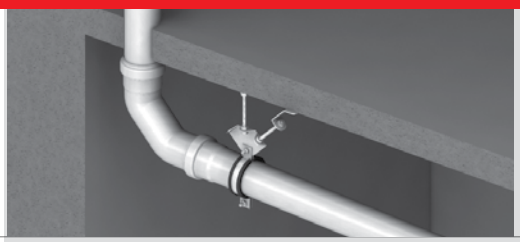
ACO Building Drainage

Uniclass	May 2019
CI/SfB (52.9)	

Pipework Systems



Product catalogue

ACO GM-X PIPE and fittings for building drainage applications

ACO Building Drainage

Our built environment is becoming ever more complex. Applications are becoming more sophisticated and the increasing pressure of regulations and standards makes achieving design, performance and financial goals ever tougher.

Our mission: to eliminate design risk, to reduce installed and life cost and to deliver exceptional finish and performance in every product application.

Our global resources and fabrication capacity make it possible for us to deliver best value, both with our standard products and with our bespoke designs. Confidence is further assured with quality systems that are in accordance with ISO 9001-2008.

ACO Building Drainage is a division of ACO Technologies plc and part of the worldwide ACO Group. The Group has sales in excess of £700 million worldwide with production facilities in the UK, Germany, France, Switzerland, Denmark, Spain, Poland, Czech Republic, Australia and the USA. In total more than 4,000 people are employed in over 40 countries throughout the world.

ACO Bulding Drainage Enquiries Team:
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- A complete pricing service to merchants, contractors and clients.

ACO Bulding Drainage Customer Services Team:
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- Product availability, delivery lead times, and all other queries including collections, returns and product / service issues.

ACO Bulding Drainage Design Services Team:
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- Technical and installation advice.
- Detailed design and 'Value Engineering' advice.
- Hydraulic calculations and AutoCAD drawings.
- Advice on suitability of ACO equivalent products.

ACO Bulding Drainage Marketing and Media Support
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- For all product brochures, imagery or merchandising material requests.

collect:

- Stainless Steel and Galvanised steel Channels
- Stainless Steel Gullies
- Pipe System
- Roof / Balcony Drainage
- Wetroom & Shower Drainage

clean:

- Grease Management Systems

hold:

- Anti-flood Backflow Protection Systems

release:

- Lifting Stations

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For quick access to our website, scan:

Contents

General Introduction

GM-X Steel drain pipes and fittings
ACO building drainage is presenting new galvanized and coated steel pipe product ranges GM-X and GM-X-VAC for gravity and syphonic drainage. ACO offers today a wide range of standard pipes and all necessary fittings for building drainage applications. There are specially trained staff available for you who are ready to answer all your questions. The product design and reliability of the system is confirmed by leading international classification authorities.

GM-X steel pipes meet the highest safety requirements (see behaviour in fire resistance). The requirements for cost and weight saving can also be taken into account by the GM-X and GM-X-VAC plug-in socket system. A significantly lower weight of GM-X and GM-X-VAC pipe systems against welded or threaded systems is achieved by reduced wall thickness.

Typical applications
GM-X PIPE is ideal for:

- Grey and black water
- Rainwater
- Industrial waste water drainage

Product benefits

- Easy installation
- Lightweight and easy to handle
- Double sealed jointed system
- Simple push-fit assembly
- Low thermal expansion coefficient
- No painting required
- Sustainable material

GM-X PIPE material information
Drain pipes and fittings are manufactured from welded, one-time cold-drawn precision steel pipe in accordance with DIN 2394.

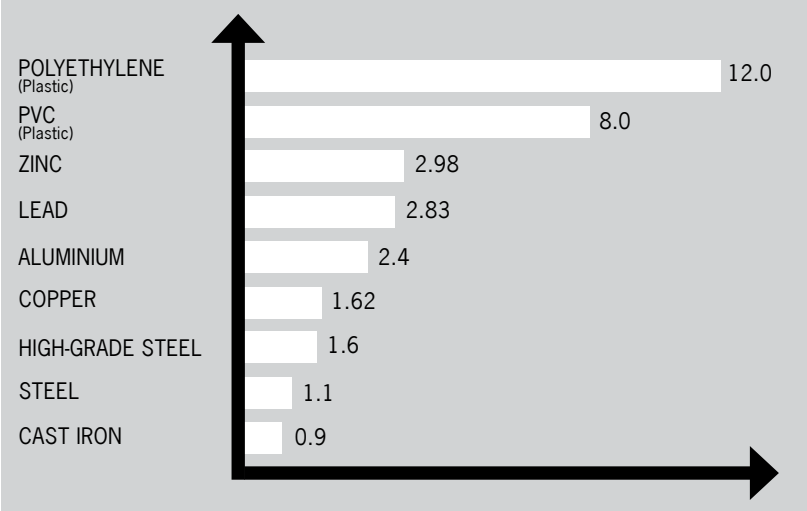
Tensile strength:
Rm 310-410 N/mm2

Elongation at break:
A5 min. 28%

As a material, steel is distinguished by its good technological properties:
• Unbreakable
• Dimensionally stable
• Heat and frost proof
• Favourable acoustic behaviour
• Non-combustible

Thermal expansion
With steel, thermal expansion is exceptionally limited. When a 1 metre piece of pipe is heated by 100°C, the length increase is 1.1 mm. The thermal expansion produced by the introduction of hot waste water does not therefore need to be considered in the installation. This does not apply to other standard expansion materials.

