

Pipe Drainage



ACO Pipe®

Technical Handbook and Product Catalogue

ACO Pipe® Stainless Steel Socketed Pipe Systems



The ACO Group

Throughout the world ACO branded drainage and surface water management systems are recognised for their innovative design, high quality manufacture, environmental excellence and industry leading performance.

Today the ACO Group has a research and production base that reaches across four continents. This unmatched resource pioneers the development of solutions that are tailored to individual applications, meeting the need for high performance, sustainable products that deliver optimum value throughout their operational life.



ACO Limited Head Office and warehouse in Mangere, Auckland

ACO Limited

ACO Limited is part of the ACO Group, a multinational company specialising in products for storm and waste water management.

ACO introduced the concept of modular Polymer Concrete surface drainage systems to New Zealand over 25 years ago. Today ACO Limited in New Zealand is a sales and marketing company with access to ACO's global strong manufacturing bases. Established in 2012, ACO uses a variety of materials for its extensive range of surface water drainage, utility enclosure, building drainage and residential products.

Today, ACO manufactures a range of drainage and landscape products from polymer concrete, stainless steel, mild steel, ductile iron and moulded plastics. These diverse material types are used to produce components for all applications - commercial and residential construction, as well as electromechanical engineering and environmental protection.

ACO. creating the future of drainage

System Chain

As market leader, ACO is constantly innovating to bring new products to the NZ market. ACO NZ has access to the ACO group's fully established R&D department responsible for continuous development, quality and testing to ensure ACO products continue to lead the market.



Service Chain

ACO NZ offers onsite support for all aspects of the business - from specification advice to installation expertise. Through dedicated training programs, ACO is recognised for providing architects and engineers surface drainage education.



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Introduction

ACO Pipe® stainless steel socketed pipe systems provide the modern metal alternative to PVC and HDPE soil and waste pipework. The range is compatible with ACO floor drains, channel systems and stormwater drainage products, which make up the complete portfolio for building drainage.

ACO Pipe® is manufactured from austenitic stainless steel grade 316 and stainless steel grade 304. All products are chemically pickled and passivated for optimum durability and corrosion resistance.

ACO Pipe® pipes and fittings are available in 50mm, 75mm, 110mm, 125mm, 160mm, 200mm, 250mm and 315mm external diameters with standard lengths from 0.15m up to 6m for optimum practicality and ease of assembly.

Key benefits

1. Comprehensive range.
2. Ease of installation – components are lightweight and push fit for quick assembly.
3. Optimum joint integrity – components have a low coefficient of thermal expansion compared with HDPE (in particular) which tends to fail when operating temperatures exceed 60°C.
4. Superior double seal for security.
5. Long service life – components manufactured from grade 316 stainless steel for high corrosion resistance and low on-going maintenance.
6. Quality design and manufacture.
7. Connection adaptability – components are suitable for either push-fit or weld-up connection methods.

Features

Features

Stainless steel, grade 316

- Cost competitive alternative to HDPE, cast iron and aluminium alloy systems.
- Excellent corrosion resistance ensures a long design life.
- Non combustibility of stainless steel aids in the management of fire containment through walls and compartments.
- Non-hazardous material.
- Weather proof and available in an electropolished finish to special order.
- Revit models are available from www.acopipe.com.au

Thermal movement

ACO Pipe® stainless steel components have a low coefficient of thermal expansion.

A comparison of approximate thermal movement between different pipe materials (in mm per m) with a temperature change of 60°C is given below.

Material	mm / m
Aluminium Alloy	1.44
Copper	0.98
Grey Cast Iron	0.75
HDPE	9.00
PVCu	3.00
Stainless Steel	0.99

Reference standards

ACO Pipe® is designed, manufactured, tested and checked according to the standards EN 1124-1 and EN 1124-2: Pipes and fittings of longitudinally welded stainless steel pipes with spigot and socket for waste water systems. Additionally, ACO Pipe® has been assessed and complies to AS 3495: *Stainless steel non pressure pipes and fittings*.

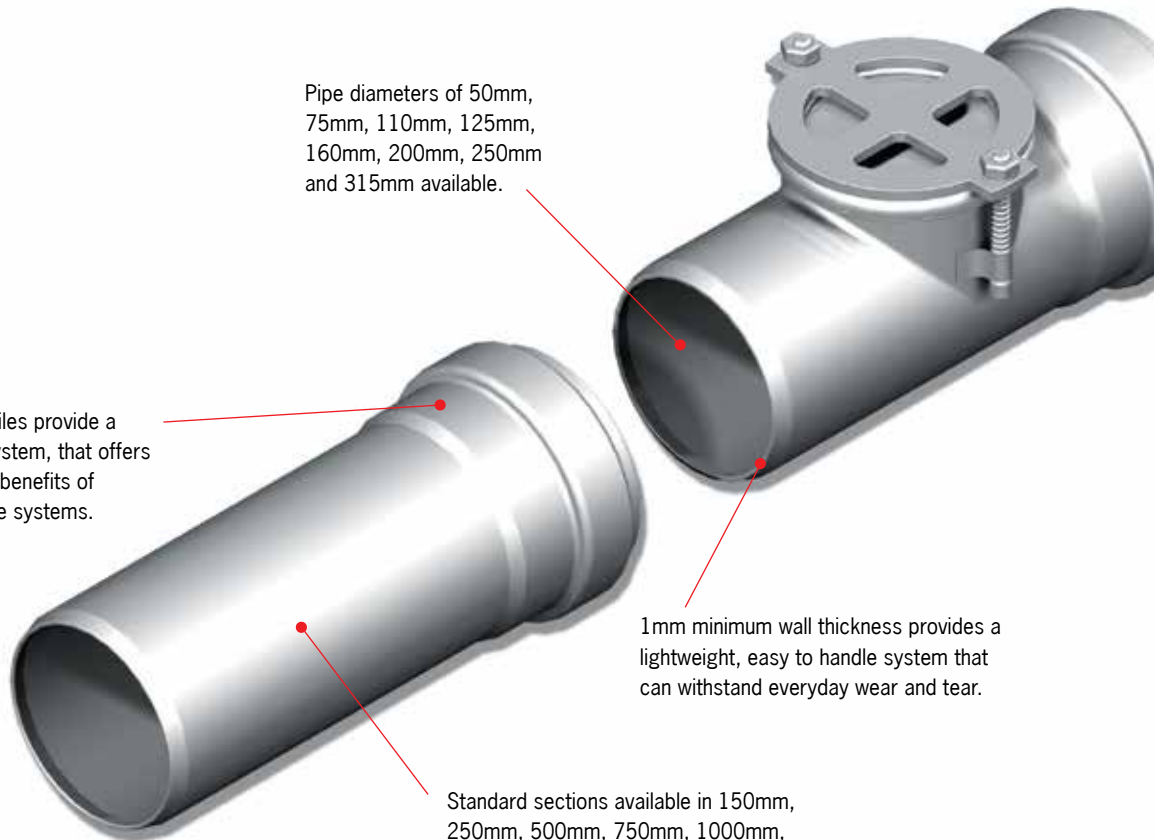


Pipe diameters of 50mm, 75mm, 110mm, 125mm, 160mm, 200mm, 250mm and 315mm available.

Socketed end profiles provide a modular push-fit system, that offers all the time saving benefits of traditional PVC pipe systems.

1mm minimum wall thickness provides a lightweight, easy to handle system that can withstand everyday wear and tear.

Standard sections available in 150mm, 250mm, 500mm, 750mm, 1000mm, 1500mm, 2000mm, 2500mm, 3000mm, 4000mm, 5000mm and 6000mm lengths for optimum practicality of handling and freight.



All components are manufactured using advanced cold forming techniques which minimise the amount of welding required.

A full range of angles, branches, accessories and installation devices reduce the amount of on-site cutting and installation time.

A 10° bevel facilitates easy push fit connection of sections. Where required, all joints can be fully circumferentially welded for extra security.

A unique double lip seal on all joints ensures a trouble-free, reliable system.



Project Planning

Design and maintenance tips

- Perform a risk assessment of the installation to assess the consequences of flooding due to blockages of silt and scale build up within the pipe system. Repeat this assessment for unexpected hydraulic demands due to accidental spillage, thunderstorms and extraneous events.
 - Perform the necessary risk assessment if the system is likely to be subjected to thermal shock. Within design limits, ACO Pipe® is particularly tolerant of sudden temperature changes without risk of damage.
 - Avoid selecting pipe sizes that are at, or close to, their hydraulic capacities, as the long-term effects of silt and scale can reduce a system's hydraulic capacity over time.
 - For stormwater applications, check the geographical location to confirm the design rainfall intensity.
 - Confirm the actual gradient of the installed pipe system. A level (or nearly level) gradient will have a reduced hydraulic performance compared to installations with defined gradients.
 - Assess the fluids to be drained in the system to avoid corrosion of the pipe and/or seals. Checklist as follows:
 - Identify each chemical contained in the fluid.
 - Establish chemical concentration(s).
 - Confirm maximum temperature of the solution.
- Given the above information, the correct seal (see page 34) can be selected.
 - Design the system with the minimum number of joints and limit the number of bends. This will help to reduce both costs and hydraulic losses.
 - Provide good access points for cleaning/rodding to maintain the hydraulic performance of the system.
 - Care should be taken to avoid damage, both during and after installation, as dents and kinks will affect the hydraulic performance. For above ground applications, damage will also affect the system's aesthetics.

