCHER® drainage products are manufactured in Denmark using the most modern production methods and in accordance with the internationally recognised quality standard ISO 9001. Furthermore, the most respected classification societies endorse the BLÜCHER® drainage products worldwide.



BLÜCHER® DRAIN ROOF

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Roof drainage Made to last



BLÜCHER® Drain Roof and BLÜCHER® EuroPipe

BLÜCHER offers a stainless steel roof drainage system suitable for:

- Flat roofs of all designs
- Downpipes from roofs of all designs
- Roofs with bitumen or single ply roof membrane
- Equally suitable for gravity and vacuum systems

BLÜCHER® roof drainage system comprises strong products which are capable of resisting impacts, corrosion as well as fire and require minimal maintenance.

Gravity roof drainage is used in traditional newbuild or refurbishment projects.

Siphonic roof drainage creates a flow rate approximately 3 - 5 times higher than in a gravity system.

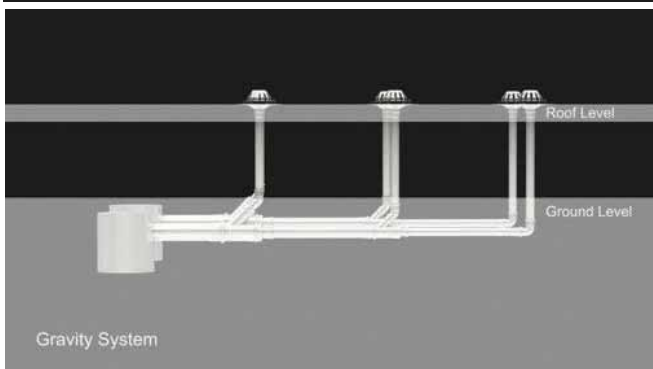
This means that a larger roof area can be drained by fewer roof drains connected to one pipe string in smaller diameter than that required for the gravity system.

It is BLÜCHER's mission to provide a high-quality roof drainage system with roof drains easily connected to the BLÜCHER® EuroPipe pipework system, offering the customer a safe and high-quality roof drainage system that minimizes installation time and ensures high performance as regards

- High flow capacity
- Ease of installation
- Non-combustibility
- Long product life

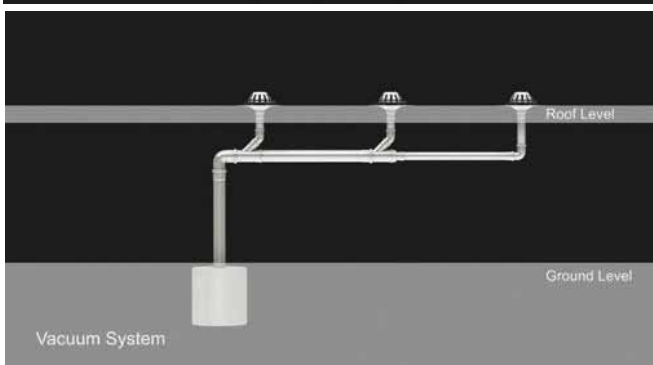
Gravity and Siphonic roof drainage systems

BLÜCHER® gravity roof drainage



Traditional gravity system with drains spread over the roof area and water led from the roof through downpipes to a below-ground pipework system

BLÜCHER® Siphonic roof drainage



Siphonic system with fewer drains and a small-diameter horizontal pipework system underneath the ceiling. More water is transported through the pipework due to faster flow and a filled pipework system, reducing if not completely removing below-ground drainage.

Gravity and siphonic roof drainage systems

Advantages of BLÜCHER® roof drainage

All in stainless steel AISI 304 or AISI 316L	Corrosion-resistant, temperature-resistant and impact-resistant Not affected by UV Minimal expansion caused by temperature changes Non-combustible, fire rated A1 Retains its aesthetically pleasing finish, requiring minimal maintenance Robust construction that resists vandalism 100% recyclable
Thin-walled pipes	Light-weight and easy to handle, makes installation fast and easy and provides better working environment Fewer fixing points required due to the low weight of the pipework system Larger inside diameter in combination with the low surface roughness of stainless steel provides up to 30% higher flow capacity compared to similar outside diameter cast-iron pipes
Smooth inside surface	Excellent self-cleansing properties High flow rate Prevents blockages
Push-fit jointing	Fast and easy pipe assembly
Pipe sizes OD 40 - 250 mm and lengths 0,15 - 6 meters	Compact dimensions take up less space Less cutting to size required, thereby less installation costs
Equally suitable for vacuum and gravity	One pipework system fits all applications

BLÜCHER® Siphonic roof drainage offers the added advantages of

Only one downpipe to the ground	Less piping necessary Less below-ground work
Fewer roof drains required	Fewer cut-outs in the roof required, thereby lower costs
Small pipe diameters	Light-weight, takes up less space as compared to traditional plastic or cast-iron systems
Pipes approved for -0,85 bar vacuum	Safe solution
Horizontal pipes without fall	Ease of installation

BLÜCHER® Drain Roof Siphonic drains and gravity drains

BLÜCHER® Drain Roof - Siphonic



Owing to the Siphonic plate of the drain, the pipe is quickly 100% filled, keeping air out of the system and allowing full bore discharge to induce a siphonic action resulting in higher velocities and greater discharge.

BLÜCHER® Drain Roof - gravity



Traditional gravity drainage system with pipes filled max. 33%.

Both types of drains are available for roofs with bitumen or roofs with single ply roof membrane, shown above are drains for roofs with single ply roof membrane.

BLÜCHER® Drain Roof for bitumen and single ply roof membrane

BLÜCHER® Drain Roof for bitumen

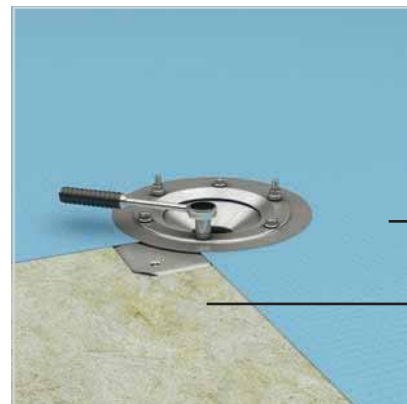


BLÜCHER® Drain Roof for single ply roof membrane



Bitumen

Concrete/insulation



Single ply roof membrane

Concrete/insulation

Both types of drains are available as siphonic drains and as gravity drains, shown above are siphonic drains.

Where to use BLÜCHER® roof drainage

Gravity

Ideal for roof areas less than 500 m² on traditional buildings such as flat-roofed houses, garages, office buildings, etc.



Private housing



Multi-storey car park, shopping mall Nørreport Centeret, Holstebro, Denmark

Siphonic

The best choice for large roof areas (over 500 m²) such as office buildings, industrial facilities, shopping centres etc.



Postal terminal Berger, Norway



Géant Mall, Dubai, UAE

Applicable standards

EN 1253

BLÜCHER® Drain Roof has been tested by LGA Würzburg and complies with the requirements of EN 1253 1+2. BLÜCHER has its own state-of-the-art laboratory with facilities to design and develop drainage products in accordance with EN 1253. BLÜCHER is committed to offering a thoroughly tested roof drainage system that complies with applicable standards and regulations as to performance and installation.



EN 12056 and VDI 3806

BLÜCHER recommends installation in accordance with EN 12056 3 and VDI 3806. This ensures that the BLÜCHER® roof drainage system can be used in all common building projects in Europe. VDI 3806 are guidelines for syphonic roof drainage, used as applicable guidelines in the EU.

Flow calculations

BLÜCHER offers to carry out flow calculations and suggest design of the roof drainage system for projects with BLÜCHER® Drain Roof and BLÜCHER® EuroPipe. Enquiries can be submitted through www.blucher.com/projects, or call BLÜCHER on tel. 01937 838 000.

Roof	Area	Roof Slope
1	100	2%
2	200	2%

DETAILS OF DELIVERY		DRAWINGS/ACCESSORIES	
Project Description	Project Location	Date	Name
Project No.	Drawings		

Accessories

Emergency drainage

All roof drainage systems require emergency drainage to ensure that the roof remains water tight in the event of a rain storm rate in excess of the chosen design storm rate. For roofs with bitumen and for roofs with single ply roof membrane BLÜCHER offers an emergency drainage system to be installed in the same way as the common roof drainage system but with a separate BLÜCHER® EuroPipe downpipe leading water away from the roof.



Thermal insulation

Where there is a need for protecting the roof from the cold there is an insulating sleeve that can easily be fitted around the drain outlet. For BLÜCHER® Drain Roof we have selected a non-combustible insulation core which performs optimally even at temperatures on the roof below 5 °C, thus minimizing condensation.

Optionally, BLÜCHER® Drain Roof can be supplied with the insulating sleeve fitted to the drain outlet.



Trace heating

For installation in areas where ambient temperatures below 0 °C often occur, BLÜCHER offers a heating cable which is to be fitted around the roof drain and then covered by the insulating sleeve. This ensures a frost-free roof drain that will not be blocked by ice. The heating cable has a performance of 14,5 W per meter at an ambient temperature of 0 °C.

Optionally, BLÜCHER® Drain Roof can be supplied fitted with heating cable and insulating sleeve.



Installation

BLÜCHER® Drain Roof

Due to the small size of the drain bowl leading the water into the piping system, only a small hole in the roof or the insulation is necessary, and this can be drilled easily and quickly.

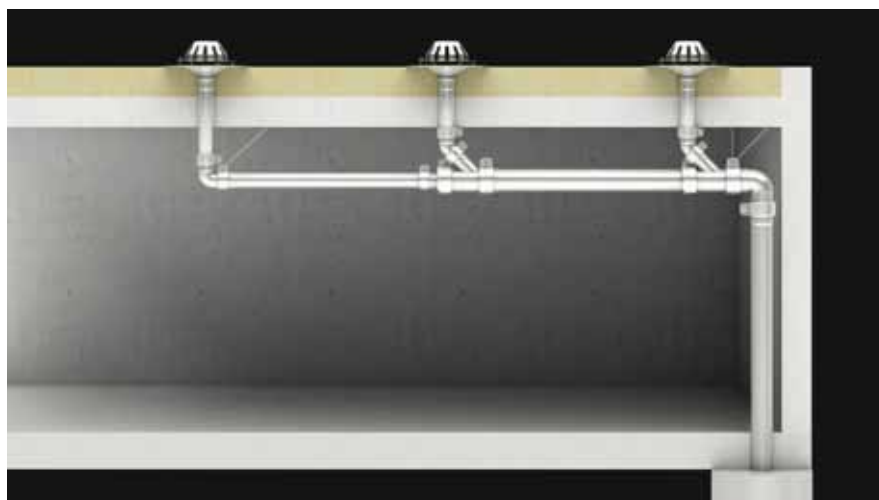
Secure the drain to the roof by fixing the flange by means of 4 screws, or optionally secure the drain to the membrane selected for the roof.