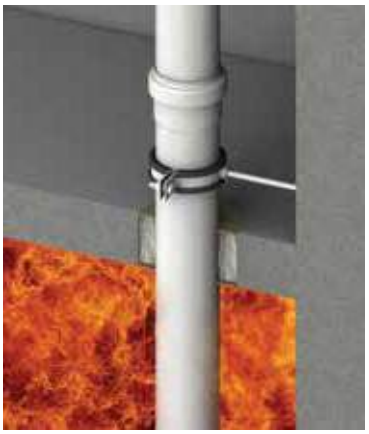
Expansion of various pipe materials



Increase in length of a body 1m long when heated by 100°C

Sound
Sound measurements of discharge noises in built-in drain pipes produced results within the requirements of DIN 4109. The measured noise figure was below the permissible sound level. To further decrease discharge noise, and as an additional sound proofing measure, plastic insulating supports can be inserted in the socket bed on which the pipe end sits.

Reaction to fire
The steel drain pipe is fireproof. As per DIN 4102 and DIN 1986 Part 4, steel drain pipe is classified as Incendiary Matter A1 - not flammable.



GM-X Socket
The GM-X socket is a two-stage design. The seal is retained by the first socket stage. The second stage centre the inserted pipe.

The socket shape construction enables a solid, buckle-proof and rigid connection of pipes and mouldings to be made, and thus guarantees great tightness between the pipe and the socket, without the risk of the seal being compressed by its own or an outside load.

GM-X Seal

The GM-X seal is in the shape of a lip collar. It is inserted into the upper socket chamber. As a result of the other pipe end being pushed in, the sealing lips are forced

against the inner wall of the seal housing and against the outer wall of the inserted pipe. The seal collar is located on the socket rim and ensures the seating of the seal when the other pipe is pushed in. The sealing lips press more firmly against the pipe walls as fluid pressure rises, thus positively increasing the tightness of the joint. The seal is manufactured as standard from an effluent-resistant grade (as per DIN 4060):

NBR (Nitrile Butadiene Rubber)
SBR (Styrene Butadiene Rubber)

For special use areas seals can be supplied in the following grades on request:

EPDM (APTK)
CR (Neoprene)
Si (Silicon)
FKM (Viton)

Seal-tight values

The socket seal-tight connection value requirements in EN 1123 are met.
All pipes and fittings, including their joints, are tight at an inside and outside pressure above atmospheric of 0 to 0.5 bar. For lines in which high pressures can occur, the GM-X securing clip is to be used for extra security against axial thrust. Instead of the securing clip, GM-X securing clamps are supplied for DN 150 and DN 200 pipes and fittings for axial security.

The seal-tight values thus produced are:

DN 150 – 2 bar
DN 200 – 1 bar

The following seal-tight values were determined for GM-X seal joints with securing clips and glued-on seals:

	Operation pressure	
DN	40	15 bar
DN	50	15 bar
DN	70	5 bar
DN	80	5 bar
DN	100	5 bar
DN	125	4 bar