The following standards will assist designers select the correct size of pipe system for a particular application:

EN 12056: *Gravity Drainage Systems Inside Buildings.*

EN 752: *Drain and Sewer Systems Outside Buildings.*

Refer to pages 8 and 9 for hydraulic data for ACO Pipe®.



Pipework support

Installation should be in accordance with the manufacturer's recommendations, EN 12056-2, EN 12056-3 and EN 752.

Designers must ensure that all pipework is supported with brackets according to the requirements of AS/NZ 3500 (see page 35).

Pipe weights

Engineers should be aware of minimum and maximum weights when designing vertical stack and horizontal pipe run systems (see page 35).



Maintenance

Advice is often sought regarding the frequency of cleaning stainless steel. Generally, it is usually acceptable to only clean the metal when it is dirty to restore its original appearance. This may vary from one to four times a year for external applications or it can be daily in hygienic or aggressive environments.

Stainless steel is easy to clean. Washing with soap or mild detergent and warm water, followed by a clear water rinse is usually quite adequate for many industrial applications. An enhanced aesthetic appearance will be achieved if the cleaned surface is finally wiped dry.

If professional maintenance is required (e.g. for building upgrades), stainless steel can be mechanically cleaned or electropolished by specialists on site.

See page 38 for more information on care and maintenance.

Operating pressures

The ACO Pipe® socketed stainless steel pipe systems are fitted with a unique, double lip seal, manufactured from either EPDM, NBR or FPM. The double lip seal arrangement provides added security for the ultimate long term reliability. The ACO Pipe® socketed stainless steel pipe systems are tested and approved for operating pressures in gravity, siphonic and vacuum systems.

ACO Pipe® stainless steel pipe systems are designed for maximum working pressure 0.5 bar according to EN 1124. In cases where higher pressure may apply, it is necessary to combine the system with socket clamps.

Operating pressure		
Pipe diameter [mm]	Without socket clamp [bar]	With socket clamp [bar]
50	-0.8 – 0.5	-0.8 – 2.0
75	-0.8 – 0.5	-0.8 – 2.0
110	-0.8 – 0.5	-0.8 – 2.0
125	-0.8 – 0.5	-0.8 – 2.0
160	-0.8 – 0.5	-0.8 – 1.0
200	-0.8 – 0.5	-0.8 – 1.0
250	-0.8 – 0.5	-0.8 – 1.0
315	-0.8 – 0.5	-0.8 – 1.0

Project Planning

Full bore flow rate tables for varying gradients for rainwater/storm drainage applications

Flow rates based on Colebrook-White formula.

Roughness coefficient $k_s = 0.6$ mm

Gradient [%]	Pipe ø 50 mm		Pipe ø 75 mm		Pipe ø 110 mm		Pipe ø 125 mm	
	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]
10.0	2.74	1.52	8.40	2.01	23.81	2.60	33.61	2.83
7.5	2.38	1.31	7.28	1.74	20.62	2.25	29.11	2.45
5.0	1.94	1.07	5.94	1.42	16.83	1.84	23.77	2.00
4.5	1.84	1.02	5.64	1.35	15.97	1.74	22.55	1.90
4.0	1.73	0.96	5.31	1.27	15.06	1.64	21.26	1.79
3.5	1.62	0.90	4.97	1.19	14.08	1.54	19.88	1.67
3.0	1.50	0.83	4.60	1.10	13.04	1.42	18.41	1.55
2.5	1.37	0.76	4.20	1.00	11.90	1.30	16.80	1.41
2.0	1.23	0.68	3.76	0.90	10.64	1.16	15.03	1.26
1.5	1.06	0.59	3.25	0.78	9.22	1.01	13.01	1.10
1.0	0.87	0.48	2.66	0.63	7.53	0.82	10.63	0.89

Gradient [%]	Pipe ø 160 mm		Pipe ø 200 mm		Pipe ø 250 mm		Pipe ø 315 mm	
	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]
10.0	64.15	3.31	116.89	3.83	218.31	4.45	401.51	5.15
7.5	55.56	2.87	101.22	3.32	188.95	3.85	347.54	4.46
5.0	45.36	2.34	82.65	2.71	154.13	3.14	283.52	3.64
4.5	43.03	2.22	78.40	2.57	146.17	2.98	268.90	3.45
4.0	40.57	2.10	73.92	2.43	137.77	2.81	253.45	3.25
3.5	37.95	1.96	69.14	2.27	128.82	2.63	236.99	3.04
3.0	35.13	1.81	64.01	2.10	119.20	2.43	219.31	2.82
2.5	32.07	1.66	58.43	1.92	108.74	2.22	200.09	2.57
2.0	28.68	1.48	52.26	1.71	97.18	1.98	178.83	2.30
1.5	24.84	1.28	45.26	1.48	84.05	1.71	154.70	1.99
1.0	20.28	1.05	36.95	1.21	68.48	1.40	126.07	1.62

Note: The flow rates shown above assume an unrestricted discharge from the pipe. For installations without an unrestricted discharge, the flow rate will be affected by the downstream throttle.

For shallow gradients, the Colebrook-White formula underestimates flow rates (because when gradient tends towards zero %, velocity also tends to zero). For level or nearly level installations (slope < 1 %), spatially varied flow tables should be used.

Full bore flow rate tables for varying gradients for sewage drainage applications

Flow rates based on Colebrook-White formula.
Roughness coefficient $k_s = 0.6 \text{ mm}$

Gradient [%]	Pipe ø 50 mm		Pipe ø 75 mm		Pipe ø 110 mm		Pipe ø 125 mm	
	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]
10.0	2.74	1.52	8.40	2.01	23.81	2.60	33.61	2.83
7.5	2.38	1.31	7.28	1.74	20.62	2.25	29.11	2.45
5.0	1.94	1.07	5.94	1.42	16.83	1.84	23.77	2.00
4.5	1.84	1.02	5.64	1.35	15.97	1.74	22.55	1.90
4.0	1.73	0.96	5.31	1.27	15.06	1.64	21.26	1.79
3.5	1.62	0.90	4.97	1.19	14.08	1.54	19.88	1.67
3.0	1.50	0.83	4.60	1.10	13.04	1.42	18.41	1.55
2.5	1.37	0.76	4.20	1.00	11.90	1.30	16.80	1.41
2.0	1.23	0.68	3.76	0.90	10.64	1.16	15.03	1.26
1.5	1.06	0.59	3.25	0.78	9.22	1.01	13.01	1.10
1.0	0.87	0.48	2.66	0.63	7.53	0.82	10.63	0.89

Gradient [%]	Pipe ø 160 mm		Pipe ø 200 mm		Pipe ø 250 mm		Pipe ø 315 mm	
	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]	Flow rate Q [l/s]	Velocity v [m/s]
10.0	64.15	3.31	116.89	3.83	218.31	4.45	401.51	5.15
7.5	55.56	2.87	101.22	3.32	188.95	3.85	347.54	4.46
5.0	45.36	2.34	82.65	2.71	154.13	3.14	283.52	3.64
4.5	43.03	2.22	78.40	2.57	146.17	2.98	268.90	3.45
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2.5	32.07	1.66	58.43	1.92	108.74	2.22	200.09	2.57
2.0	28.68	1.48	52.26	1.71	97.18	1.98	178.83	2.30
1.5	24.84	1.28	45.26	1.48	84.05	1.71	154.70	1.99
1.0	20.28	1.05	36.95	1.21	68.48	1.40	126.07	1.62

Note: The flow rates shown above assume an unrestricted discharge from the pipe. For installations without an unrestricted discharge, the flow rate will be affected by the downstream throttle.

For shallow gradients, the Colebrook-White formula underestimates flow rates (because when gradient tends towards zero %, velocity also tends to zero). For level or nearly level installations (slope < 1 %), spatially varied flow tables should be used.



ACO Pipe® product range

ACO Pipe® modular pipe systems are compatible with ACO floor drains, channel systems and other building drainage products.

ACO Pipe® is available in various diameters and lengths.