Drain outlet piping

The roof drains come with outlet pipes of either 400 or 600 mm length, and this makes it possible to penetrate the roof insulation without any pipe joints in the insulation. This makes installation fast and safe, and below the insulation BLÜCHER® EuroPipe pipes and fittings can be fitted directly to the outlet piping.

If a shorter outlet pipe is requested, the outlet pipes can be cut to the desired length on site. For this purpose we recommend the BLÜCHER® pipe cutter, available as manual or electrical pipe cutter.



Installation

BLÜCHER® EuroPipe

BLÜCHER® EuroPipe stainless steel drainage pipework system is a light-weight push-fit piping system comparable to plastic pipework systems in weight and to cast-iron pipework systems in strength.

Pipes are available in OD40 - OD250 mm in lengths ranging from 15 cm to 6 m. In addition, the pipes can be cut to the desired length on site. For this purpose we recommend the BLÜCHER® pipe cutter, available as manual or electrical pipe cutter.

The pipes are completely interchangeable between gravity or siphonic systems without requiring change of sealing ring.

One man alone can easily install the pipes below roof. Push-fit jointing and easy cutting to length on site make installation fast and simple, and fixing the pipes requires only a simple locking mechanism with pipe joint clamps with no need for a rack system or similar.

Considering the whole-life costs of the pipework system, BLÜCHER® EuroPipe is the most cost-efficient choice, offering approximately 40% saving on installation time as compared to cast-iron pipework systems as stated in BSRIA data sheet 5.11.2

Being non-combustible and not damaged by impacts as opposed to plastic pipework systems, BLÜCHER® EuroPipe offers lower whole-life costs as stated in Building Performance Group Ltd. assessment report no. 1732.

Suspension and fixing of pipework

The following describes the fixing of pipes for vertical and horizontal pipe runs.

Vertical piping

All vertical pipework should be provided with pipe brackets at intervals not exceeding 3 metres. Brackets to be placed under ring seal sockets whenever possible.

Horizontal piping

All horizontal pipework should be provided with pipe brackets at intervals not exceeding 3 metres. Brackets to be placed under ring seal sockets whenever possible.

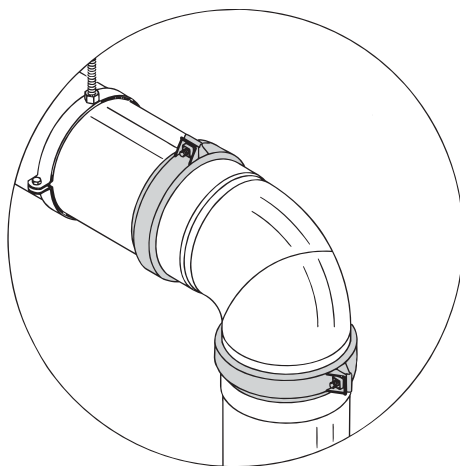
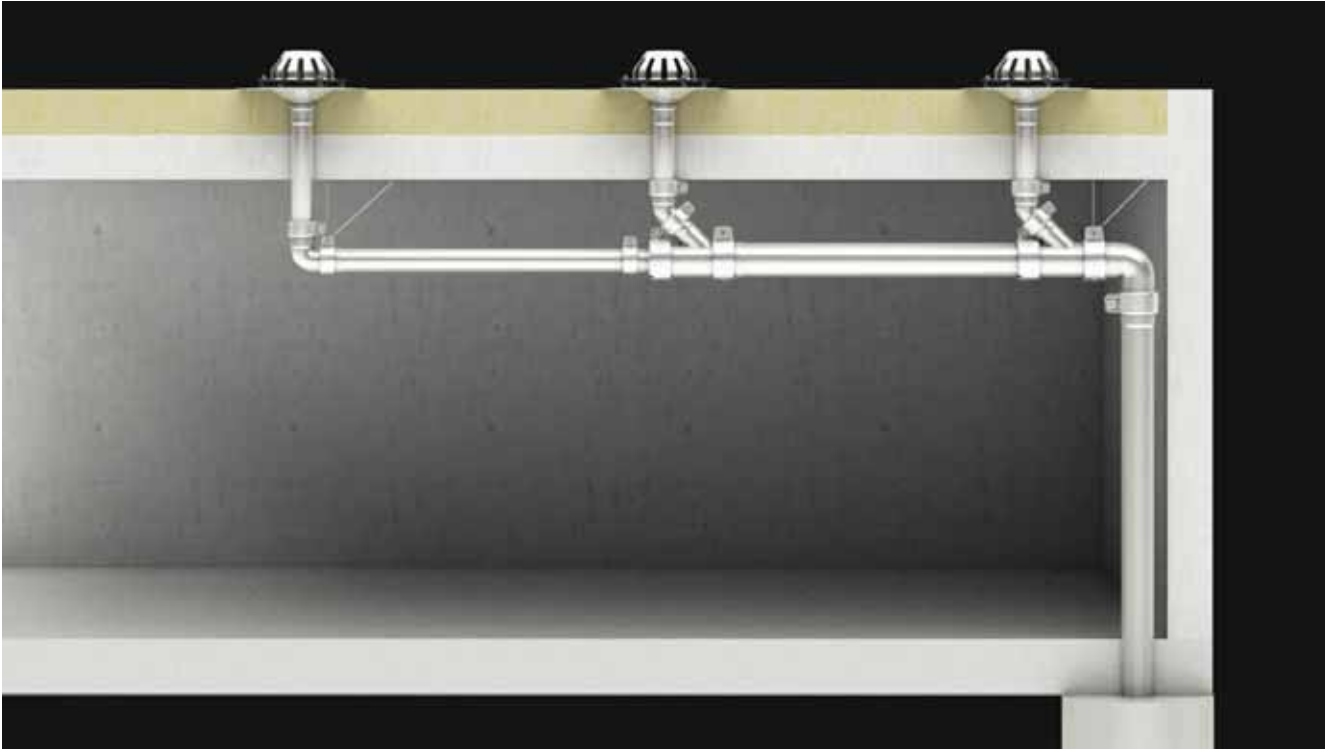
Additional brackets are required at each change of direction, i.e. bends and branches, to anchor the installation to the structure. If it is impractical to anchor to the structure, then hanging and raking fixings 847.000.000 along with joint clamps 847.xxx.xxx must be fitted to prevent movement.

If it is impractical to install hanging and raking fixings on a particular change of direction, then joint clamps 847.xxx.xxx can be used on all joints along the straight run or runs affected by the lack of restraint. Socket plugs type 844 need joint clamps type 847 to withstand internal pressure from a possible blockage.



Siphonic installation

We recommend the use of pipe joint clamps at each bend or bracket and the use of the BLÜCHER® mounting plate for suspension of the drainage pipework for each 3 metres. This will safeguard the pipework system against vibrations and keep the pipes in place in siphonic roof drainage installations.



Pipe joint clamptype no. 847.
xxx.xxx S (see page 10) may be
required if walls or soffits are not
accessible for brackets.

Emergency drains

All pipework to be installed in the same way as in vacuum systems, i.e. with pipe joint clamps at each bend or bracket.

Auxiliary products to BLÜCHER® roof drainage system

Balcony drains

Stainless steel balcony drains with low built-in height, long product-life expectancy and aesthetically pleasing design for your balcony.



183.101.0XX



183.151.XXX



182.105.032

Outdoor drain

Stainless steel drain used in roof gardens and around terraces placed above a below-ground garage. Comes with OD110 mm vertical outlet, flange for membrane and adjustable upper part 200x200 or 300x300 mm. Sand bucket and a range of gratings are available.

The outdoor drain has a perforated pipe between frame and lower part to enable drainage from the sand/gravel in which the drain is installed and into the lower part.



Outdoor rainwater piping



All BLÜCHER® EuroPipe rainwater downpipes are vandal-resistant, combining the aesthetically pleasing look of stainless steel with vandal-proofing of the downpiping and the other inherent benefits of stainless steel material.

For details on auxiliary products please contact BLÜCHER, tel. 01937 838 000 or mail@blucher.co.uk

Auxiliary products to BLÜCHER® roof drainage system

Channels

Stainless steel drainage channel system suitable as gutter around a defined area, in front of doors to prevent water flowing in through the door and to collect the water to be drained off the roof area.



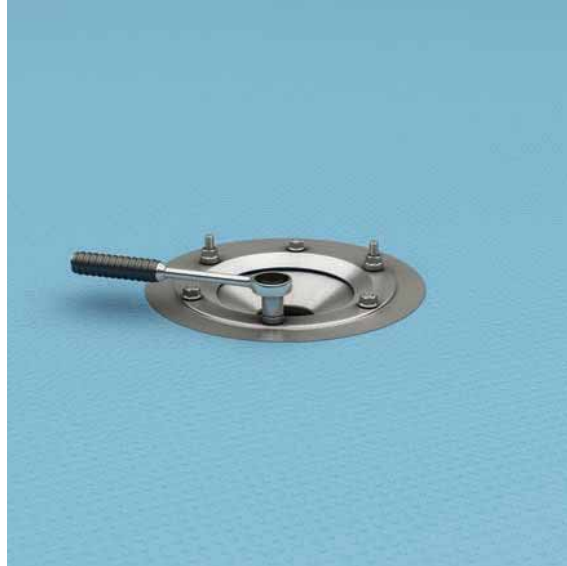
Industrial drains with gratings for high weight loads

For use for instance in multi-storey car parks, BLÜCHER offers BLÜCHER® Drain Industrial heavy-duty floor drains that can be fitted with a range of gratings suitable for weight loads up to 8400 kg (load class M) depending on the type of grating.



For details on auxiliary products please contact BLÜCHER, tel. 01937 838 000 or mail@blucher.co.uk

Installation examples



Easy and simple installation in single ply roof membrane provides high strength and a secure solution.



Roof drains for bitumen have a wide collar for secure fixing to the bitumen.

2-part roof drain

2-part roof drains can easily be installed on the roof. Use a standard roof drain in combination with a separate lower part matching the membrane type of the roof.