Vacuum connection

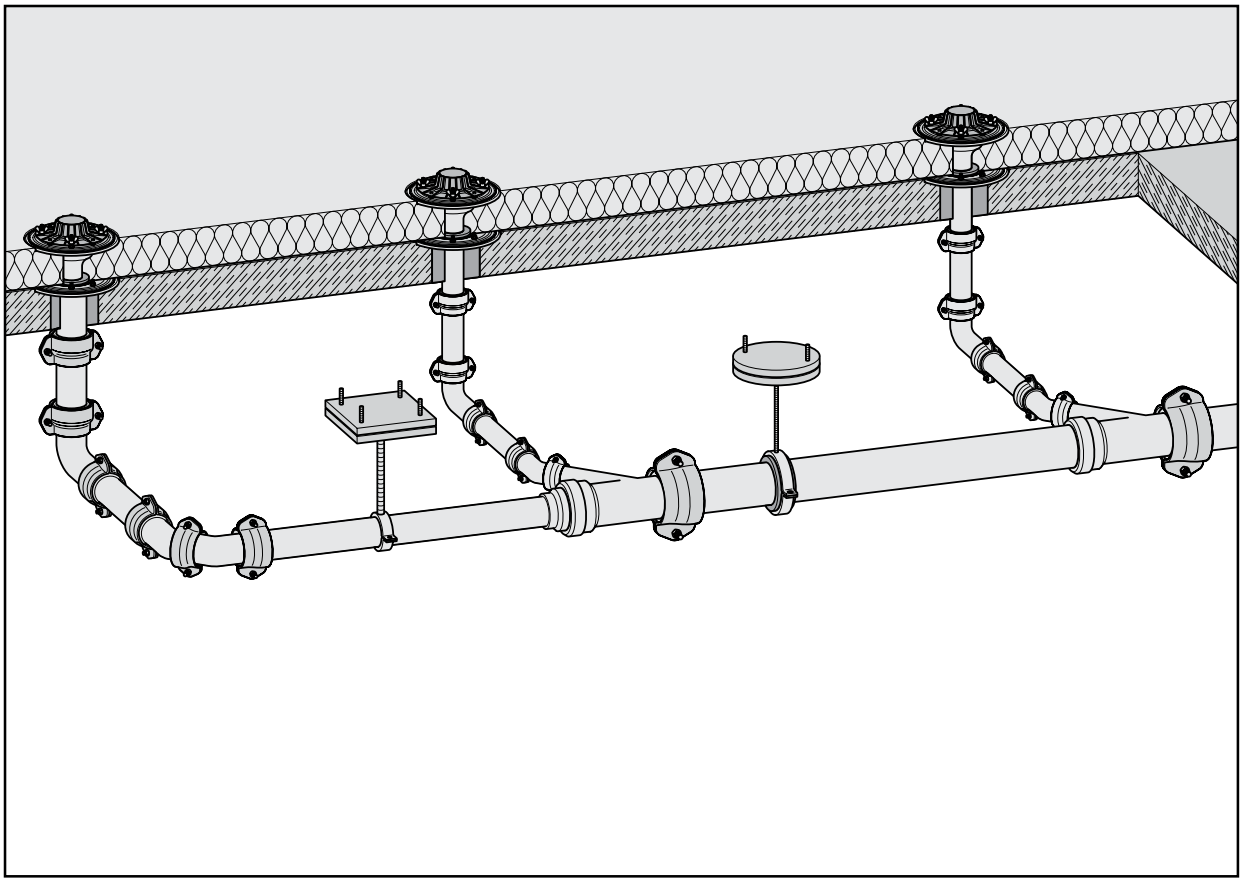
The GM-X-VAC plus sealing element allows the vacuum installations with standard socket Type A1. The seal is manufactured from EPDM and is provided with two flexible lip sealing elements.

The outer lip deforms to follow the contour of the socket and the inner lip deforms to follow the contour of the spigot to ensure a reliable, sealed joint. Please contact ACO BD Enquiries team on 01462 810421 or email abdestimating@aco.co.uk for further details.

Characteristics and system overview

ACO GM-X PIPE is an ideal solution for grey/black water, rainwater and industrial waste water building drainage applications.

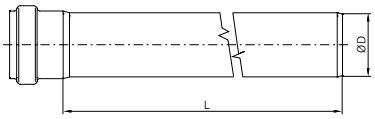
ACO GM-X PIPE pipes and fittings are available in 32mm, 40mm, 75mm, 110mm, 125mm, 160mm and 200mm external diameters with the standard lengths from 0.15 metre up to 3 metres for optimum practicality and ease of assembly.



Straight pipes

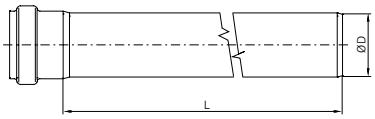
Socketed Pipe

Straight pipe 32mm



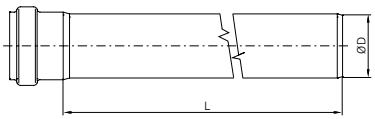
Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108850	32	250	0.3
108851	32	500	0.5
108852	32	750	1.0
108853	32	1000	1.2
108854	32	1500	1.8

Straight pipe 40mm



Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108855	40	250	0.4
108856	40	500	0.9
108857	40	750	1.2
108858	40	1000	1.6
108859	40	1500	2.4
108860	40	2000	3.2
108861	40	2500	3.9
108862	40	3000	5.0

Straight pipe 50mm

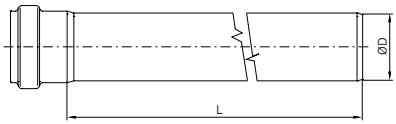


Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108863	50	250	0.6
108864	50	500	1.1
108865	50	750	1.6
108866	50	1000	2.1
108867	50	1500	3.1
108868	50	2000	4.2
108869	50	2500	5.2
108870	50	2750	5.7
108871	50	3000	6.2

Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

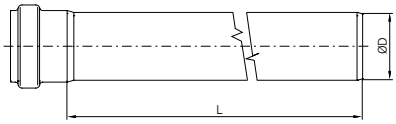
Socketed Pipe

Straight pipe 70mm



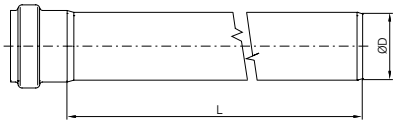
Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108872	70	250	0.9
108873	70	500	1.6
108874	70	750	2.3
108875	70	1000	3.0
108876	70	1500	4.6
108877	70	2000	5.8
108878	70	2500	7.2
108879	70	2750	8.1
108880	70	3000	8.8