System overview

Straight pipes



Fittings



Bends



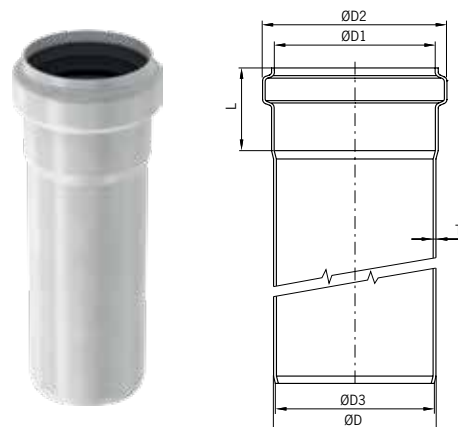
Branches

Accessories



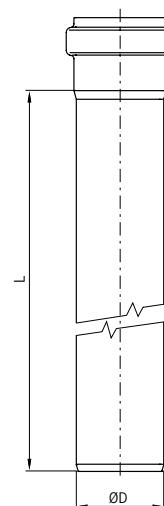
Straight pipes

Dimensions of socket and spigot					
øD [mm]	øD ₁ [mm]	øD ₂ [mm]	øD ₃ [mm]	Socket length L [mm]	Wall thickness T [mm]
50	51	62.0	47	42	1.0
75	76	87.5	72	50	1.0
110	111	125.5	107	57	1.0
125	126	141.0	122	63	1.0
160	161	178.0	156	70	1.25
200	201	219.0	195	80	1.5
250	251	268.6	245	90	1.5
315	316.2	334.2	309	100	2.0



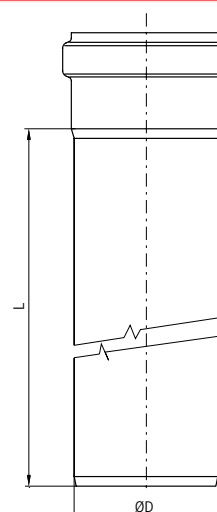
ACO Pipe® - straight pipe 50 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	50	150	0.2	98550
	50	250	0.4	98552
	50	500	0.7	98554
	50	750	1.0	98556
	50	1000	1.3	98558
	50	1500	1.9	98560
	50	2000	2.6	98562
	50	2500	3.2	419282
	50	3000	3.8	98564
	50	4000	5.0	419482
	50	5000	6.3	419490
	50	6000	7.5	419498



ACO Pipe® - straight pipe 75 mm

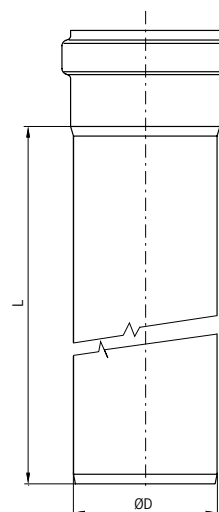
Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	75	150	0.4	98566
	75	250	0.6	98568
	75	500	1.0	98570
	75	750	1.5	98572
	75	1000	2.0	98574
	75	1500	2.9	98576
	75	2000	3.6	98578
	75	2500	4.8	419284
	75	3000	5.7	98580
	75	4000	7.6	419484
	75	5000	9.4	419492
	75	6000	11.3	419500



Straight pipes

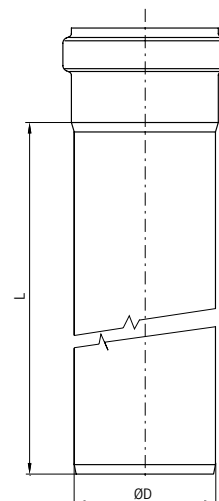
ACO Pipe® - straight pipe 110 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	110	150	0.6	98582
	110	250	0.9	98584
	110	500	1.5	98586
	110	750	2.2	98588
	110	1000	2.9	98590
	110	1500	4.3	98592
	110	2000	5.7	98594
	110	2500	7.1	419286
	110	3000	8.4	98596
	110	4000	11.1	419486
	110	5000	13.9	419494
	110	6000	16.7	419502



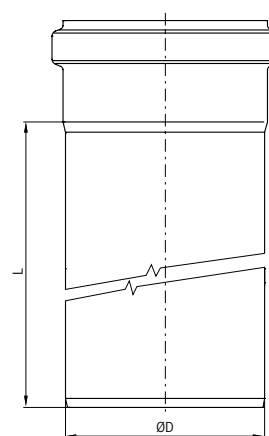
ACO Pipe® - straight pipe 125 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	125	150	0.7	419712
	125	250	1.0	419714
	125	500	1.7	419716
	125	750	2.5	419718
	125	1000	3.3	419720
	125	1500	4.9	419722
	125	2000	6.5	419724
	125	2500	8.1	419728
	125	3000	9.6	419726
	125	6000	19.0	419730



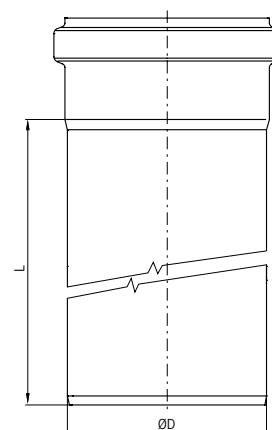
ACO Pipe® - straight pipe 160 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	160	150	1.1	98598
	160	250	1.6	98650
	160	500	2.9	98652
	160	750	4.1	98654
	160	1000	5.4	98656
	160	1500	7.9	98658
	160	2000	10.4	98660
	160	2500	12.9	419288
	160	3000	15.4	98662
	160	4000	20.4	419488
	160	5000	25.4	419496
	160	6000	30.4	419504



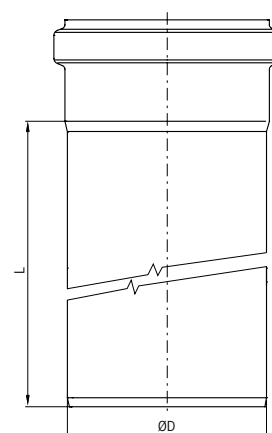
ACO Pipe® - straight pipe 200 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	200	500	4.5	419384
	200	1000	8.3	419388
	200	2000	15.8	419392
	200	3000	23.2	419396



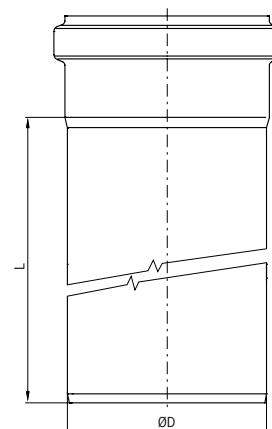
ACO Pipe® - straight pipe 250 mm

Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	250	500	5.5	417072
	250	1000	10.2	417076
	250	2000	19.4	417080
	250	3000	28.7	417084



ACO Pipe® - straight pipe 315 mm

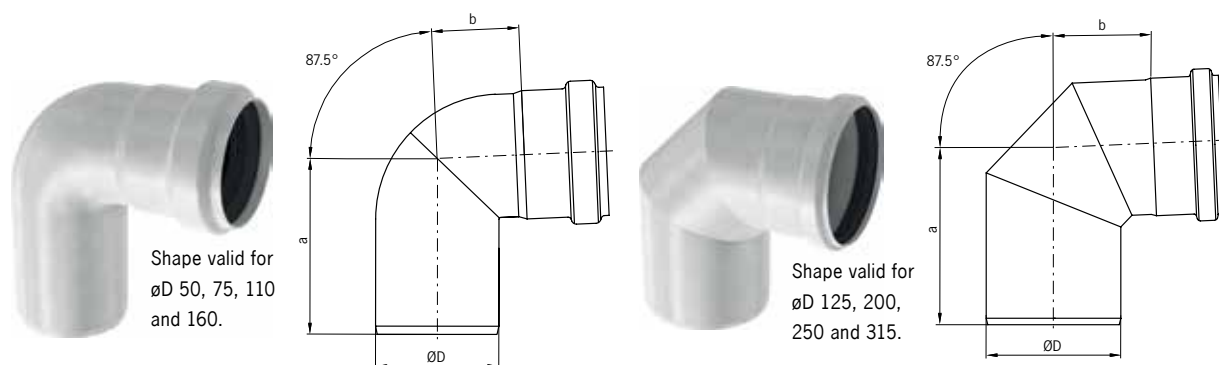
Seal material	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]	Part No. 316
EPDM	315	500	9.8	417200
	315	1000	17.7	417201
	315	2000	33.5	417202
	315	3000	49.3	417203



Fittings

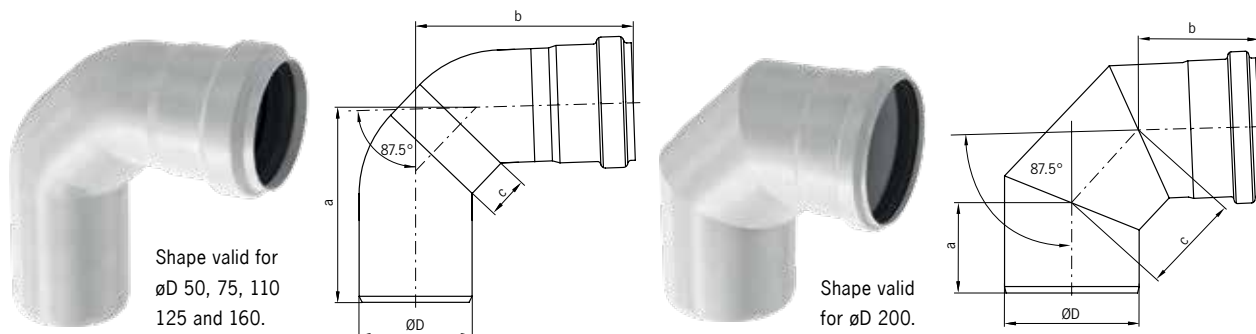
Fittings

ACO Pipe® - bend 87.5°



Seal material	Outlet diameter øD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	a [mm]	b [mm]	0.2	98750
	75	107	53	0.4	98752
	110	134	67	0.7	98754
	125	161	93	0.8	419734
	160	181	105	1.7	98756
	200	215	129	3.9	419413
	250	297	198	5.1	417088
	315	393	286	12.8	417204

ACO Pipe® - swept bend 87.5°

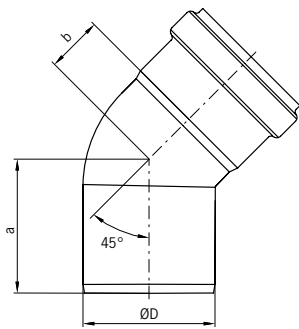


Seal material	Outlet diameter øD [mm]	Dimensions			Weight [kg]	Part No. 316
EPDM	50	a [mm]	b [mm]	c [mm]	0.3	141512
	75	128	126	30	0.5	141513
	110	173	160	46	0.8	141514
	125	204	194	70	1.1	141515
	160	229	224	75	2.0	141516
	200	151	139	170	4.2	141517

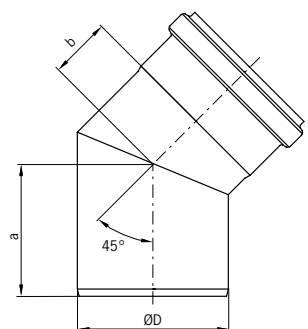
ACO Pipe® - bend 45°



Shape valid
for øD 50, 75,
110 and 160.