References

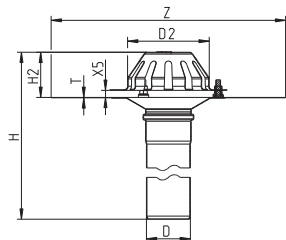
- Blackfriars Station, London BLÜCHER® Drain, BLÜCHER® EuroPipe
- Mail terminal Postens Terminal Berger, Norway BLÜCHER® EuroPipe
- Dairy Tine Meierier Vest, Norway BLÜCHER® EuroPipe
- Cultural Centre Bømlo Kulturhus, Norway BLÜCHER® EuroPipe
- Continental Dekk Askim, Norway BLÜCHER® EuroPipe
- Arora Hotel Gatwick Crawley, UK BLÜCHER® EuroPipe
- Apartments Ballymun, Ireland BLÜCHER® EuroPipe
- Docklands Light Railway London, UK BLÜCHER® EuroPipe
- Dublin Airport T2, Ireland BLÜCHER® EuroPipe
- Golden Square Shopping Centre Warrington, UK BLÜCHER® EuroPipe
- Trafford Shopping Centre Manchester, UK BLÜCHER® EuroPipe
- Main Station Salzburg, Austria BLÜCHER® EuroPipe
- Dubai Mall, UAE BLÜCHER® Drain, BLÜCHER® EuroPipe
- Hilton Resort, Ras Al Khaimah BLÜCHER® Drain, BLÜCHER® EuroPipe
- New Doha International Airport, Qatar BLÜCHER® EuroPipe
- Bank of Greece, Thessaloniki, Greece BLÜCHER® EuroPipe



for gravity

ROOF DRAIN TYPE 401.10

WITH FLANGE FOR BITUMEN

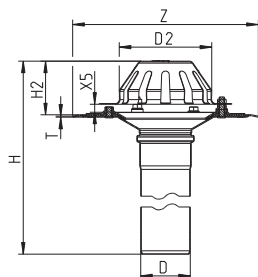


Type no.	EAN no.	D	Z	H	H2	D2	X5	T
401.104.050	5705499132731	50	400x400	495	77	140	12	0.7
401.104.075	5705499132748	75	400x400	495	77	140	12	0.7
401.104.110	5705499132755	110	400x400	495	77	140	12	0.7

Flow rate in accordance with "Flow rates for roof drains"

ROOF DRAIN TYPE 402.10

WITH CLAMPING FLANGE FOR SINGLE PLY MEMBRANE



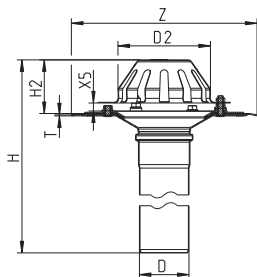
Type no.	EAN no.	D	Z	H	H2	D2	X5	T
402.104.050	5705499132762	50	280x280	501	81	140	12	1.5
402.104.075	5705499132779	75	280x280	501	81	140	12	1.5
402.104.110	5705499132786	110	280x280	501	81	140	12	1.5
402.106.050	5705499132793	50	280x280	701	81	140	12	1.5
402.106.075	5705499132809	75	280x280	701	81	140	12	1.5
402.106.110	5705499132816	110	280x280	701	81	140	12	1.5

Flow rate in accordance with "Flow rates for roof drains"

for gravity

ROOF DRAIN TYPE 402.12

WITH CLAMPING FLANGE AND BOOST LEAF GUARD FOR SINGLE PLY MEMBRANE

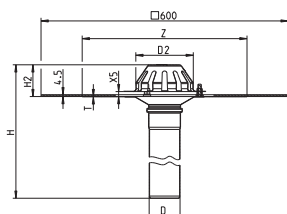
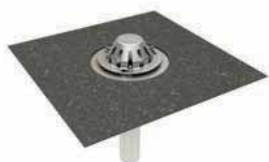


Type no.	EAN no.	D	Z	H	H2	D2	X5	T
402.124.050	5705499132762	50	280x280	501	81	140	12	1.5
402.124.075	5705499132779	75	280x280	501	81	140	12	1.5
402.124.110	5705499132786	110	280x280	501	81	140	12	1.5
402.126.050	5705499132793	50	280x280	701	81	140	12	1.5
402.126.075	5705499132809	75	280x280	701	81	140	12	1.5
402.126.110	5705499132816	110	280x280	701	81	140	12	1.5

Flow rate in accordance with "Flow rates for roof drains"

ROOF DRAIN TYPE 403.10

WITH FLANGE FOR BITUMEN AND PRE-MOUNTED BITUMEN COLLAR



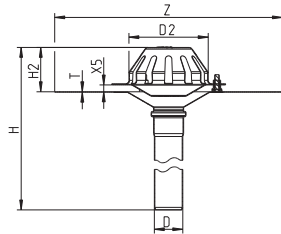
Type no.	EAN no.	D	Z	H	H2	D2	X5	T
403.104.050	5705499133141	50	400x400	495	77	140	12	0.7
403.104.075	5705499133158	75	400x400	495	77	140	12	0.7
403.104.110	5705499133165	110	400x400	495	77	140	12	0.7

Flow rate in accordance with "Flow rates for roof drains"

for siphonic

ROOF DRAIN TYPE 401.20

WITH FLANGE FOR BITUMEN

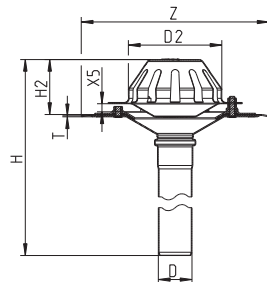


Type no.	EAN no.	D	Z	H	H2	D2	X5	T
401.204.040	5705499132823	40	400x400	496	78	140	12	0.7
401.204.050	5705499132830	50	400x400	496	78	140	12	0.7
401.204.075	5705499132847	75	400x400	496	78	140	12	0.7

Flow rate in accordance with "Flow rates for roof drains"

ROOF DRAIN TYPE 402.20

WITH CLAMPING FLANGE FOR SINGLE PLY MEMBRANE



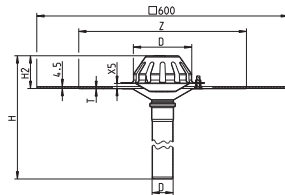
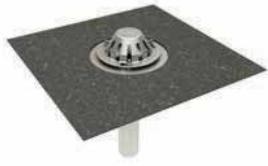
Type no.	EAN no.	D	Z	H	H2	D2	X5	T
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402.204.050	5705499132861	50	280x280	502	82	140	12	1.5
402.204.075	5705499132878	75	280x280	502	82	140	12	1.5
402.206.040	5705499132885	40	280x280	702	82	140	12	1.5
402.206.050	5705499132892	50	280x280	702	82	140	12	1.5
402.206.075	5705499132908	75	280x280	702	82	140	12	1.5

Flow rate in accordance with "Flow rates for roof drains"

for siphonic

ROOF DRAIN TYPE 403.20

WITH FLANGE FOR BITUMEN AND PRE-MOUNTED BITUMEN COLLAR

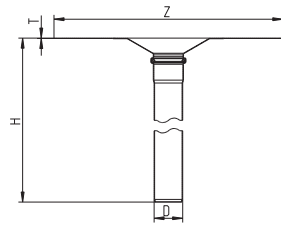


Type no.	EAN no.	D	Z	H	H2	D2	X5	T
403.204.040	5705499133172	40	400x400	496	78	140	12	0.7
403.204.050	5705499133189	50	400x400	496	78	140	12	0.7
403.204.075	5705499133196	75	400x400	496	78	140	12	0.7

Flow rate in accordance with "Flow rates for roof drains"

LOWER PART FOR ROOF DRAIN TYPE 401.00

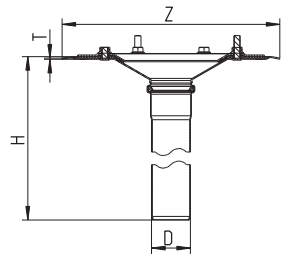
WITH FLANGE FOR BITUMEN



Type no.	EAN no.	D	Z	H	T
401.004.040	5705499132915	40	400x400	418	0.7
401.004.050	5705499132922	50	400x400	418	0.7
401.004.075	5705499132939	75	400x400	418	0.7
401.004.110	5705499132946	110	400x400	418	0.7

LOWER PART FOR ROOF DRAIN TYPE 402.00

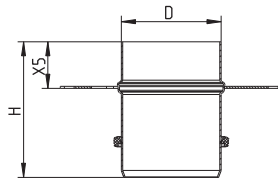
WITH CLAMPING FLANGE FOR SINGLE PLY MEMBRANE



Type no.	EAN no.	D	Z	H	T
402.004.040	5705499132953	40	280x280	420	1.5
402.004.050	5705499132960	50	280x280	420	1.5
402.004.075	5705499132977	75	280x280	420	1.5
402.004.110	5705499132984	110	280x280	420	1.5

EMERGENCY DRAIN STAND PIPE TYPE 400.100

FOR ROOF WITH GRAVITY DRAINAGE

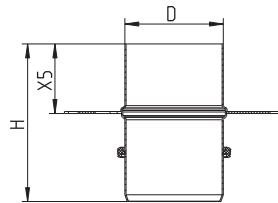


Type no.	EAN no.	D	H	X5	Max Flow (l/s)
400.100.050	5705499132991	50	105	35	6.2
400.100.075	5705499133004	75	102	35	11.5
400.100.110	5705499133011	110	107	35	9.7

Flow rate measured 35mm above top of pipe (70mm above surface of roof)

EMERGENCY DRAIN STAND PIPE TYPE 400.200

FOR ROOF WITH SIPHONIC DRAINAGE



Type no.	EAN no.	D	H	X5	Max Flow (l/s)
400.200.050	5705499133028	50	123	55	6.1
400.200.075	5705499133035	75	120	55	12.8

Flow rate measured 35mm above top of pipe (90mm above surface of roof)

ROOF DRAIN INSULATION TYPE 400.001



Type no.	EAN no.	D
400.001.040	5705499133059	40
400.001.050	5705499133066	50
400.001.075	5705499133073	75
400.001.110	5705499133080	110

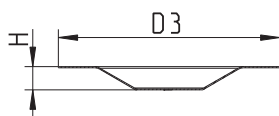
ELECTRICAL HEATING CABLE

0,8M HEATING CABLE + 1,0M RUBBER CABLE



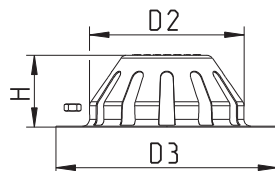
Type no.	EAN no.
400.000.000	5705499133042

SIPHONIC PLATE



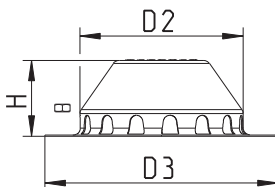
Type no.	EAN no.	H	D3
400.000.100	5705499133110	21	200

LEAF GUARD TYPE 400.000.001



Type no.	EAN no.	H	D2	D3
400.000.001	5705499133127	65	140	200

BOOST LEAF GUARD TYPE 400.000.002



Type no.	EAN no.	H	D2	D3
400.000.002	5705499133134	65	140	200

By using this boost leaf guard in gravity systems, flow can be significantly increased. Need for more frequent cleaning to be expected.

SET OF NUTS FOR ROOF DRAIN



Type no.