Straight pipe 80mm



Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108881	80	250	1.3
108882	80	500	2.3
108883	80	750	3.5
108884	80	1000	4.4
108885	80	1500	6.4
108886	80	2000	8.4
108887	80	2500	10.8
108888	80	3000	12.8

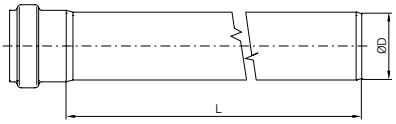
Straight pipe 100mm



Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108889	100	250	1.7
108890	100	500	2.8
108891	100	750	3.9
108892	100	1000	5.2
108893	100	1500	8.0
108894	100	2000	9.8
108895	100	2500	13.2
108896	100	2750	15.3
108897	100	3000	14.6

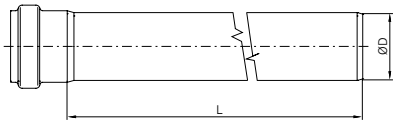
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Straight pipe 125mm



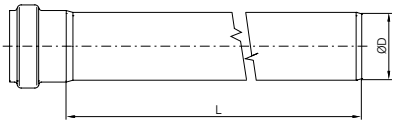
Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108898	125	250	2.8
108899	125	500	4.9
108900	125	750	7.1
108901	125	1000	9.2
108902	125	1500	13.2
108903	125	2000	17.4
108904	125	2500	21.8
108905	125	3000	25.3

Straight pipe 150mm



Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108906	150	250	3.4
108907	150	500	5.9
108908	150	750	8.5
108909	150	1000	11.0
108910	150	1500	16.0
108911	150	2000	21.2
108912	150	2500	26.9
108913	150	3000	31.4

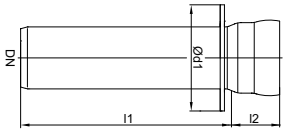
Straight pipe 200mm



Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108914	200	250	6.4
108915	200	500	10.3
108916	200	750	14.7
108917	200	1000	19.1
108918	200	1500	27.4
108919	200	2000	44.2
108920	200	2500	43.2
108921	200	3000	53.8

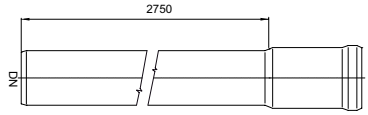
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Straight pipe single socket with flange



Part No	Outlet diameter øD [mm]		Length		Weight [kg]
	DN	d1	l1 [mm]	l2 [mm]	
108929	40	94	250	30	0.7
108930	50	103	250	38	0.8
108931	70	125	250	55	1.2
108932	80	136	250	60	1.7
108933	100	150	250	70	2.0
108934	125	180	250	75	3.3
108935	150	205	250	80	4.0
108936	200	265	250	120	7.0

Straight pipe with extended socket

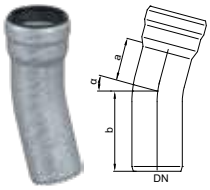


Part No	Outlet diameter øD [mm]	Active length L [mm]	Weight [kg]
108922	50	2750	6.1
108923	70	2750	8.6
108924	100	2750	15.1

Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

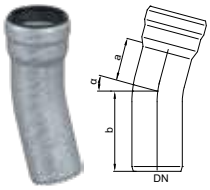
ACO GM-X Bends

bend 15°



Part No	Outlet diameter øD [mm]	Dimensions a [mm]	Dimensions b [mm]	Weight [kg]
108939	32	27	58	0.2
108940	40	37	67	0.2
108941	50	53	81	0.4
108942	70	50	89	0.6
108943	80	25	85	0.7
108944	100	34	104	1.0
108945	125	37	112	1.9
108946	150	40	120	2.6
108947	200	45	165	5.7

bend 30°



Part No	Outlet diameter øD [mm]	Dimensions a [mm]	Dimensions b [mm]	Weight [kg]
108948	32	30	65	0.1
108949	40	46	76	0.3
108950	50	64	92	0.4
108951	70	66	105	0.7
108952	80	56	116	1.2
108953	100	44	114	1.1
108954	125	45	118	2.1
108955	150	61	148	2.9
108956	200	45	165	10.8

Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

bend 45°

Part No	Outlet diameter øD [mm]	Dimensions a [mm]	b [mm]	Weight [kg]
108957	32	40	75	0.1
108958	40	56	86	0.3
108959	50	76	104	0.5
108960	70	83	122	0.8
108961	80	72.5	132	1.4
108962	100	54	124	1.2
108963	125	58	131	2.3
108964	150	83	162	3.1
108965	200	166	270	13.1

bend 70°

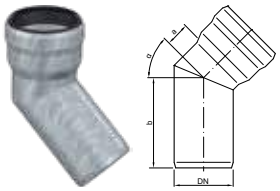
Part No	Outlet diameter øD [mm]	Dimensions a [mm]	b [mm]	Weight [kg]
108966	40	75	105	0.3
108967	50	100	128	0.5
108968	70	118	157	0.9
108969	80	105	165	1.7
108970	100	74	144	1.4
108971	125	75	157	2.6
108972	150	125	205	3.7
108973	200	254	360	17.6

bend 87°

Part No	Outlet diameter øD [mm]	Dimensions a [mm]	b [mm]	Weight [kg]
108974	32	69	100	0.2
108975	40	92	122	0.4
108976	50	120	148	0.6
108977	70	146	185	1.0
108978	80	134	194	2.0
108979	100	91	161	1.5
108980	125	97	179	4.5
108981	150	170	250	4.1
108982	200	330	435	22.9

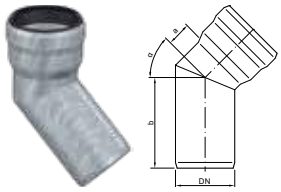
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

45° bend



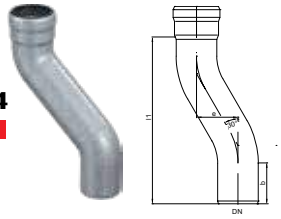
Part No	Outlet diameter øD [mm]	Dimensions a [mm]	b [mm]	Weight [kg]
108983	40	20	65	0.2
108984	50	24	79	0.3
108985	70	32	91	0.6
108986	80	40	105	1.6

87° bend



Part No	Outlet diameter øD [mm]	Dimensions a [mm]	b [mm]	Weight [kg]
108987	40	33	78	0.2
108988	50	44	98	0.3
108989	70	59	117	0.7
108990	80	72	137	1.6

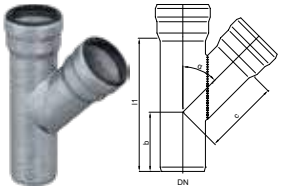
Offset



Part No	Outlet diameter øD [mm]	Dimensions b [mm]	e [mm]	l1 [mm]	Weight [kg]
109001	100	95	75	250	1.8
109002	100	95	130	300	2.2
109003	100	95	200	370	2.7

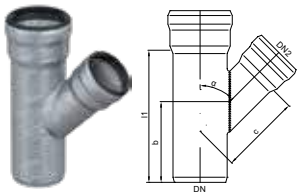
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Single branches



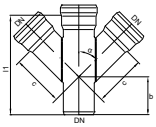
Part No	Outlet diameter øD [mm]	Dimensions b [mm]	c [mm]	l1 [mm]	Weight [kg]
45° single branch					
109004	32	55	70	125	0.2
109005	40	55	70	125	0.4
109006	50	65	90	150	0.6
109007	70	85	115	200	1.0
109008	80	97	138	235	1.8
109009	100	110	155	265	2.3
109010	125	130	210	340	5.1
109011	150	140	240	380	6.7
109012	200	190	320	500	16.8
87° single branch					
109013	32	70	40	110	0.2
109014	40	70	40	110	0.3
109015	50	80	50	130	0.5
109016	70	110	65	175	0.9
109017	80	126	75	200	1.5
109018	100	140	90	230	2.0
109019	125	170	120	285	4.3
109020	150	190	135	320	5.4
109021	200	260	170	420	13.5

Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

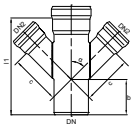


Part No	Outlet diameter øD [mm]		Dimensions			Weight [kg]
	DN	DN2	b [mm]	c [mm]	l1 [mm]	
45° single branch reduction						
109024	40	32	68	87	105	0.2
109025	50	32	72	95	110	0.4
109026	50	40	50	79	130	0.5
109027	70	40	60	95	150	0.7
109028	70	50	75	106	175	0.8
109029	80	50	71	117	185	1.2
109030	80	70	135	127	215	1.5
109031	100	40	65	116	180	2.7
109032	100	50	75	127	200	3.1
109033	100	70	90	136	230	3.7
109034	100	80	110	147	265	1.4
109035	125	50	75	148	225	1.5
109036	125	70	90	157	255	3.0
109037	125	80	185	169	290	3.3
109038	125	100	105	176	290	4.3
109039	150	40	129	156	200	1.8
109040	150	50	149	168	225	2.2
109041	150	70	80	177	255	6.7
109042	150	80	179	188	290	8.2
109043	150	100	95	195	290	7.9
109044	150	125	120	230	340	3.8
109045	200	50	185	212	265	3.7
109046	200	70	200	221	286	4.4
109047	200	80	215	232	325	5.9
109048	200	100	100	240	325	9.2
109049	200	125	130	274	380	10.0
109050	200	150	150	284	420	11.5
45° single branch reduction						
109051	50	40	75	46	120	0.4
109052	70	40	95	57	140	0.7
109053	70	50	100	61	150	0.7
109054	80	50	109	69	155	1.1
109055	100	40	115	72	175	1.3
109056	100	50	115	76	180	1.4
109057	100	70	125	80	200	1.6
109058	100	80	135	81	230	1.8
109055	125	50	125	91	200	2.6
109056	125	70	140	95	225	2.9
109060	125	100	155	105	255	3.4
109059	150	70	140	109	255	3.4
109061	150	100	155	119	255	3.9
109062	150	125	175	134	290	4.9