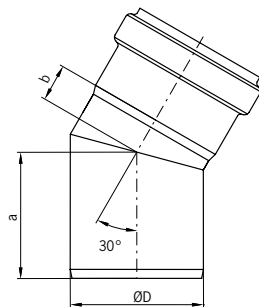


Shape valid for
øD 125, 200,
250 and 315.



Seal material	Outlet diameter øD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	62	24	0.2	98758
	75	76	32	0.3	98760
	110	93	42	0.5	98762
	125	110	50	0.6	419738
	160	131	55	1.3	98764
	200	152	60	2.7	419409
	250	177	76	4.1	417092
	315	199	91	7.2	417205

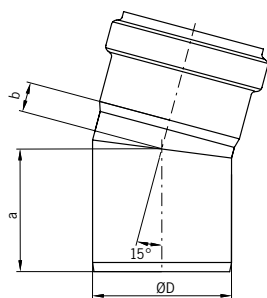
ACO Pipe® - bend 30°



Seal material	Outlet diameter øD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	57	16	0.2	98766
	75	71	21	0.3	98768
	110	85	27	0.5	98770
	125	98	28	0.6	419742
	160	110	40	1.2	98772
	200	137	45	2.3	419405
	250	153	58	2.9	417096
	315	172	68	5.8	417206

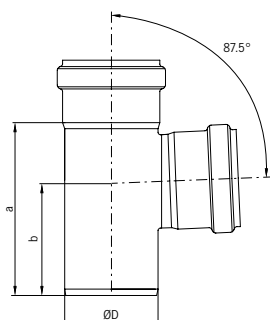
Fittings

ACO Pipe® - bend 15°



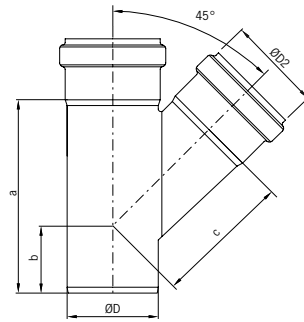
Seal material	Outlet diameter ØD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	a [mm]	b [mm]	0.1	98774
	75	66	16	0.3	98776
	110	78	15	0.4	98778
	125	84	19	0.5	419746
	160	99	29	1.0	98780
	200	123	31	1.9	419401
	250	136	40	2.5	417100
	315	151	46	5.4	417207

ACO Pipe® - single branch 87.5°



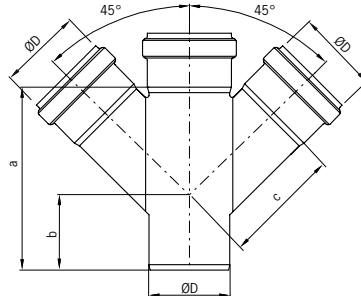
Seal material	Outlet diameter ØD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	a [mm]	b [mm]	0.3	98782
	75	139	90	0.5	98784
	110	183	117	0.8	98786
	125	220	135	0.9	419750
	160	288	184	2.3	98788
	200	333	206	4.5	419421
	250	363	215	5.5	417104
	315	476	281	14.8	417208

ACO Pipe® - single branch 45°



Seal material	Outlet diameter ØD [mm]	Dimensions			Weight [kg]	Part No. 316
EPDM	50	128	57	76	0.3	98798
	75	179	74	110	0.5	98850
	110	233	88	149	1.0	98852
	125	273	103	170	1.1	419762
	160	332	119	222	2.6	98854
	200	415	151	274	5.7	419429
	250	513	172	336	9.2	417108
	315	616	195	521	20.6	417209

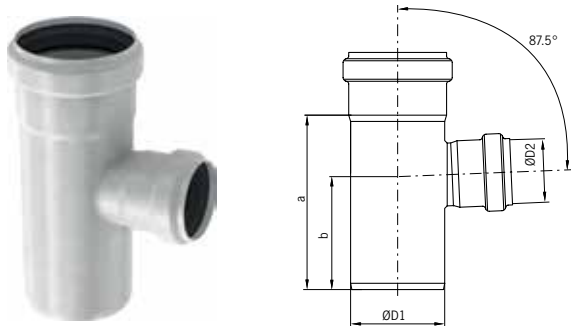
ACO Pipe® - double branch 45°



Seal material	Outlet diameter ØD [mm]	Dimensions			Weight [kg]	Part No. 316
EPDM	50	128	57	76	0.4	98856
	75	179	74	110	0.7	98858
	110	233	88	149	1.2	98860
	160	332	184	222	3.5	98862
	250	509	172	336	11	417120
	315	616	195	521	29.7	417212

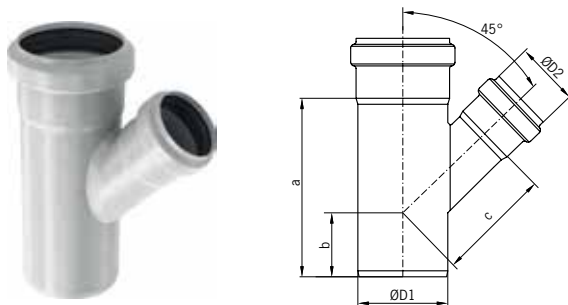
Fittings

ACO Pipe® - single branch reduction 87.5°



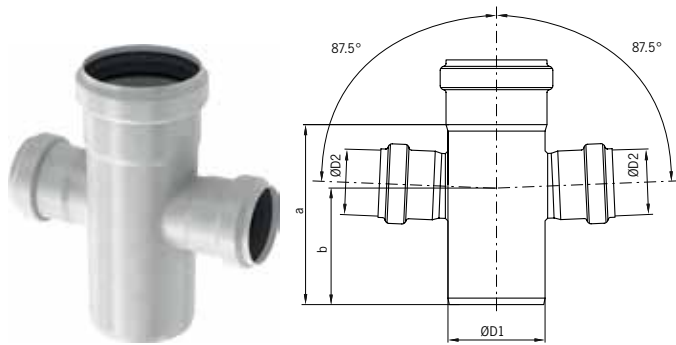
Seal material	Outlet diameter		Dimensions		Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]		
EPDM	75	50	139	90	0.3	98930
	110	50	183	117	0.5	98934
	110	75	183	117	0.8	98938
	125	75	187	110	0.9	419754
	125	110	205	127	0.9	419758
	160	110	288	184	2.3	400693
	200	160	293	186	3.7	419417
	250	200	349	226	5.8	417112
	315	250	411	248	10.5	417210

ACO Pipe® - single branch reduction 45°



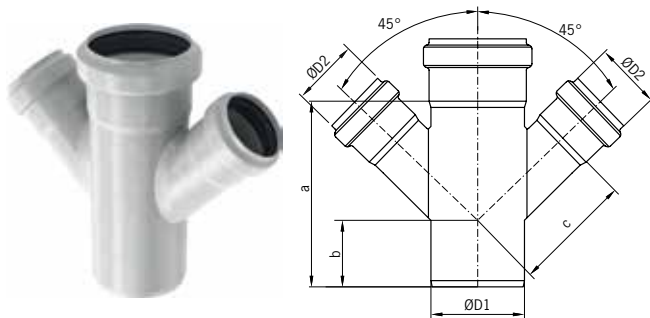
Seal material	Outlet diameter		Dimensions			Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]	c [mm]		
EPDM	75	50	144	56	94	0.3	400663
	110	50	147	42	119	0.5	400667
	110	75	182	60	135	1.0	400671
	125	75	200	65	141	1.1	419766
	125	110	250	90	160	1.1	419770
	160	110	332	119	191	2.6	400701
	200	160	359	123	250	4.7	419425
	250	200	429	175	307	7.6	417116
	315	250	513	149	382	14.0	417211

ACO Pipe® - double branch reduction 87.5°



Seal material	Outlet diameter		Dimensions		Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]		
EPDM	75	50	139	90	0.3	98942
	110	50	183	117	0.6	98946
	110	75	183	117	0.9	98902
	160	110	288	184	2.7	400697