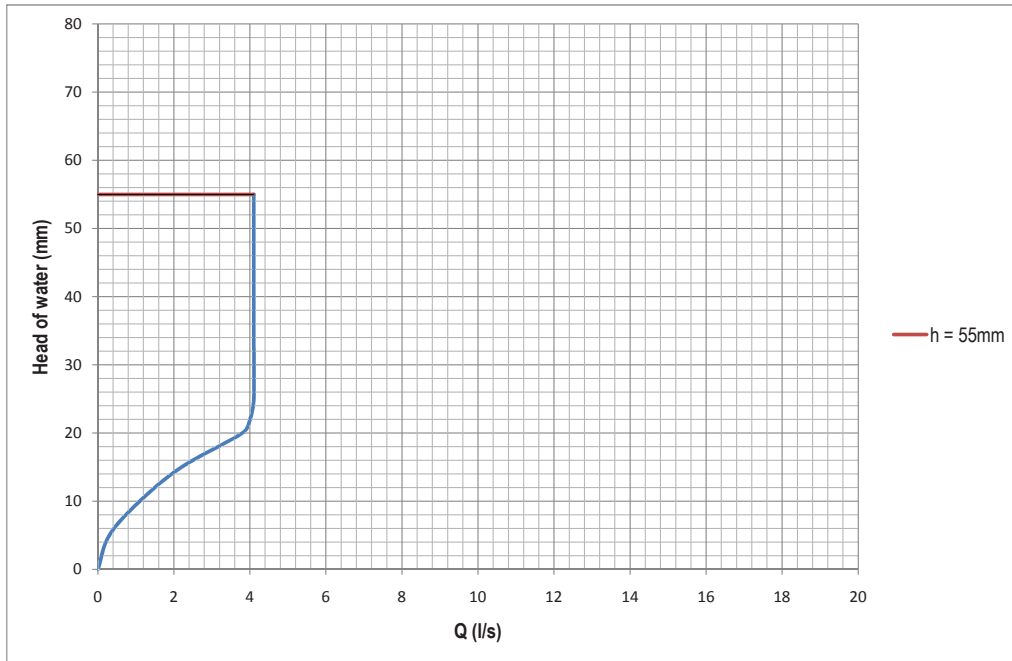
EAN no.

400.000.003

5705499133202

Flow rates for pipe dimension OD 40 mm

BLÜCHER® Drain Roof - siphonic OD 40mm



Test information and basis

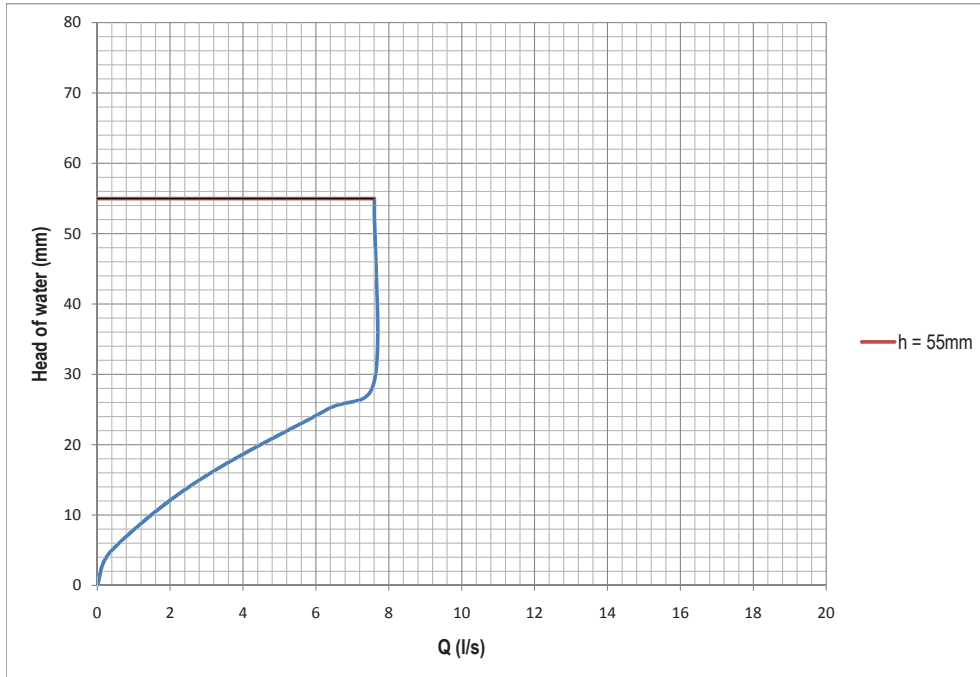
Flow test carried out at TÜV Rheinland LGA Products GmbH February 2011.

Siphonic flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8D

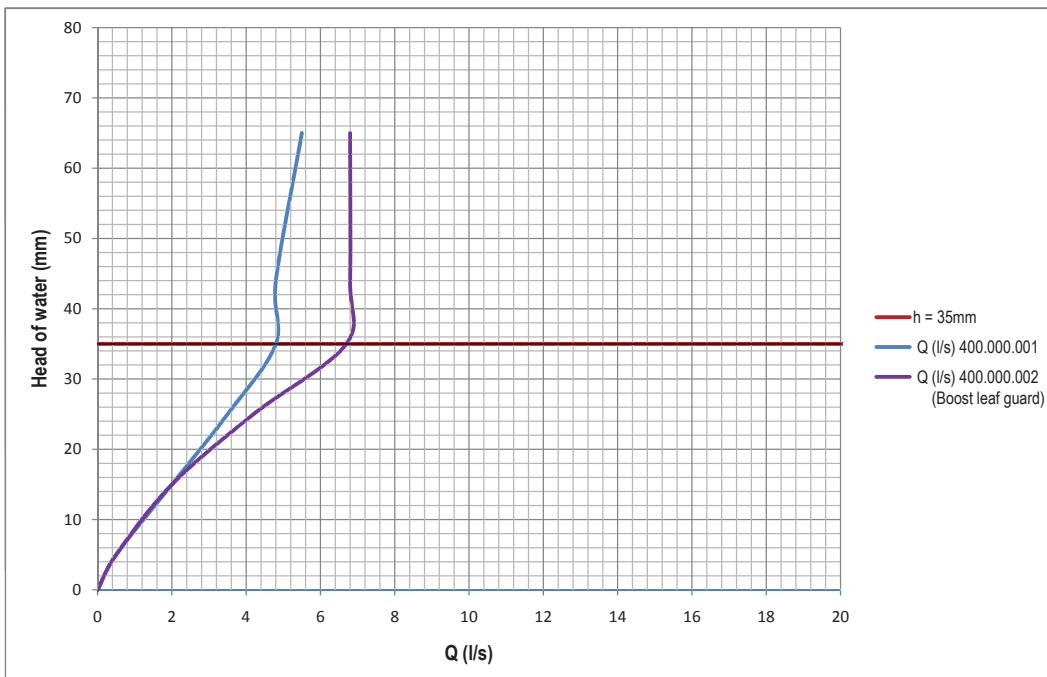
Gravity flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8C

Flow rates for pipe dimension OD 50 mm

BLÜCHER® Drain Roof - siphonic OD 50 mm



BLÜCHER® Drain Roof - gravity OD 50 mm



Test information and basis

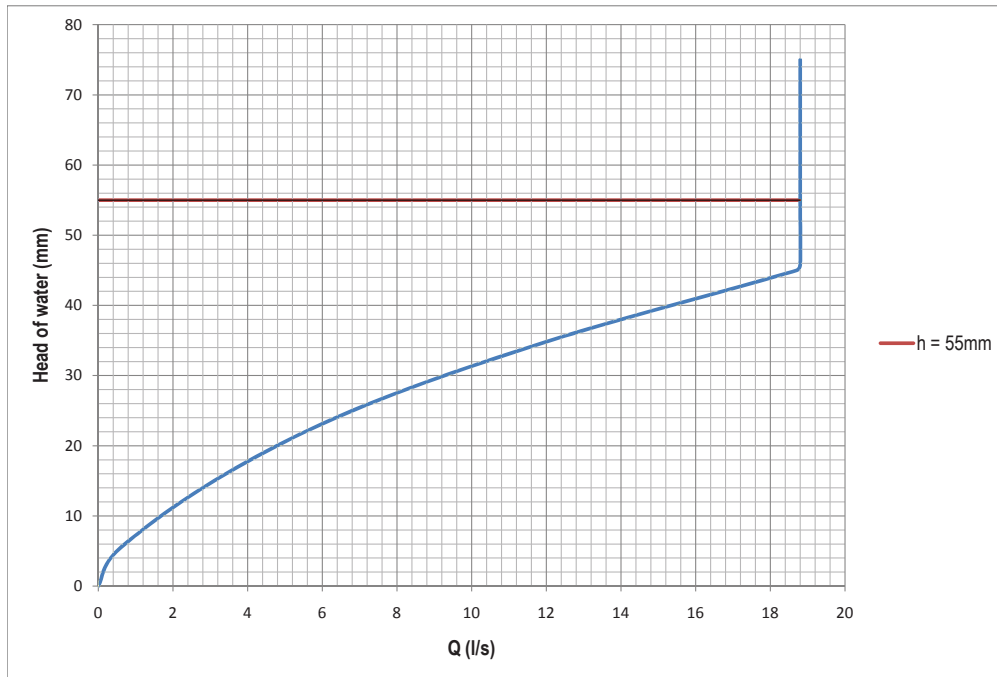
Flow test carried out at TÜV Rheinland LGA Products GmbH February 2011.

Siphonic flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8D

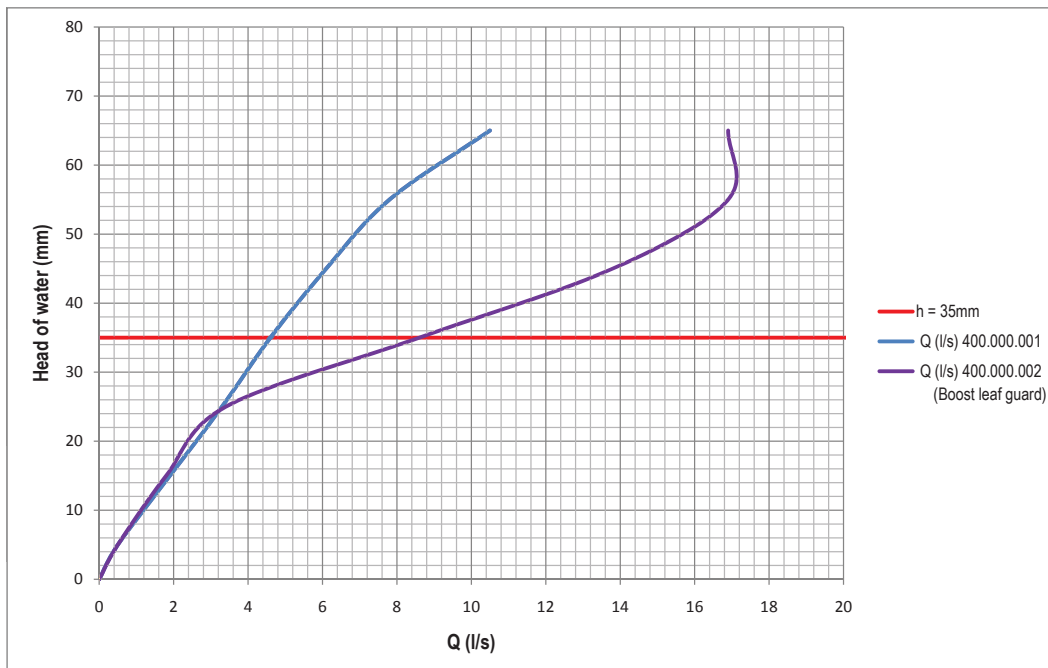
Gravity flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8C