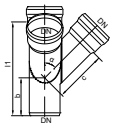
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

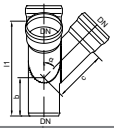
Part No	Outlet diameter øD [mm]	Dimensions b [mm]	c [mm]	l1 [mm]	Weight [kg]
45° double branch					
109071	50	65	90	150	0.8
109072	70	85	115	200	1.4
109073	100	100	155	265	3.1
87° double branch					
109074	50	80	50	130	0.6
109075	70	110	65	175	1.2
109076	100	140	90	230	1.2

Part No	Outlet diameter øD [mm] DN	DN2	Dimensions b [mm]	c [mm]	l1 [mm]	Weight [kg]
45° double branch reduction						
109077	70	50	75	106	175	1.2
109078	100	70	90	136	230	
109079	125	100	105	176	290	4.5
109080	150	100	95	195	290	5.1
87° double branch reduction						
109081	70	50	100	61	150	0.9
109082	100	70	125	80	200	1.9
109083	125	100	155	105	255	3.8

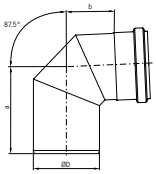
Part No	Outlet diameter DN [mm]	Dimensions b [mm]	c [mm]	l1 [mm]	Weight [kg]
45° corner branch					
109084	50	65	90	172	0.8
70° corner branch					
109085	50	70	60	130	0.6
87° corner branch					
109086	50	80	50	130	0.7
109087	70	110	65	175	1.2
109088	100	140	90	230	2.7

Part No	Outlet diameter øD [mm] DN	DN2	Dimensions b [mm]	c [mm]	l1 [mm]	Weight [kg]
87° corner branch reduction						
109089	70	50	100	61	150	1.0
109090	100	70	125	80	200	1.8

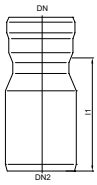
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

87.5° bend



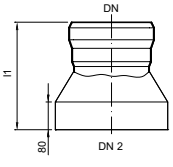
Part No	Outlet diameter øD [mm]	Dimensions		Weight [kg]
		a [mm]	b [mm]	
109091	40	35	80	0.2
109092	50	45	100	0.4
109093	70	60	120	0.7
109094	80	70	130	1.8
109095	100	91	161	1.5

Increaser coupling concentric



Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109098	40	50	85	0.3
109099	40	70	120	0.4
109100	50	70	110	0.4
109101	50	100	160	0.8
109102	70	80	110	0.6
109103	70	100	140	0.9
109104	70	125	160	1.3
109105	80	100	140	0.8
109106	100	125	160	1.6
109107	100	150	170	1.9
109108	100	200	250	3.6
109109	125	150	150	2.3
109110	125	200	255	4.7
109111	150	200	235	4.6
109112	200	250	280	8.2

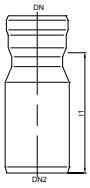
Increaser coupling concentric, without socket



Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109113	150	250	280	5.2
109114	150	300	320	6.1
109115	200	250	280	6.1
109116	200	300	310	8.2

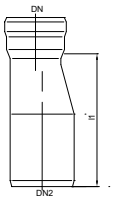
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Increaser coupling concentric long



Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109117	32	40	98	0.3
109118	32	50	125	0.3
109119	40	50	100	0.3
109120	40	70	140	0.4
109121	50	70	130	0.5
109122	70	80	135	0.8
109123	70	100	155	0.9
109124	80	100	155	1.0
109125	100	125	190	1.8
109126	125	150	170	2.4
109127	150	200	255	4.8

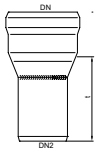
increaser coupling eccentric



Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109128	40	50	110	0.3
109129	40	70	115	0.4
109130	50	70	140	0.5
109131	50	100	157	0.8
109132	70	80	135	0.7
109133	70	100	160	0.9
109134	80	100	165	1.1
109135	100	125	182	1.8
109136	100	150	194	2.2
109137	125	150	210	2.8
109138	150	200	272	5.2

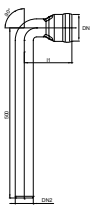
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

reducer coupling concentric



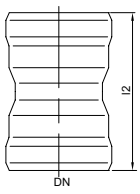
Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109139	40	32	65	0.2
109140	50	40	72	0.2
109141	70	40	95	0.4
109142	70	50	105	0.4
109143	80	50	125	0.9
109144	80	70	120	0.7
109145	100	70	130	0.8
109146	100	80	130	0.9
109147	125	100	160	1.6
109148	150	125	220	2.8
109149	200	150	215	4.7