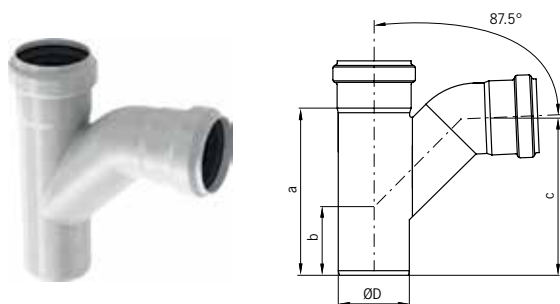
ACO Pipe® - double branch reduction 45°



Seal material	Outlet diameter		Dimensions			Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]	c [mm]		
EPDM	75	50	144	56	94	0.4	400675
	110	50	147	42	119	0.7	400679
	110	75	182	60	135	1.2	400683
	160	110	332	119	190	3.5	400705
	250	200	429	150	307	10.1	417124
	315	250	513	149	382	17.8	417213

Fittings and accessories

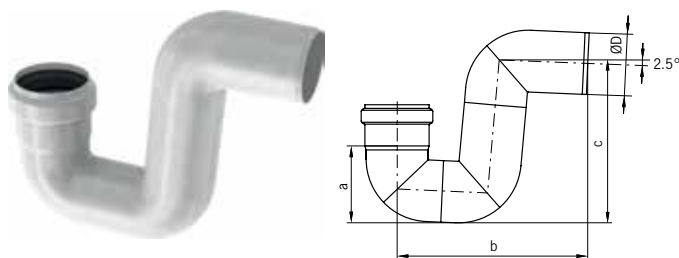
ACO Pipe® - swept single branch 87.5°



Seal material	Outlet diameter ØD [mm]	Dimensions			Weight [kg]	Part No. 316
EPDM	50	128	57	117	0.3	98864
	75	179	74	157	0.6	98866
	110	233	88	209	1.1	98868
	160	332	184	302	2.8	98870

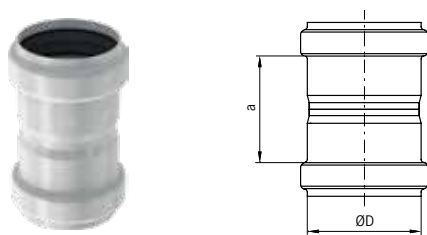
Accessories

P-trap



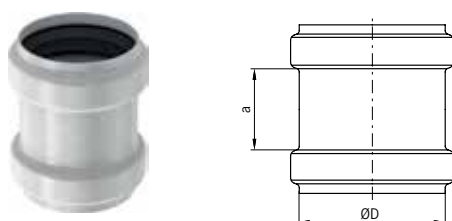
Seal material	Outlet diameter ØD [mm]	Dimensions			Weight [kg]	Part No. 316
EPDM	50	68	187	149	0.5	98872
	75	94	232	193	0.7	98874
	110	132	300	254	1.3	98876
	160	190	403	347	3.3	98878

Straight coupling



Seal material	Outlet diameter ØD [mm]	Dimensions a [mm]	Weight [kg]	Part No. 316
EPDM	50	54	0.1	98970
	75	75	0.2	98972
	110	84	0.4	98974
	125	140	0.4	419815
	160	110	0.8	98976
	200	136	1.8	419433
	250	181	3.1	417159
	315	179	5.2	417225

Repair coupling

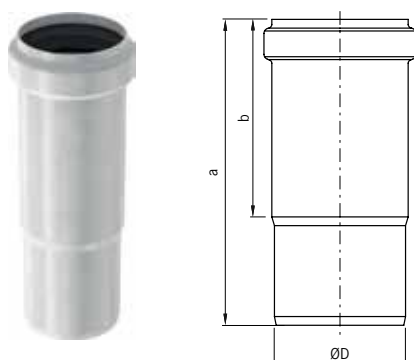


Seal material	Outlet diameter ØD [mm]	Dimensions a [mm]	Weight [kg]	Part No. 316
EPDM	50	44	0.1	98880
	75	46	0.2	98882
	110	52	0.3	98884
	125	70	0.3	419774
	160	76	0.7	98886
	200	100	1.5	419437
	250	182	2.4	417139
	315	179	4.9	417220

Note: Repair couplings are used to aid a convenient repair to a damaged in-situ pipe. Unlike the standard straight coupling, there is no central registration to limit the insertion depth of the pipe. The repair coupling slides completely over a pipe joint and simply re-positioned to bridge the required pipe joint.

Installation tip: Mark the final position of the repair coupling on the installed pipe system to ensure the coupling seals are positioned symmetrically about the pipe joint.

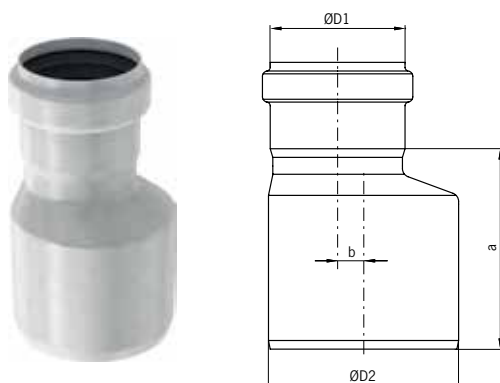
Expansion socket



Seal material	Outlet diameter ØD [mm]	Dimensions		Weight [kg]	Part No. 316
EPDM	50	a [mm]	b [mm]	0.2	98666
	75	175	113	0.3	98670
	110	200	121	0.5	98674
	125	250	165	0.6	419778
	160	292	170	1.4	98678
	250	400	190	3.8	417143
	315	450	200	7.2	417221

Accessories

Eccentric increaser coupling



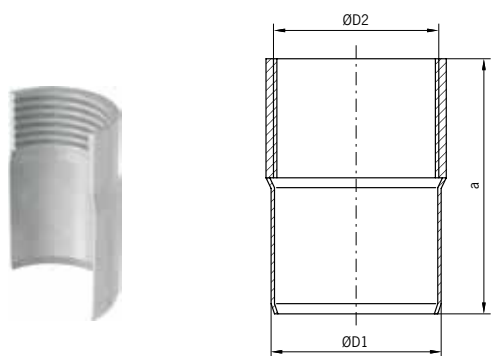
Seal material	Outlet diameter		Dimensions		Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]		
EPDM	50	75	75	7	0.3	98892
	50	110	110	25	0.4	98978
	75	110	110	15	0.5	98894
	110	160	160	22	1.1	98896
	200	250	180	15	2.4	417135
	250	315	190	15	4.4	417218

Concentric increaser coupling



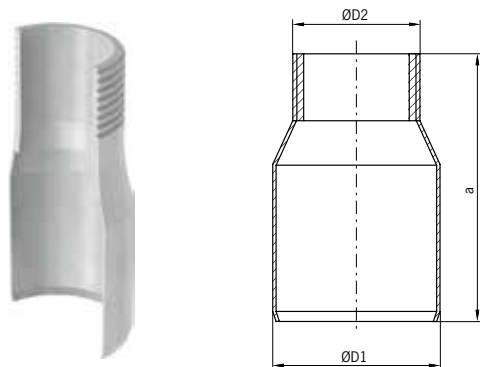
Seal material	Outlet diameter		Dimension a [mm]	Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]			
EPDM	110	125	107	0.6	419780
	125	160	160	1.2	419811
	160	200	200	1.8	419441
	200	250	180	2.4	417133
	315	250	190	4.4	417217

Connector with internal screw thread and spigot



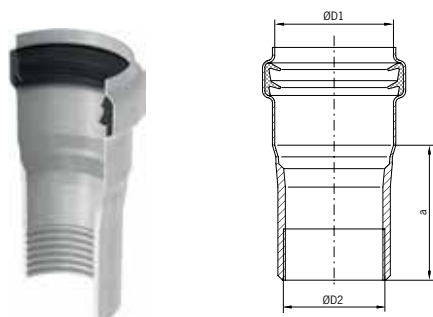
Outlet diameter		Dimensions	Weight	Part No.
ØD1 [mm]	ØD2 [mm]	a [mm]	[kg]	316
50	G 1¼"	72	0.2	98956
50	G 1½"	75	0.3	141201
50	G 2"	80	0.3	98958

Connector with external screw thread and spigot



Outlet diameter		Dimensions	Weight	Part No.
ØD1 [mm]	ØD2 [mm]	a [mm]	[kg]	316
50	G 1¼"	100	0.2	419330
50	G 1½"	100	0.3	419331
50	G 2"	100	0.3	419332

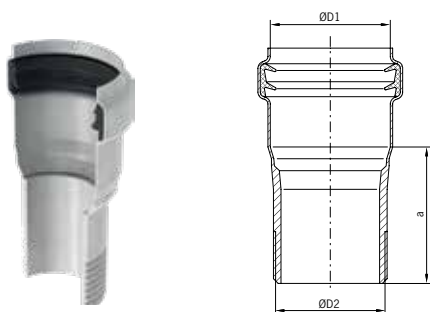
Connector with socket and internal screw thread



Seal material	Outlet diameter		Dimensions	Weight	Part No.
	ØD1 [mm]	ØD2 [mm]	a [mm]	[kg]	316
EPDM	50	G 1¼"	58	0.2	419333
	50	G 1½"	58	0.3	419335
	50	G 2"	58	0.3	419337