Flow rates for pipe dimension OD 75 mm

BLÜCHER® Drain Roof - siphonic OD 75 mm



BLÜCHER® Drain Roof - gravity OD 75 mm



Test information and basis

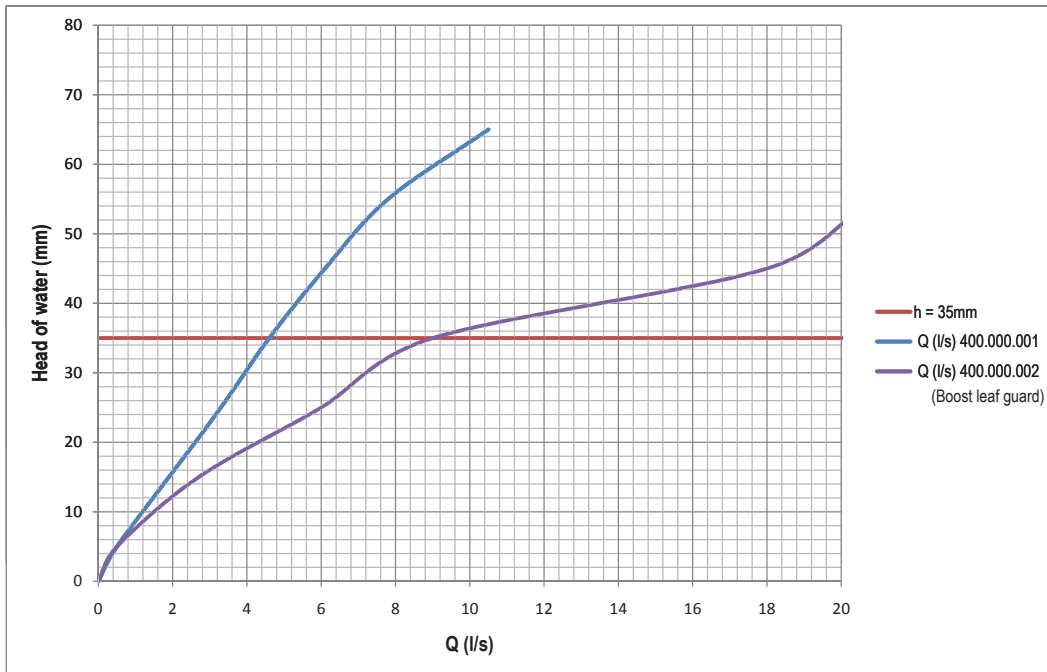
Flow test carried out at TÜV Rheinland LGA Products GmbH February 2011.

Siphonic flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8D

Gravity flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8C

Flow rates for pipe dimension OD 110 mm

BLÜCHER® Drain Roof - gravity OD 110 mm



Test information and basis

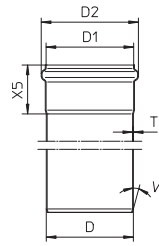
Flow test carried out at TÜV Rheinland LGA Products GmbH February 2011.

Siphonic flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8D

Gravity flow tested in accordance with EN1253 1+2 and carried out according to 1253-2: 2003 page 16 Figure 8C

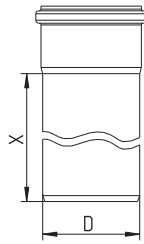
DIMENSIONAL DRAWING, SOCKET AND SPIGOT END

PIPES AND FITTINGS



Type no.	Customer no.	D	D1	D2	X5	T	V
811.XXX.040		40	41	52	46	1	20
811.XXX.050		50	51	61	47	1	20
811.XXX.075		75	76	87	55	1	20
811.XXX.082		82	83	94	57	1	20
811.XXX.110		110	111	123	62	1	20
811.XXX.125		125	126	140	65	1	20
811.XXX.160		160	161	177	78	1.25	20
811.XXX.200		200	201	219	98	1.5	20
811.XXX.250		250	251	277	116	1.5	20

STRAIGHT PIPE WITH ONE SOCKET TYPE 811



Type no.	Customer no.	D	X	Kg
811.015.040		40	150	0,20
811.025.040		40	250	0,29
811.050.040		40	500	0,68
811.075.040		40	750	0,78
811.100.040		40	1000	1,02
811.150.040		40	1500	1,50
811.200.040		40	2000	1,99
811.300.040		40	3000	2,96
811.400.040		40	4000	3,92
811.500.040		40	5000	4,89
811.600.040		40	6000	5,86

811.015.050		50	150	0,25
811.025.050		50	250	0,38
811.050.050		50	500	0,68
811.075.050		50	750	1,00
811.100.050		50	1000	1,25
811.150.050		50	1500	1,90
811.200.050		50	2000	2,45
811.300.050		50	3000	3,82
811.400.050		50	4000	5,06
811.500.050		50	5000	6,31
811.600.050		50	6000	7,56

811.015.075		75	150	0,41
811.025.075		75	250	0,58
811.050.075		75	500	1,00
811.075.075		75	750	1,50
811.100.075		75	1000	1,95
811.150.075		75	1500	2,75
811.200.075		75	2000	3,70
811.300.075		75	3000	5,78
811.400.075		75	4000	7,66
811.500.075		75	5000	9,54
811.600.075		75	6000	11,42

811.015.082		82	150	0,44
811.025.082		82	250	0,64
811.050.082		82	500	1,14
811.075.082		82	750	1,65
811.100.082		82	1000	2,15
811.150.082		82	1500	3,16
811.200.082		82	2000	4,17
811.300.082		82	3000	6,20
811.400.082		82	4000	8,22
811.500.082		82	5000	10,24
811.600.082		82	6000	12,26

811.015.110		110	150	0,61
811.025.110		110	250	0,87
811.050.110		110	500	1,50
811.075.110		110	750	2,15
811.100.110		110	1000	2,85
811.150.110		110	1500	4,30
811.200.110		110	2000	5,40

Continues on next page

STRAIGHT PIPE WITH ONE SOCKET TYPE 811

Type no.	Customer no.	D	X	Kg
Continued from previous page				
811.300.110		110	3000	8,34
811.400.110		110	4000	11,26
811.500.110		110	5000	14,02
811.600.110		110	6000	16,78

811.015.125		125	150	0,70
811.025.125		125	250	1,01
811.050.125		125	500	1,78
811.075.125		125	750	2,55
811.100.125		125	1000	3,32
811.150.125		125	1500	4,86
811.200.125		125	2000	6,40
811.300.125		125	3000	9,47
811.400.125		125	4000	12,55
811.500.125		125	5000	15,63
811.600.125		125	6000	18,71

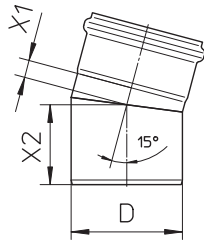
811.015.160		160	150	1,19
811.025.160		160	250	1,69
811.050.160		160	500	2,96
811.075.160		160	750	4,22
811.100.160		160	1000	5,48
811.150.160		160	1500	8,02
811.200.160		160	2000	10,54
811.300.160		160	3000	15,59
811.400.160		160	4000	20,64
811.500.160		160	5000	25,69
811.600.160		160	6000	30,74

811.015.200		200	150	1,96
811.025.200		200	250	2,77
811.050.200		200	500	4,62
811.075.200		200	750	6,47
811.100.200		200	1000	8,32
811.200.200		200	2000	15,71
811.300.200		200	3000	23,10

811.050.250		250	500	5,84
811.100.250		250	1000	10,47
811.200.250		250	2000	19,72
811.300.250		250	3000	28,97

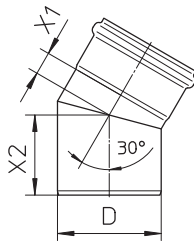
- Bends

BEND 15° TYPE 820.015



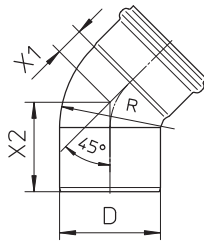
Type no.	Customer no.	D	X1	X2	Kg
820.015.040		40	11	53	0,12
820.015.050		50	14	54	0,15
820.015.075		75	16	66	0,28
820.015.082		82	12	64	0,30
820.015.110		110	20	78	0,47
820.015.125		125	14	84	0,56
820.015.160		160	23	99	1,08
820.015.200 S		200	23	123	1,99
820.015.250 S		250	30	136	3,03

BEND 30° TYPE 820.030



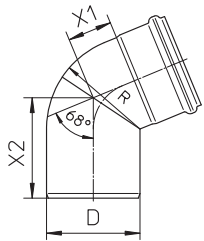
Type no.	Customer no.	D	X1	X2	Kg
820.030.040		40	14	55	0,13
820.030.050		50	18	57	0,16
820.030.075		75	20	71	0,28
820.030.082		82	18	70	0,32
820.030.110		110	28	85	0,51
820.030.125		125	23	98	0,63
820.030.160		160	34	110	1,19
820.030.200 S		200	37	137	2,20
820.030.250 S		250	48	153	3,35

BEND 45° TYPE 820.045



Type no.	Customer no.	D	X1	X2	R	Kg
820.045.040		40	17	58	40	0,13
820.045.050		50	21	60	50	0,17
820.045.075		75	28	76	75	0,30
820.045.082		82	25	80	82	0,34
820.045.110		110	38	93	110	0,56
820.045.125		125	53	111	125	0,73
820.045.160		160	49	131	172	1,55

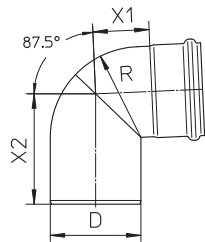
BEND 68° TYPE 820.068



Type no.	Customer no.	D	X1	X2	R	Kg
820.068.082		82	36	97	82	0,40
820.068.110		110	52	118	110	0,60

- Bends

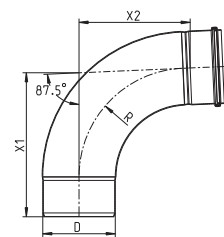
BEND 87.5° TYPE 820.090



Type no.	Customer no.	D	X1	X2	R	Kg
820.090.040		40	28	79	40	0,16
820.090.050		50	35	86	50	0,21
820.090.075		75	48	107	75	0,39
820.090.082		82	48	109	82	0,43
820.090.110		110	68	134	110	0,67
820.090.125		125	88	161	125	1,68
820.090.160		160	99	181	171	2,10

To comply with BS EN 12056 Gravity Drainage inside Buildings use 821 bend at offsets and base of stack.