90° long bend



Part No	Outlet diameter øD [mm]		l1 [mm]	Weight [kg]
	DN	DN2		
109150	70	32	140	0.7
109151	70	40	140	1.3
109152	70	50	140	1.5
109153	70	70	140	2.1
109154	100	70	165	2.2
109155	100	80	159	2.5
109156	100	100	150	3.5

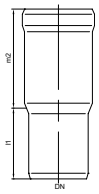
Double socket coupling



Part No	Outlet diameter øD [mm] DN	l2 [mm]	Weight [kg]
109157	40	76	0.2
109158	50	94	0.2
109159	70	135	0.5
109160	80	150	0.7
109161	100	180	1.0
109162	125	190	1.8
109163	150	200	2.1
109164	200	290	5.2

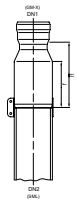
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Expansion socket



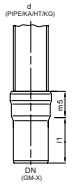
Part No	Outlet diameter øD [mm] DN	l1 [mm]	m2 [mm]	Weight [kg]
109165	40	50	70	0.2
109166	50	60	90	0.3
109167	70	70	120	0.6
109168	80	75	135	0.9
109169	100	90	150	1.3
109170	125	100	160	2.3

Connector cast iron pipe



Part No	Outlet diameter øD [mm] DN1	DN2	f [mm]	l1 [mm]	Weight [kg]
109175	50	50	70	95	0.3
109176	70	70	75	105	0.5
109177	70	80	75	105	0.5
109178	70	100	80	120	0.8
109179	80	80	57	74	0.6
109180	100	100	80	110	1.0
109181	200	200	140	170	3.8

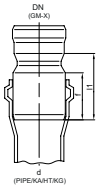
Connector plastic pipe



Part No	Outlet diameter øD [mm] DN	d	l1 [mm]	m5 [mm]	Weight [kg]
109182	50	50mm	52	38	0.2
109183	70	75mm	95	50	0.5
109184	100	110mm	110	57	1.0
109185	125	125mm	130	63	1.3
109186	150	160mm	150	70	1.6
109187	200	200mm	180	80	1.9

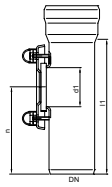
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

connector plastic socket pipe



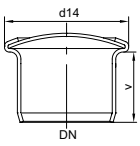
Part No	Outlet diameter øD [mm] DN	d	f [mm]	l1 [mm]	Weight [kg]
109190	40	50	45	60	
109191	50	50	45	60	0.2
109192	70	75	60	95	0.4
109193	70	110	80	120	0.8
109194	80	110	80	115	0.9
109195	100	110	80	110	1.0
109196	100	125	80	130	1.1
109197	125	125	85	130	1.7
109198	150	160	90	150	
109199	200	200	110	150	4.1

Access unit



Part No	Outlet diameter øD [mm] DN	d1[mm]	Dimensions l1 [mm]	n [mm]	Weight [kg]
109200	40	36	125	80	0.3
109201	50	45	150	95	0.5
109202	70	61	200	125	0.9
109203	80	75	210	135	1.3
109204	100	95	265	165	2.0
109205	125	128	290	180	3.7
109206	150	128	320	190	4.6
109207	200	128	420	260	9.6

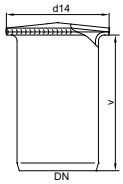
Socket plug



Part No	Outlet diameter DN [mm]	d14 [mm]	v [mm]	Weight [kg]
109210	40	53	30	0.1
109211	50	68	38	0.2
109212	70	90	55	0.3
109213	80	110	60	0.4
109214	100	117	65	0.6
109215	125	157	75	1.1
109216	150	190	75	1.4

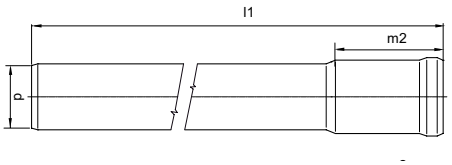
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Extended socket plug



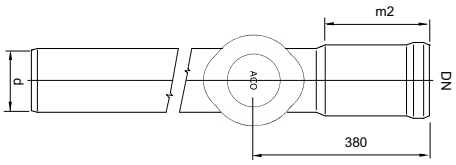
Part No	Outlet diameter [mm] DN	d14 [mm]	v [mm]	Weight [kg]
109217	40	53	70	0.2
109218	50	68	85	0.6
109219	70	90	100	0.5
109220	80	110	105	0.6
109221	100	117	120	0.8
109222	125	157	125	1.5
109223	150	190	125	1.8

Rain pipe



Part No	Outlet diameter øD [mm] d	Length l1 [mm]	Length m2 [mm]	Weight [kg]
109224	50	1000	120	3.51
109225	70	1000	130	4.20
109226	80	1000	150	4.80
109227	100	1000	160	9.30
109228	125	1000	170	9.80

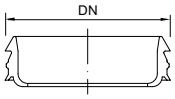
Rain pipe, with access



Part No	Outlet diameter øD [mm] d	Length l1 [mm]	Length m2 [mm]	Weight [kg]
109229	50	1000	120	3.24
109230	70	1000	130	4.54
109231	80	1000	150	5.18
109232	100	1000	160	9.65
109233	125	1000	170	10.62

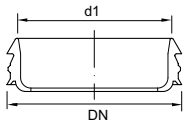
Please note that seals for GM-X Pipes are to be ordered separately, please see page 24.