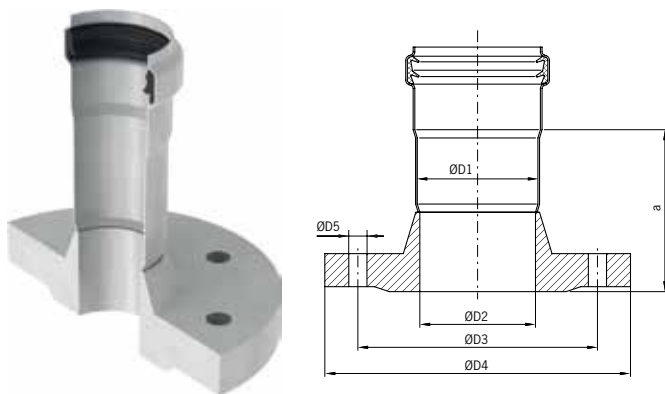
Accessories

Connector with socket and external screw thread



Seal material	Outlet diameter		Dimensions	Weight	Part No.
	ØD1 [mm]	ØD2 [mm]	a [mm]	[kg]	
EPDM	50	G 1¼"	58	0.2	419250
	50	G 1½"	58	0.3	419252
	50	G 2"	58	0.3	419254

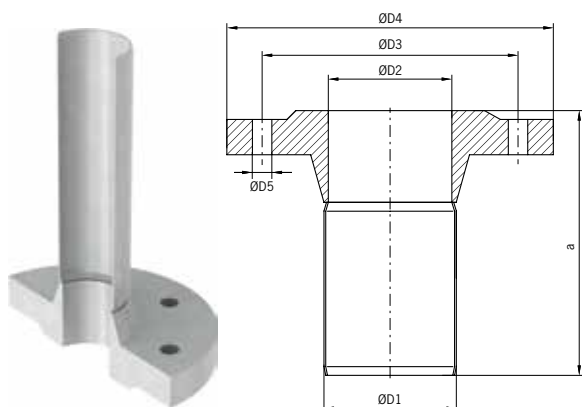
Connector with socket and flange



Seal material	Outlet diameter				n x ØD5	Dimensions	Weight	Part No.
	ØD1 [mm]	ØD2 [mm]	ØD3 [mm]	ØD4 [mm]		a [mm]	[kg]	
EPDM	50	DN 50	125	165	4 × 18	100	2.7	419258
	75	DN 65	145	185	4 × 18	100	3.4	419260
	110	DN 100	180	220	8 × 18	100	4.9	419262
	200	DN 200	295	340	12 × 22	102	12.0	419514

Note: n – number of holes for screws in the flange.

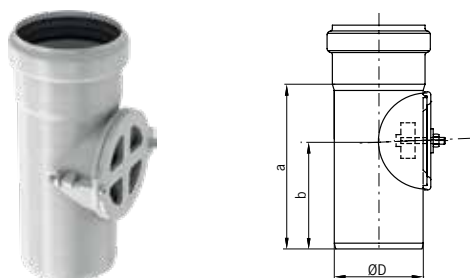
Connector with flange and spigot



Outlet diameter				n x ØD5 [mm]	Dimensions a [mm]	Weight [kg]	Part No. 316
ØD1 [mm]	ØD2 [mm]	ØD3 [mm]	ØD4 [mm]				
50	DN 50	125	165	4 × 18	192	2.7	419265
75	DN 65	145	185	4 × 18	245	3.4	419266
110	DN 100	180	220	8 × 18	259	4.9	419267
160	DN 150	240	285	8 × 22	200	8.5	419540
200	DN 200	295	240	12 × 22	240	12.3	419541

Note: n – number of holes for screws in the flange.

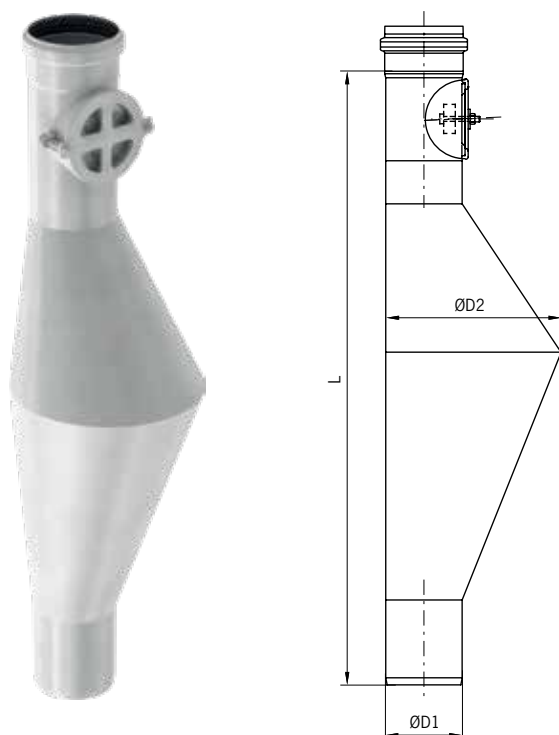
Access unit



Seal material	Outlet diameter ØD [mm]	Dimensions		Weight [kg]	Part No. 316
		a [mm]	b [mm]		
EPDM	75	139	90	0.5	98963
	110	183	117	0.8	98965
	125	210	135	0.9	419785
	160	288	184	2.3	98967
	200	293	186	3.7	419678
	250	290	184	3.8	417128
	315	340	228	8.9	417214

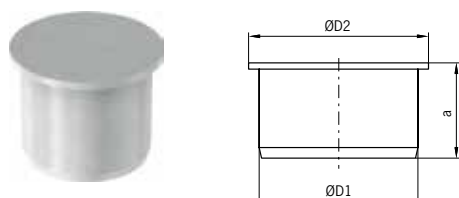
Accessories

Rat-stop



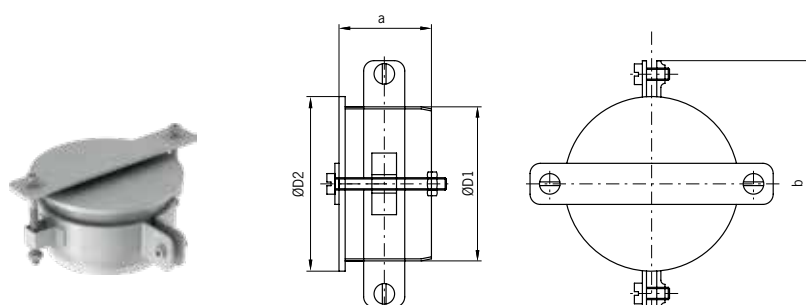
Seal material	Outlet diameter		Dimensions L [mm]	Weight [kg]	Part No. 316
	ØD1 [mm]	ØD2 [mm]			
EPDM	110	250	864	3.8	419270

Socket plug



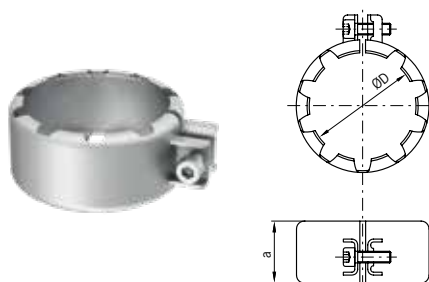
Outlet diameter		Dimensions a [mm]	Weight [kg]	Part No. 316
ØD1 [mm]	ØD2 [mm]			
50	58	45	0.1	98888
75	85	45	0.3	98889
110	120	45	0.5	98890
125	135	50	0.6	419782
160	170	50	0.5	141200
200	210	50	0.7	98994
250	260	83	1.0	417131
315	325	73	2.2	417215

Socket plug with clamp



Outlet diameter		Dimensions		Weight	Part No.
ØD1 [mm]	ØD2 [mm]	a [mm]	b [mm]	[kg]	316
50	58	45	88	0.4	419138
75	85	45	120	0.6	419139
110	120	45	167	0.8	419140
160	170	50	214	1.1	419141
250	260	83	302	1.3	417132
315	325	130	371	3.7	417216

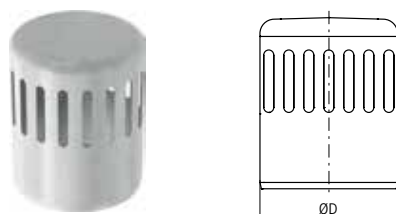
Socket clamp



Outlet diameter	Dimensions	Weight	Part No.
ØD [mm]	a [mm]	[kg]	316
50	40	0.11	417067
75	43	0.16	417069
110	43	0.25	417227
160	43	0.40	419137
315	48	0.90	417219

Note: See page 7 for maximum operating pressures.

Vent cowl



Outlet diameter	Weight	Part No.
ØD [mm]	[kg]	316
110	0.4	98962

Accessories

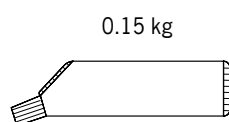
Seal



Outlet diameter øD [mm]	Weight [kg]	Part No. EPDM	Part No. NBR	Part No. FPM
50	0.01	98400	417037	98404
75	0.02	98401	417038	98405
110	0.05	98402	417039	98406
125	0.06	419453	417041	419454
160	0.08	98403	417040	98407
200	0.10	98433	417042	98437
250	0.12	417146	417148	417147
315	0.30	417222	417223	–

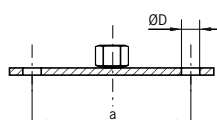
Note: Detailed technical data on page 34.