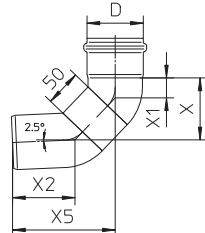
BEND, LARGE RADIUS 87.5° TYPE 820.090



Type no.	Customer no.	D	X1	X2	R	Kg
820.090.200 S		200	299	397	400	6,41
820.090.250 S		250	380	484	500	9,88

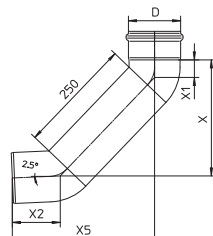
To comply with BS EN 12056 Gravity Drainage inside Buildings use 821 bend at offsets and base of stack.

BEND, LONG RADIUS 87.5° , 50 MM TYPE 821.000



Type no.	Customer no.	D	X	X1	X2	X5	Kg
821.000.050		50	72	22	72	120	0,30
821.000.075		75	85	27	86	141	0,50

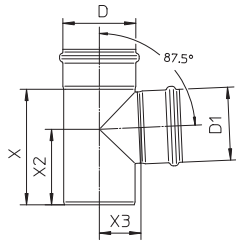
BEND, LONG RADIUS 87.5° , 250 MM TYPE 821.090



Type no.	Customer no.	D	X	X1	X2	X5	Kg
821.090.050		50	217	22	72	259	0,50
821.090.075		75	230	27	87	280	0,90
821.090.110		110	250	38	103	307	1,61
821.090.125		125	269	53	126	335	1,72
821.090.160		160	282	48	130	354	4,34

- Branches

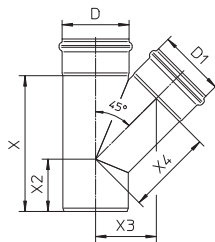
BRANCH 87.5° TYPE 830



Type no.	Customer no.	D	D1	X	X2	X3	Kg
830.040.040		40	40	97	69	24	0,22
830.040.050		50	40	102	71	31	0,26
830.050.050		50	50	101	71	31	0,27
830.050.075		75	50	134	98	44	0,44
830.050.082		82	50	123	86	47	0,47
830.050.110		110	50	127	93	61	0,64
830.075.075		75	75	134	90	47	0,50
830.075.082		82	75	149	99	50	0,57
830.075.110		110	75	147	104	65	0,76
830.075.125		125	75	182	110	72	0,94
830.082.082		82	82	157	103	51	0,61
830.110.110		110	110	178	117	64	0,88
830.110.125		125	110	200	127	71	1,25
830.110.160		160	110	230	152	88	1,84
830.125.125		125	125	215	135	77	1,17
830.160.160		160	160	282	184	98	2,40
830.160.200 S		200	160	285	186	116	3,45
830.200.200 S		200	200	325	206	120	4,17
830.200.250 S		250	200	344	220	147	5,50
830.250.250 S		250	250	399	245	144	6,53

To comply with BS EN 12056 Gravity Drainage inside Buildings, when using non reducing branch consider branch type 838, 848 or 839

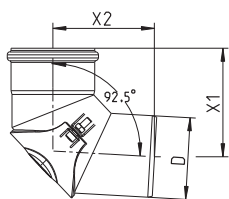
OBLIQUE BRANCH 45° TYPE 838



Type no.	Customer no.	D	D1	X	X2	X3	X4	Kg
838.040.040		40	40	114	58	42	59	0,25
838.040.040 S		40	40	114	58	42	59	0,25
838.040.050		50	40	157	55	47	67	0,30
838.050.050		50	50	123	57	50	71	0,32
838.050.075		75	50	139	56	63	89	0,48
838.050.082		82	50	144	57	68	97	0,54
838.050.110		110	50	142	42	81	114	0,70
838.075.075		75	75	174	74	74	105	0,64
838.075.082		82	75	180	75	77	109	0,70
838.075.110		110	75	177	60	92	130	0,88
838.075.125		125	75	195	65	96	136	1,32
838.082.082		82	82	190	80	80	113	0,75
838.110.110		110	110	228	88	102	144	1,16
838.110.125		125	110	245	90	106	149	1,50
838.110.160		160	110	252	80	128	180	2,11
838.125.125		125	125	268	103	117	165	1,49
838.160.160		160	160	322	115	151	216	3,04
838.160.200 S		200	160	351	123	172	242	4,37
838.200.200 S		200	200	407	151	189	266	5,47
838.200.250 S		250	200	424	141	212	299	6,61
838.250.250 S		250	250	504	177	230	326	8,57

- Access pipes and bends

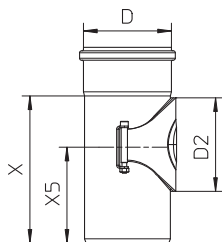
BEND 87.5° WITH ACCESS TYPE 822



Type no.	Customer no.	D	X1	X2
822.090.075		75	52	102
822.090.110		110	75	132
822.090.160		160	106	205

For gravity

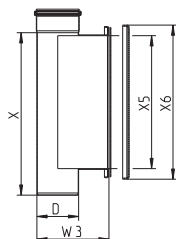
PIPE WITH ACCESS TYPE 840



Type no.	Customer no.	D	D2	X	X5
840.075.075		75	80	134	92
840.110.110		110	120	188	123
840.111.110		110	120	248	187
840.125.125 S		125	120	190	128
840.160.160		160	120	271	208
840.200.200 S		200	120	281	208

For gravity

PIPE WITH ACCESS TYPE 840.000

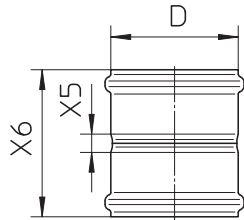


Type no.	Customer no.	D	W3	X	X5	X6
840.000.110 S		110	190	430	350	406
840.000.160 S		160	265	495	400	456
840.000.200 S		200	330	610	500	556
840.000.250 S		250	405	735	600	656

For below ground

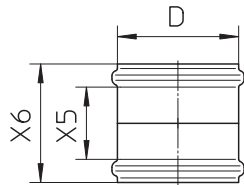
- Sockets

DOUBLE COUPLING TYPE 841



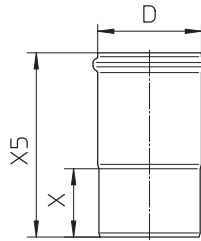
Type no.	Customer no.	D	X5	X6	Kg
841.040.040		40	20	104	0,13
841.050.050		50	13	97	0,15
841.075.075		75	20	120	0,26
841.082.082 S		82	20	124	0,31
841.110.110		110	16	130	0,45
841.125.125		125	20	140	0,54
841.160.160		160	20	162	1,05
841.200.200 S		200	20	200	1,85
841.250.250 S		250	30	246	3,11

DOUBLE SLIP COUPLING TYPE 842



Type no.	Customer no.	D	X5	X6	Kg
842.040.040 S		40	76	104	0,13
842.050.050 S		50	71	97	0,12
842.075.075 S		75	91	120	0,21
842.082.082 S		82	95	124	0,31
842.110.110 S		110	97	130	0,45
842.125.125 S		125	104	140	0,47
842.160.160 S		160	118	162	1,05
842.200.200 S		200	147	200	1,82
842.250.250 S		250	173	264	3,11

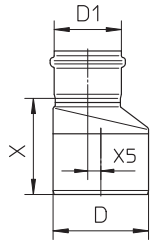
EXPANSION SOCKET TYPE 843



Type no.	Customer no.	D	X	X5	Kg
843.095.040		40	51	150	0,17
843.105.050		50	52	159	0,21
843.115.075		75	57	175	0,36
843.125.110		110	74	200	0,57
843.140.125		125	94	240	0,81
843.182.160		160	116	292	1,55

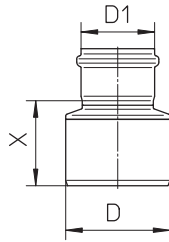
- Increasers and reducers

INCREASER ECCENTRIC TYPE 850



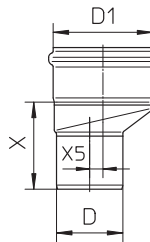
Type no.	Customer no.	D	D1	X	X5	Kg
850.040.050 S		50	40	81	5	0,16
850.050.075		75	50	82	7	0,22
850.050.075 S		75	50	82	7	0,22
850.050.082 S		82	50	92	14	0,25
850.050.110		110	50	108	25	0,38
850.050.110 S		110	50	108	25	0,38
850.075.110		110	75	111	15	0,42
850.075.110 S		110	75	111	15	0,42
850.075.160		160	75	172	37	1,20
850.075.160 S		160	75	172	37	1,20
850.082.110 S		110	82	106	11	0,43
850.110.125 S		125	110	105	8	0,49
850.110.160		160	110	135	22	1,06
850.110.160 S		160	110	135	22	1,06
850.125.160 S		160	125	135	18	0,95
850.160.200 S		200	160	162	20	1,67
850.200.250 S		250	200	188	25	2,57

INCREASER CONCENTRIC TYPE 850



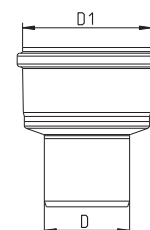
Type no.	Customer no.	D	D1	X	Kg
850.050.075 CS		75	50	77	0,20
850.050.110 CS		110	50	89	0,30
850.075.082 CS		82	75	91	0,29
850.075.110 C		110	75	90	0,37
850.075.110 CS		110	75	90	0,37
850.082.110 CS		110	82	104	0,40
850.110.125 CS		125	110	98	0,52
850.110.160 CS		160	110	112	1,00
850.125.160 CS		160	125	140	1,00
850.160.200 CS		200	160	164	1,51
850.160.250 CS		250	160		1,99
850.200.250 CS		250	200	168	1,98

REDUCER ECCENTRIC TYPE 850



Type no.	Customer no.	D	D1	X	X5	Kg
850.075.050 S		50	75	79	7	0,28
850.110.050 S		50	110	94	25	0,50
850.110.075 S		75	110	98	15	0,55
850.160.110 S		110	160	117	22	1,08
850.110.082 S		82	110	98	11	0,29
850.125.110 S		110	125	93	8	0,49
850.160.125 S		125	160	132	18	0,97
850.200.160 S		160	200	146	20	1,77
850.250.200 S		200	250	181	25	2,78

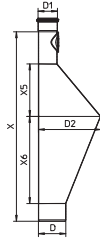
REDUCER CONCENTRIC TYPE 850



Type no.	Customer no.	D	D1	Kg
850.050.040 C		40	50	0,20

- Rat stops

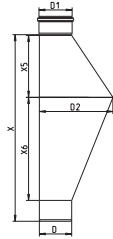
RAT STOP WITH ACCESS TYPE 891



Type no.	Customer no.	D	D1	D2	X	X5	X6
891.075.110 S		110	75	250	759	210	350
891.110.110 S		110	110	250	809	210	350
891.125.125 S		125	125	250	831	210	350

For gravity

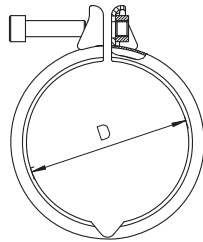
RAT STOP WITHOUT ACCESS TYPE 892



Type no.	Customer no.	D	D1	D2	X	X5	X6
892.075.110		110	75	250	672	210	350
892.110.110		110	110	250	635	210	350

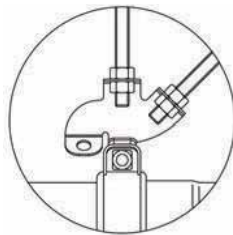
Clamps

PIPE JOINT CLAMP TYPE 847



Type no.	Customer no.	D
847.040.040		40
847.050.050		50
847.075.075		75
847.082.082		82
847.110.110		110
847.125.125		125
847.160.160		160
847.200.200		200
847.250.250		250

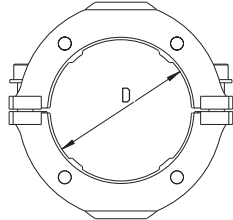
CROSS RAKING FIXING FOR PIPE JOINT CLAMP TYPE 847



Type no.	Customer no.
847.000.000	

Pipework system fitted with this product is suitable for up to +3 bar pressure and -0,85 bar vacuum

PRESSURE PEAK PIPE JOINT CLAMPS TYPE 847.001



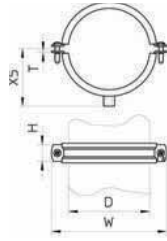
Type no.	Customer no.	D
847.001.040		40
847.001.050		50
847.001.075		75
847.001.082		82
847.001.110		110
847.001.125		125
847.001.160		160

If the system is designed to resist peak pressure then clamps must be fitted on all joints.
 Pipework D=40mm - D=110mm can withstand brief pressure peak up to +10 bar and D=125mm - D=160mm up to +7 bar when fitted with pressure peak pipe joint clamps

Pipe hangers

PIPE HANGER WITH EPDM RUBBER TYPE 895.401

IN GALVANIZED STEEL



Type no.	Customer no.	D	H	W	X5	T
895.401.040		40	20	75	34	1.25
895.401.050		50	20	85	45	1.5
895.401.075		75	23	126	61	2
895.401.110		110	25	160	79	2.5
895.401.125		125	23	173	85	2.5
895.401.160		160	25	233	102	3
895.401.200		200	25	273	122	3
895.401.250		250	38	342	163	4

D=75mm fits D=82mm as well.

MANUAL PIPE CUTTER

Cutting is done by a special disc cutter, which cuts and grips at the same time.

N.B.: Do not cut fittings.



Type no.	Customer no.	Designation
006.050.110		Manual pipe cutter (40 - 110 mm)
006.125.200		Manual pipe cutter (110 - 200 mm)
006.200.315		Manual pipe cutter (200 - 315 mm)
006.000.005		Spindle for pipe cutter 006.050.110
006.000.000		Cutting disc for pipe cutter 006.050.110
006.000.001		Cutting disc for pipe cutter 006.125.200

ELECTRICAL PIPE CUTTER

Cutting time:
Seconds.

Changeover time:
Changeover from one cutting disc to another can be effected within a matter of seconds.

Cutting quality:
The cutting motion has been developed to produce a bevelled leading edge to cut ends. As a result only the application of BLÜCHER jointing lubricant is required prior to jointing cut ends.

Power supply:
110 Volt/Min 2 kVA/60 Hz or 220 Volt/50 Hz.

Pipe diametres:
50-160 mm

N.B.: Do not cut fittings.



Type no.	Customer no.	Designation
800.050.160 GB		Electrical pipe cutter 110 V, 16 A
800.030.006		Cutting disc
006.050.160		Support base for electrical pipe cutter

CUTTING OIL/JOINTING LUBRICANT

Jointing lubricant is applied to make jointing a simple action. After a few days the lubricant will dry out and lose its lubricity making subsequent demounting of a joint difficult. If subsequent demounting of joints can be envisaged then we can supply a silicone based lubricant that will not dry out. BLÜCHER jointing lubricant is based on a mild and harmless liquid detergent that is biologically degradable. BLÜCHER cutting oil is recommended for use with BLÜCHER EuroPipe pipe cutters.



Type no.	Customer no.	Designation
007.000.000		Atomizer
007.100.050		Jointing lubricant 0.5 L
007.500.050		Cutting oil 0.5 L

Stainless steel



- Long product life
- Fire resistant
- Lightweight
- Hygienic

Long product life

- Corrosion resistant
- Resistant to impact damages
- Resistant to temperature variations

Fire resistant

- Non combustible
- No need for special fire insulation
- No toxic fumes are released in the event of a fire

Light-weight

- Low weight - high strength
- Weight only one third of cast iron
- Large pipes are easily handled by one man

Hygienic

- Low surface roughness
- High flow capacity
- Smooth surface prevents bacterial growth
- Smooth surface prevents blockages

Available in stainless steel AISI304/EN 1.4301 or AISI316L/EN 1.4404

Material properties of stainless steel

What is stainless steel?

The designation stainless steel covers a wide range of alloys with different properties. One property common to all stainless steels is that they contain at least 12% chromium.

The stainless steels can be divided into three main groups and a few mixed types according to the structure of the steel:

- Austenitic stainless steel
- Ferritic stainless steel
- Martensitic stainless steel

Austenitic stainless steel is the most important, representing approx. 90% of total stainless steel consumption. Austenitic steel is also the only stainless steel suitable for drainage installations, and it is, of course, the type used by BLÜCHER.

Importance of alloying elements

Austenitic stainless steel contains at least 18% chromium and 8% nickel – thus the well-known designation »18/8« steel. Corrosion resistance generally increases with increasing content of chromium. In alloys with 12-13% chromium, the passive layer is strong enough to prevent the steel from corroding in normal or mildly aggressive media. The main effect of the alloying element nickel is on the structure of the steel and its mechanical properties. The steel's structure is austenitic with an adequate content of nickel. In contrast to the pure chromium steels (ferritic stainless steel), this results in significant changes in the mechanical properties, such as increased workability and ductility, better resistance to thermal stress and improved weldability. The austenitic structure also results in a change in the physical properties of the steel. For example, the steel is not magnetic and has higher thermal conductivity.

Material Specification

Material	AISI 316 L 1.4404	AISI 304 1.4301
Analysis		
Carbon (C %)	Max. 0,03	Max. 0,07
Chromium (Cr %)	16,5 - 18,5	17,0 - 19,0
Nickel (Ni %)	11,0 - 14,0	8,5 - 10,5
Molybdenum (Mo %)	2,0 - 2,5	-
Manganese (Mn %)	Max. 2,0	Max. 2,0
Silicium (Si %)	Max. 1,0	Max. 1,0
Sulphur (S %)	Max. 0,030	Max. 0,030

Physical Properties

Structure	Austenitic (nonmagnetic)	Austenitic (nonmagnetic)
State	Non-annealed	
Specific gravity (g/cm ³)	7,98	7,9
Melting point (°C)	Ca. 1400	Ca. 1400
Decortication temperature in air (°C)	800 - 860	800 - 860
Expansion coefficient 20 - 100 °C (m/m · °C)	16,5 x 10 ⁻⁶	16,5 x 10 ⁻⁶
Specific resistance (20° C) (Ohm · mm ² /m)	0,75	0,73
Heat conductivity (20°C) (W/°C-m)	15	15
Specific heat (J/g · k)	0,5	0,5

Mechanical Properties

Ultimate tensile strength (Rm) (N/mm ²)	490 - 690	500 - 700
Yield point (Rpo2) (N/mm ²)	190	195
Modulus of elasticity (E) (20° C) (N/mm ²)	2,0 x 10 ⁵	2,0 x 10 ⁵
Hardness Brinell (HB) (N/mm ²)	120 - 180	130 - 180

Nickel also increases resistance to corrosion caused by certain media. Molybdenum has the same effect on the structure as chromium, but it also has a strongly positive influence on corrosion resistance. Molybdenum-containing steel is normally designated »acid-resistant« because of the resistance of these steels to certain types of acids. But acid-resistant stainless steel will also have limited resistance to some media such as chlorine-containing media (see table of resistance).

Why is steel »stainless«?

The addition of chromium to the steel results in the formation of a passivating oxide film with a high content of chromium oxides.

This oxide film protects the surface of the steel against oxygen in air and water. An outstanding property of stainless steel is that the chromium oxide film automatically regenerates if the surface of the steel is exposed.

This restitution of the oxide film can only occur if the surface of the steel is completely clean and free of tempering agents and slag from welding processes and residues from tools made from ordinary carbon steel.

If this surface contamination is not removed, the steel may ultimately corrode. To prevent this, the steel surfaces should be cleaned after welding and processing, e.g. by means of so-called acid pickling of the stainless steel.

The pickling effectively removes all impurities from the surface of the steel and permits the reestablishment of a strong, uniform chromium oxide film. The pickling bath normally consists of 0.5-5% v/v HF (hydrofluoric acid) and 8-20% v/v HNO₃ (nitric acid) at a temperature of 25-60°C. This acid bath removes residues, the existing chromium oxide film and traces of iron, leaving the clean steel surface. The restitution of a strong chromium oxide film starts in the subsequent rinsing in water.

CHEMICAL RESISTANCE TABLE

The table is based on laboratory experiments with chemically pure sub-stances. The values should therefore be regarded as for guidance only.

A = Very good service to operating limit of material B = Moderate service C = Limited or variable service D = Unsatisfactory	AISI 316 L Stainless	AISI 304 Stainless	EPDM	NBR	FFM
Acetone	A	A	A	D	D
Acetic acid (dilute.) 30% or 50%	A	A	A	B	B
Acetic acid 100%	A	A	A	C	C
Acetic anhydride	A	A	B	C	D
Aluminium chloride	D	D	A	A	A
Aluminium sulfate	A	D	A	A	A
Ammonium carbonate	A	A	A	D	-
Ammonium chloride/salmiac	B	C	A	A	-
Ammonium hydroxide	A	A	A	D	B
Amyl chloride	A	A	-	-	-
Aniline	A	A	B	D	C
Anilin hydrochloride	D	D	B	B	B
Barium chloride	B	B	A	A	A
Barium hydroxide	A	A	A	A	A
Benzaldehyde	A	A	A	D	D
Benzene	A	A	D	D	A
Benzoic acid	A	A	-	-	A
Borax/sodium borat	A	A	A	B	A
Boric acid	A	A	A	A	A
Bromine	D	D	-	-	A
Bromine chloride	D	D	A	B	A
Bromoethylene/vinyl bromide	A	A	-	-	-
Butanol	A	A	D	A	A
Butyl acetat	A	A	B	-	D
Butyric acid	A	A	-	-	-
Calcium bisulfate	A	A	D	A	A
Calcium chloride	B	B	A	A	A
Calcium hydroxide	A	A	A	A	A
Calcium hypochlorite	B	C	A	C	A
Carbon disulfide	A	A	-	-	-
Carbon tetrachloride	A	A	D	C	A
Chloroacetic acid (Mono)	D	D	B	-	-
Chlorine (dry)	A	A	-	-	A
Chlorobenzene	A	A	D	D	A
Chlorosulfonic acid	B	C	D	D	C
Copper chloride	B	B	A	A	A
Copper nitrate	A	A	-	-	-
Copper sulfate	A	A	A	A	A
Ether	A	A	-	-	-
Ethyl chloride	A	A	A	A	A
Fatty acid	A	A	D	B	A
Fluorine (dry)	A	A	-	-	-
Hydrofluoric acid	D	D	B	D	A
Formaldehyde	A	A	A	B	A
Formic acid	A	A	A	B	C
Furfural	A	A	B	D	D
Gallic acid	A	A	B	B	A
Hydrobromic acid	D	D	A	D	A
Hydrochloric acid	D	D	A	D	A
Hydrogen peroxide	A	A	C	D	B
Iodine (wet)	D	D	-	-	-
Kloroform	B	B	D	D	A
Lead acetate	A	A	A	B	-
Magnesium chloride	B	B	A	A	A