ACO universal lubricant



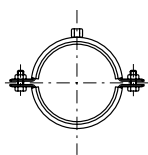
Weight [kg]	Part No.
0.15	2090

Fixing plate



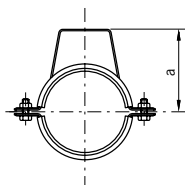
Outlet diameter øD [mm]	Dimensions a [mm]	Weight [kg]	Part No. Galvanised steel	Part No. 316
8.4	70	0.05	400525	400521

Support bracket with rubber infill



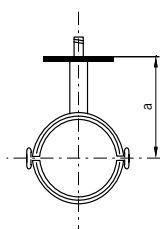
Outlet diameter øD [mm]	Weight [kg]	Part No. Galvanised steel	Part No. 316
50	0.14	400533	400529
75	0.23	400534	400530
110	0.33	400535	400531
125	0.36	419854	419855
160	0.39	400536	400532
200	0.44	419451	419675
250	0.60	–	417149
315	1.0	–	417224

Support bracket with rubber infill and stirrup



Outlet diameter øD [mm]	Dimensions a [mm]	Weight [kg]	Part No. Galvanised steel	Part No. 316
50	56	0.18	400541	400537
75	80	0.28	400542	400538
110	116	0.41	400543	400539
160	166	0.48	400544	400540

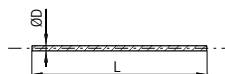
Support bracket with rubber infill and key



Outlet diameter øD [mm]	Dimensions a [mm]	Weight [kg]	Part No. Galvanised steel	Part No. 316
50	120	0.16	400549	400545
75	133	0.26	400550	400546
110	150	0.38	400551	400547
160	175	0.44	400552	400548

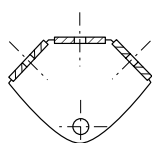
Accessories

Threaded support pole M8



ØD [mm]	L [mm]	Weight [kg]	Part No. Galvanised steel	Part No. 316
M8	1000	0.39	400557	400553
M8	90	0.03	400558	400554
M8	40	0.016	400559	400555

Set for axial fixing



Weight [kg]	Part No. Galvanised steel	Part No. 316
0.11	400565	400561

Manual cutter set 50-110 mm



Note	Weight [kg]	Part No.
in plastic case	3.50	419363

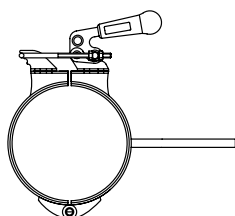
Manual cutter



øD [mm]	Weight [kg]	Part No.
50-110	1.0	419364
110-160	2.0	400738
160-250	2.0	417228

Note: ACO Pipe® manual cutter should be ordered together with a holder for manual cutting.

Holder for manual cutting



øD [mm]	Weight [kg]	Part No.
125	3.5	419857
160	4.0	400742
200	4.5	400743

Note: ACO Pipe® holder for manual cutting should be ordered together with ACO Pipe® manual cutter.

Replacement discs for manual cutters



Note	Weight [kg]	Part No.
for cutter 419363	0.005	419365
for cutters 400738 and 419364	0.005	400578

Note: Minimum order quantity – 10 pcs.

Seal material data

Seal material data

Seal suitability

ACO Pipe® sockets are fitted with EPDM seals as standard for regular drainage applications. For particularly aggressive applications, FPM and NBR seals are available. Refer to the table below to assess suitability, and then contact ACO.

EPDM (Ethylene Propylene Diene Monomer)

EPDM was originally developed during the 1950s for vehicle tyre applications. It reached wider applications because of its suitability for outdoor use.

FPM (Fluoroelastomer)

FPM is a fluorocarbon and the best material for resistance to hostile chemical and oil environments at normal and elevated temperatures. This material is widely used in the chemical and pharmaceutical industries, but is significantly more expensive than EPDM.

NBR (Nitrile rubber)

NBR has good water resistance, excellent chemical resistance and durability.



ACO Pipe® can withstand 120°C steam or water with EPDM seals. ACO Pipe® can withstand 200°C steam or water with FPM seals.

Seal assembly replacement or upgrade

The double lip seal is easily removed and replaced from the female end of all ACO Pipe® pipes and fittings. This allows easy on-site upgrade of the seal material.

Seal installation notes

1. If changing the seal, ensure the correct size and grade of seal is selected for the application (see table below).
2. Ensure the seal itself and the zone around the pipe and/or fitting receiving the seal is clean, dry and free from dust, grit and any metallic particles.
3. Insert the dry seal into the pipe and/or fitting recess. NOTE: the seal MUST be inserted so the double sealing lips face away from the opening of the pipe and/or fitting.
4. Do not use tools to aid the assembly process otherwise damage to the pipes, fittings and seals may occur.

			EPDM	FPM	NBR
Water Resistance			Excellent	Good	Good
Chemical Resistance	Acids		Good	Excellent	Excellent
	Bases		Good	Good	Good
Solvent Resistance (20°C)	Alcohol		Good	Good	Good
	Acetone		Good	Unsuitable	Unsuitable
	Benzene		Unsuitable	Good	Unsuitable
Oil Resistance (including tradewaste - FOGs)	ASTM Oil No. 1	@ 20°C	Fair	Excellent	Excellent
		@ 100°C	Unsatisfactory	150°C Excellent	150°C Good
	ASTM Oil No. 3	@ 20°C	Unsatisfactory	Excellent	Excellent
		@ 100°C	Unsatisfactory	150°C Excellent	150°C Good
Fuel Resistance	ASTM Fuel B	@ 20°C	Unsatisfactory	Excellent	Excellent
Resistances	Oxidation		Excellent	Outstanding	Outstanding
	Ozone & Weathering		Outstanding	Outstanding	Low
Heat Resistance	Maximum Continuous		130°C	205°C	80°C
	Maximum Continuous		150°C	300°C	100°C
Low Temperature Resistance			– 50°C	– 20°C	– 30°C
Gas Permeability			Fairly Low	Very Low	Very Low
Physical Strength			Good	Good	Good
Compression Set Resistance			Good	Good	Good
Tear & Abrasion Resistance			Good	Good	Good
Cost Factor (1 = low)			1	20	2

Installation

Pipework support details

The discretion of the installer should be applied in each instance to ensure that the pipe is adequately supported.

Horizontal pipework

Generally, when the pipe is completely full of water, then the vertical deflection of the pipe between brackets should not exceed 1.5mm.

As a guide, use the table below for bracket spacing on horizontal pipes.

Pipe Diameter [mm]	Bracket Spacing [metres]
50	2.0
75	2.3
110	2.5
125	3.0
200	3.0

Vertical pipework

The load applied with a fluid in the pipe is vertically down. Position the highest bracket adjacent to the top inlet of the pipe, then mount brackets at 3 metre spacings. At the bottom of the vertical pipe, use a bracket within 200mm of the bottom. Fit brackets at each change of pipework direction or junction points.

The venting of vertical stacks shall be in compliance with AS/NZ 3500.

Pipework should be at least 35mm from the wall to facilitate maintenance and painting.

Minimum and maximum pipe weights

To assist designers and installers with the selection of appropriate pipe supports, the table below sets out the weights for all pipe sizes.

Pipe Diameter [mm]	Bracket Spacing [metres]	Pipe Weight Full [kg / m]
50	1.2	3.0
75	1.8	6.9
110	2.7	11.9
125	3.3	15.8
160	5.0	24.6
200	7.5	38.0
250	10.6	59.7



Installation

Pipe assembly

The installation of ACO Pipe® should be in accordance with the recommendations below and with AS/NZ 3500.

Ensure that all tools are in good condition, electric tools and leads must have current safety tags. Pipe stands must be stable to carry the pipe with no movement and there must be no carbon steel or abrasive material in contact with the stainless steel pipe material.

The assembly of pipe joints is quick and straightforward, requiring only a light application of lubricant (see page 30) to the chamfered pipe end.

1. Make sure both ends are clean and free of dirt.
2. Make sure that the correct seal is in place (see page 34).
3. Ensure that the mating ends of the pipes and fittings are clean and free from contamination. Push-fit the pipe end into the socket but do not wedge into the socket recess. Use a half rotational movement to the right and left as the pipes come together.
4. When the pipes are fully engaged, pull the pipes back 6mm to 12mm to allow for thermal expansion. With a 60° temperature rise, stainless steel expands at a rate of 0.99mm per metre.



Pipe cutting

If it is necessary to adapt or shorten pipe lengths, then the cut must be square, clean and ready chamfered. Cutters are available from ACO (see pages 32 and 33). These tools are designed to form the edge bevel on the male spigoted end of the pipe. Carbon steel wheels are not permitted.



Socket clamps

ACO Pipe® pipes and fittings comprise push-fit socket joints. These will not be able to resist internal pressure beyond design limits unless precautions are made to ensure that the joints do not slide apart.

In most cases, appropriate fixing to the building can overcome this. If it is difficult however, or impossible to fix the pipes to the building, socket clamps (see page 29) can prevent the push-fit sockets and spigot ends from sliding apart in the event of overload or the generation of excessive internal pressure.

Structural penetrations

Where it is necessary for pipework to pass through the walls, structural decking or floors with waterproofing, the ACO Apex Wall Seal system is available, contact ACO.

Pipework protection

The installation of ACO Pipe® should be in accordance with the recommendations below and with AS/NZ 3500.

Below ground installation

When pipework is to be installed in the ground, place the pipe in a sandy bed of 75mm (minimum thickness) free of small gravel, sticks, etc. The sand should be free of chlorides and salt.

During installation, take care to not scratch the surface of the stainless with carbon steel. Similarly, avoid subjecting the stainless steel pipes to welding and grinding airborne hot particles, metal shavings, and chemicals which may cause corrosion.

Soil cover

Where pipework is to be installed beneath a water table, apply the following soil depths:

- **Pipe diameters 50, 75, 110**
Low density soil 15kg/m³ 400mm
High density soil 23 kg/m³ 380mm
- **Pipe diameters 125, 160, 200, 250**
Low soil density 15kg/m³ 580mm
High soil density 23kg/m³ 650mm

Where the ground is permanently cold as experienced in some Alpine and southern extremities of Australia and New Zealand, then the drainage may need to be heated.

In general however, the minimum permissible depth to avoid winter freezing of water is 800mm. Note that this recommendation is applicable where the ground does thaw during spring and becomes quite warm during summer.

Backfilling around the pipe can only start when the position of the pipe has been checked and approved.



Care and maintenance

Care and maintenance

Pipe assembly

All grades of stainless steel will stain and discolour due to surface deposits and can never be 100% maintenance free. In order to achieve maximum corrosion resistance, the surface of the stainless steel must be kept clean.

Factors affecting maintenance

Surface contamination and the formation of deposits must be prevented in order to maintain a durable and hygienic surface.

These deposits may be minute particles of iron or rust from other materials used on the building site which have come in contact with the pipework. Care must be

taken to avoid the cutting of carbon steels, including rebar, and the storage and erection of scaffolding, near the pipework.

Industrial and even naturally occurring atmospheric conditions can produce deposits that can also be corrosive, e.g. salt deposits from marine conditions.

The working environment can also produce corrosive conditions e.g. high humidity, such as in a swimming pool, increasing the speed of discolouration and therefore requiring maintenance to be carried out on a more frequent basis. Many cleaners, sterilisers and bleaches, when used in accordance with manufacturers' instructions are safe, but if used

incorrectly (e.g. warm or concentrated), they can cause discolouration and corrosion on the surface of any quality of stainless steel.

Strong acid solutions are sometimes used to clean masonry and tiles but they should never be permitted to come into contact with metals, including stainless steel. If this should happen the acid solution must be removed immediately by copious applications of clean water.

Wire brushes and wire wool must not be used to remove marks or cement spillage as this will only serve to introduce iron impurities onto the material surface.



Problem	Cleaning Agent	Comments
Routine cleaning	Soap or mild detergent and water (such as washing up liquid).	Sponge, rinse with clean water, and wipe dry if necessary.
Fingerprints	Soap or warm water or organic solvent (e.g. acetone, alcohol).	Rinse with clean water, wipe dry if necessary.
Stubborn stains and discolouration	Mild cleaning solutions	Rinse well with clean water and wipe dry.
Oil and grease marks	Organic solvents (e.g. acetone, alcohol).	Clean after with soap and water, rinse with clean water and dry
Rust and other corrosion products	Oxalic acid. The cleaning solution should be applied with a swab and allowed to stand for 15–20 minutes before being washed away with water.	Rinse well with clean water (precautions for acid cleaners should be observed).

Stainless steel resistance table

Chemicals	Materials			
1 = Very good service to operating limit of material 2 = Moderate service 3 = Limited or variable service 4 = Unsatisfactory	316 L Stainless	EPDM	NBR	FPM
Acetone	1	1	4	4
Acetic acid (diluted) 30%	1	1	2	2
Acetic acid 100%	1	1	3	3
Acetic acid anhydride	1	2	3	4
Aluminium chloride	4	1	1	1
Aluminium sulfate	1	1	1	1
Ammonium carbonate	1	1	4	2
Ammonium chloride	2	1	1	1
Ammonium hydroxide	1	1	4	2
Amyl chloride	1	4	4	1
Anilin	1	2	4	3
Anilin hydrochloride	4	2	2	2
Barium chloride	2	1	1	1
Barium hydroxide	1	1	1	1
Benzaldehyde	1	1	4	4
Benzene	1	4	4	1
Benzoic acid	1	4	4	1
Borax	1	1	2	1
Boric acid	1	1	1	1
Bromine	4	4	4	1
Bromine chloride acid	4	1	2	1
Bromine hydrogen acid	4	1	4	1
Bromoethylene	1	-	-	-
Butanol	1	4	1	1
Butyl acetat	1	2	2	4
Butyric acid	1	2	4	4
Calcium bisulfate el sulfite	1	4	1	1
Calcium chloride	2	1	1	1
Calcium hydroxide	1	1	1	1
Calcium hypoklorite	2	1	3	1
Carbon disulfide	1	4	4	1
Carbon tetrachloride	1	4	3	1
Chloracetic acid (mono)	4	2	4	4
Chloride	4	-	-	-
Chloril acid	4	1	4	-
Chlorine (dry)	1	1	2	1
Chlorobenzene	1	4	4	1
Chloroform	2	4	4	1
Chlorosulfonic acid	2	4	4	3
Copper chloride	2	1	1	1
Copper nitrate	1	1	1	1
Copper sulfate	1	1	1	1
Ether	1	3	4	3
Ethyl chloride	1	1	1	1
Fatty acid	1	4	2	1
Fluorine (dry)	1	-	-	-
Fluorine hydrogen acid	4	2	4	1
Formaldehyde	1	1	2	1
Formic acid	1	1	2	3
Furfural	1	2	4	4
Gallic acid	1	2	2	1
Hydrochloric acid	4	1	4	1
Hydrogen peroxide	1	3	4	2
Iodine (wet)	4	2	2	1
Lead acetate	1	1	2	4

Chemicals	Materials			
1 = Very good service to operating limit of material 2 = Moderate service 3 = Limited or variable service 4 = Unsatisfactory	316 L Stainless	EPDM	NBR	FPM
Magnesium chloride	2	1	1	1
Magnesium sulfate	1	1	1	1
Mercury	1	1	1	1
Methanol	1	1	1	3
Methyl chloride	1	3	4	1
Methylene chloride	2	4	4	2
Natphalene	1	4	4	1
Nickel chloride	2	1	1	1
Nickel sulfate	1	1	1	1
Nitric acid	3	3	4	1
Oxalic acid	3	1	2	1
Perchloric acid	4	2	4	1
Phorsphor acid	1	2	4	1
Picric acid	1	2	2	1
Potassium bromide	1	1	1	1
Potassium carbonate	1	1	2	1
Potassium chlorate	1	1	1	1
Potassium cyanide	1	1	1	1
Potassium hydroxide	1	1	2	2
Potassium nitrate	1	1	1	1
Potassium permanganate	1	1	3	1
Potassium sulfate	1	1	1	1
Potassium sulfide	1	1	1	1
Potassiumchloride	2	1	1	1
Prophylene dichloride	1	4	4	1
Sal ammoniac	2	1	1	1
Silver nitrate	1	1	2	1
Soda (ash)	1	1	1	1
Sodium acetate	1	1	2	4
Sodium bicarbonate	1	1	1	1
Sodium bisulfate	1	1	2	1
Sodium bisulfite	1	1	1	1
Sodium bromide	2	1	3	1
Sodium chlorate	1	1	2	1
Sodium chloride	4	1	1	1
Sodium cyanide	1	1	1	1
Sodium fluoride	1	1	1	1
Sodium hydroxide	1	1	2	2
Sodium hypoklorite	4	2	2	1
Sodium nitrate	1	1	2	2
Sodium sulfate	1	1	1	1
Sodium sulfide	1	1	1	1
Sodium sulfite	1	1	1	1
Stannicous chloride	2	2	1	1
Sulfur	1	1	4	1
Sulfur chloride	1	4	3	1
Sulfur dioxide	1	1	4	1
Sulfuric acid	4	2	4	1
Sulfurous acid	1	2	2	1
Tionyl chloride	1	4	4	1
Toluene (toluol)	1	4	4	1
Trichloroethylene	1	4	3	1
Turpentine	1	4	1	1
Xylene (xylol)	1	4	4	2
Zinc sulfate	1	1	1	1

Note: Concentration levels and length of exposure 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.

Assumptions: Data presented are used as a guide only, for detailed information please contact our Sales/Technical department.



ACO Building Drainage Products

- **ACO Pipe®**
Stainless steel push-fit waste pipes
- **ACO Gully**
Stainless steel floor gullies
- **ACO Food**
Stainless steel drainage systems for food and beverage applications
- **ACO Stainless**
Industrial stainless steel linear drainage systems
- **ACO Passavant**
Grease separators
- **ACO Wexel**
Cast floor and roof drains
- **ACO BuildLine**
Drainage for thresholds, balconies and green roofs
- **QuARTz by ACO**
Bathroom linear drains and floor wastes

ACO Technical Service Department provides product selection advice to ensure the product meets specification and installation criteria.

Contact ACO for information relating to ACO's Surface Water Management and Utility Enclosure Solutions.

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