VALUES TO BE REGARDED AS FOR GUIDANCE ONLY

A = Very good service to operating limit of material B = Moderate service C = Limited or variable service D = Unsatisfactory	AISI 316 L Stainless	AISI 304 Stainless	EPDM	NBR	FFM
Magnesium sulfate	A	A	A	A	A
Mercury	A	A	A	A	A
Methanol	A	A	A	A	C
Methyl chloride	A	A	C	D	A
Methylene chloride	B	B	D	D	B
Natphalene	A	A	D	-	A
Nickel chloride	B	B	A	A	A
Nickel sulfate	A	A	A	A	A
Nitric acid	C	C	C	D	A
Oxalic acid	C	C	A	B	A
Perchloric acid	D	D	B	-	A
Phosphoric acid	A	A	B	D	A
Picric acid	A	A	B	B	A
Potassium bromide	A	A	-	-	-
Potassium carbonate	A	A	-	-	-
Potassium chlorate	A	A	-	-	-
Potassium cyanide	A	A	A	A	A
Potassium hydroxide	A	A	A	B	B
Potassium nitrate	A	A	A	A	A
Potassium permanganate	A	A	-	-	-
Potassium sulfate	A	A	A	A	A
Potassium sulfide	A	A	-	-	-
Potassium chloride	B	B	A	A	A
Propylene dichloride	A	A	-	-	-
Silver nitrate	A	A	A	B	A
Soda (ash)/sodium	A	A	-	-	-
Sodium acetate	A	A	A	B	D
Sodium bicarbonate	A	A	A	A	A
Sodium bisulfate	A	C	-	-	-
Sodium bisulfite	A	A	A	A	A
Sodium bromide	B	B	-	-	-
Sodium chlorate	A	A	-	-	-
Sodium chloride	D	D	-	-	-
Sodium cyanide	A	A	A	A	A
Sodium fluoride	A	A	-	-	-
Sodium hydroxide	A	A	A	B	B
Sodium hypochlorite	D	D	B	B	A
Sodium nitrate	A	A	A	B	-
Sodium sulfate	A	A	A	A	A
Sodium sulfide	A	A	-	-	-
Sodium sulfite	A	A	-	-	-
Stannous chloride/tin chloride	B	C	B	A	A
Sulfur	A	A	A	D	A
Sulfur chloride	A	A	D	C	A
Sulfur dioxide	A	B	A	D	A
Sulfuric acid	D	D	B	D	A
Sulfurous acid	A	C	B	B	A
Thionyl chloride	A	A	D	-	A
Toluene/toluol	A	A	D	D	A
Trichloroethylene	A	A	D	C	A
Turpentine	A	A	D	A	A
Xylene/xylool	A	A	-	-	-
Zinc sulfate	A	A	-	-	-

VALUES TO BE REGARDED AS FOR GUIDANCE ONLY

Assumptions: 20°C room temperature

References

Corrosion Data Survey, 1969 Edition, Nace
Corrosion Tables, Stainless Steels, 1979, Jernkontoret
Chemical Resistance of Plastic Piping Materials, Cabot Corporation, 1979

PLEASE NOTE!

Concentration level, length of exposure, temperature and in particular the combination of several chemicals have a direct influence on the resistance of stainless steel to certain chemicals.

Each application should therefore be carefully reviewed to determine the suitability of stainless steel.

In particular, be careful with the use of hydrous cleaning agents containing compounds of chlorine.

Material properties of rubber seals

Rubber types

International designation	EPDM	NBR	FPM
Rubber type	Ethylene propene	Nitrile	Fluorine (Viton)
Nominal hardness IRHD	60 (+/-5)	60 (+/-5)	60 (+/-5)
Colour	Black	Black/yellow dot	Purple
Tensile strength MPa	≥ 10 N/mm ²	≥ 10 N/mm ²	≥ 8 N/mm ²
Elongation after fracture %	≥ 300%	≥ 300%	≥ 260%
Max. temperatur range	-35/+100° C	-30/+80° C	-25/+200° C

Resistance

Wearability	B	B	B
Resistance to mineral oil	D	A	A
Resistance to vegetable oil	B	A	A
Resistance to benzene/petrol	D	A	A
Resistance to aromatic compounds and hydrocarbons	D	B	A
Resistance to ketones	A	D	D
Resistance to ordinary diluted acids and alkalines	A	A	A
Resistance to ozone and weather stresses	A	C	A
Resistance to air diffusion	D	C	A

A = Very good service - B = Moderate service - C = Limited or variable service - D = Unsatisfactory

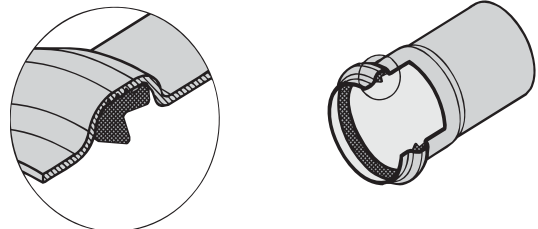
A lip sealing ring constitutes the seal between socket and spigot end. The lip sealing ring ensures quick and efficient jointing of the pipe system while providing a tight seal in case of both pressure and vacuum. The BLÜCHER® sealing rings are available in three different rubber qualities.

EPDM This sealing ring is black and made of ethylene propylene diene monomer rubber. This is BLÜCHER's standard sealing ring and it is suitable for all rainwater and waste water installations where there is no oil or petrol residues in the waste water. The EPDM lip seal is a good all-round rubber quality suitable for a wide range of applications.

NBR This sealing ring is black with a yellow spot and made from nitrile butadiene rubber and is the sealing ring to be used where there are petrol or oil residues in the waste water (e.g. in connection with oil and petrol separators at service stations, garages etc.). The NBR lip seal should not be used where there is a risk of temperatures above 80°C. NBR is not resistant to solvents.

FPM This sealing ring is purple and made from fluorine rubber (Viton®). This is BLÜCHER's sealing ring for special applications. The material is particularly heat-resistant and resistant to oil, solvents and strong acids. However, the FPM seal has only limited resistance to e.g. butyl acetate, acetone and methyl alcohol.

For advice regarding the suitability of the different rubber qualities, consult BLÜCHER.



Approvals

BLUCHER has its own testing facilities and cooperates with internationally recognised independent institutes. At BLUCHER we also play an active part in setting international standards.

The functionality of our products has been documented by test reports and approvals from international institutes such as sitac (SE), LGA (DE), BBA (UK), VTT (FI), ETA (DK) etc.

All pipes and channels are CE marked.

For a complete list of all current product approvals we refer to www.blucher.co.uk

Fruthermore, we use approved institutes for fire and sound testing, for instance DTI (DK) and Fraunhofer institut (DE)

All production is carried out in Denmark in accordance with ISO 9001.

Maintenance

BLUCHER stainless steel drainage products require only a minimum of maintenance.

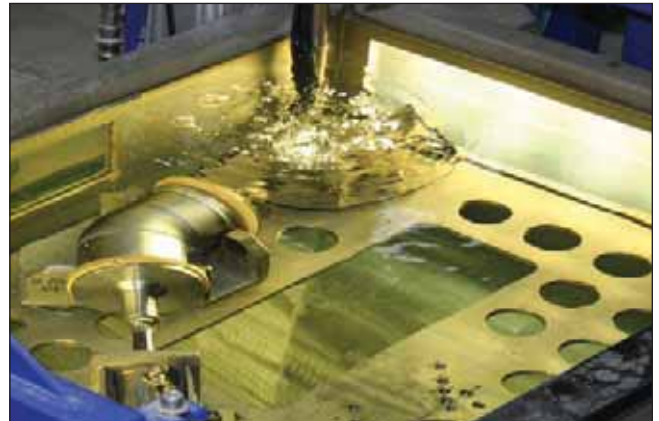
The smooth, acid-pickled surface retains its uniform matt silver in most environments such as wet rooms, bathrooms and kitchens. However, in particularly demanding environments such as the food industry, laboratories, the chemical industry and agriculture, it may be necessary to clean the installation to avoid formation of coatings which can cause subsequent corrosion.

Cleaning can for instance be done by means of high pressure flushing. In some cases it may be necessary to use diluted citric acid. After use take care to rinse with plenty of water.

Please also notice that particularly aggressive and hazardous substances should be collected in containers and disposed of in another way and not through the drainage system.

Production

Excellent workmanship, common sense and the most sophisticated production technology are combined to ensure the highest quality in our products.



All BLÜCHER® products are tested for leakages before leaving the factory



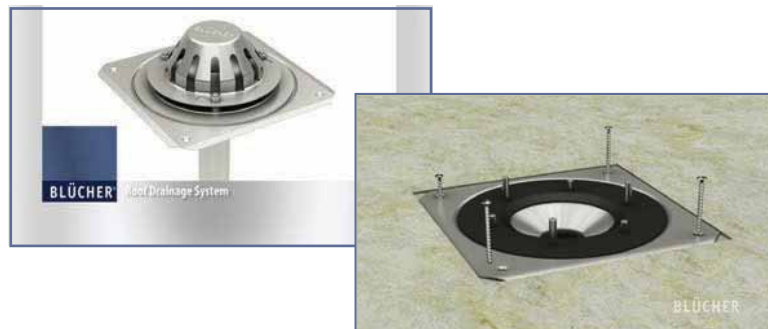
The most modern piping machinery in Europe

Installation video at www.blucher.com

As a supplement to the printed installation instructions for the BLÜCHER® roof drainage system, an installation video is available at www.blucher.com (select the tab "Installation").

BLÜCHER® Roof Drainage System

Introduction to use and installation instructions



BLÜCHER®

At BLÜCHER® more than 300 employees create an annual turnover of more than 50 million euro.

Through know-how, dedicated service and common sense we develop, produce and market high quality stainless steel drainage solutions for customers within the housing, commercial, industrial and marine sectors all over the world.

Find your local BLÜCHER® specialist at www.blucher.com

BLÜCHER® EuroPipe

BLÜCHER® Channel

BLÜCHER® Drain



KEEPING UP THE FLOW

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