Seals



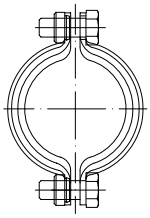
Part No	Outlet diameter DN [mm]	Weight [kg]
109234	40	0.0
109235	50	0.0
109236	50	0.0
109237	70	0.0
109238	80	0.0
109239	100	0.0
109240	125	0.1
109241	150	0.1
109242	200	0.3

Transition seal



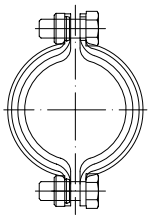
Part No	Outlet diameter øD [mm]		Weight [kg]
	DN	d1	
109243	40	32	0.0
109244	50	32	0.0
109245	40	38	0.1
109246	50	38	0.1
109247	50	48	0.0
109248	100		0.0
109249	80		0.0
109250	100	110	0.0
109251	125	125	0.0

Safety clamp



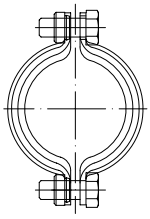
Part No	For pipe diameter øD [mm]	Weight [kg]
109252	32	0.15
109253	40	0.19
109254	50	0.60
109255	70	0.46
109256	80	0.55
109257	100	0.97
109258	125	1.3

Safety clamp with release catch



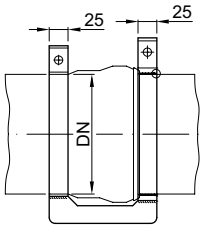
Part No	For pipe diameter øD [mm]	Weight [kg]
109259	32	0.19
109260	40	0.24
109261	50	0.30
109262	70	0.43
109263	80	0.53
109264	100	0.93
109265	125	1.22

Pipe clamp with 120mm long pin



Part No	For pipe diameter øD [mm]	Weight [kg]
109266	40	0.7
109267	50	0.11
109268	70	0.18
109269	80	0.19
109270	100	0.21
109271	125	0.27
109272	150	0.35

Safety bracket



Part No	For pipe diameter øD [mm]	Weight [kg]
109273	150	1.84
109274	200	2.50

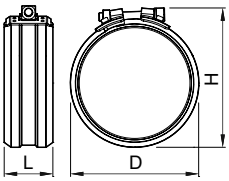
Pipe clamp with threaded hanger bolt

Part No	For pipe diameter øD [mm]	Thread	Weight [kg]
109275	40	M8	0.12
109276	50	M8	0.09
109277	70	M8	0.15
109278	80	M10	0.15
109279	100	M10	0.18
109280	125	M12	0.69
109281	150	M12	0.54
109282	200	M12	0.67

Pipe clamp with threaded bolt isolated

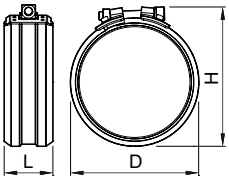
Part No	For pipe diameter øD [mm]	Thread	Weight [kg]
109283	40	M8	0.12
109284	50	M8	0.09
109285	70	M8	0.15
109286	80	M10	0.15
109287	100	M10	0.18
109288	125	M12	0.69
109289	150	M12	0.54
109290	200	M12	0.67

ACO GM-X - universal clamp - stainless steel



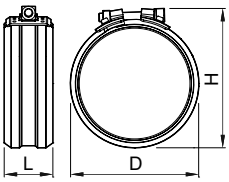
Part No	For pipe diameter øD [mm]	Weight [kg]
109291	250	2.63
109292	300	2.98

ACO GM-X - rapid INOX connector - stainless steel



Part No	For pipe diameter øD [mm]	Weight [kg]
109293	250	1.07
109294	300	1.10

ACO GM-X - lubricant (1kg)



Part No
109295

Flow rates, care and maintenance

Discharge Rates
The discharge rates listed apply to gravity systems.
Pipes with a gradient from 1.0% to 10.0%
Q = discharge rate / V = flow velocity

Rainwater (roughness coefficient KS = 0.6 mm)												
Gradient	Ø 50		Ø 75		Ø 110		Ø 125		Ø 160		Ø 200	
	Q	v	Q	v	Q	v	Q	v	Q	v	Q	v
[%]	[l/s]	[m/s]	[l/s]	[m/s]	[l/s]	[m/s]	[l/s]	[m/s]	[l/s]	[m/s]	[l/s]	[m/s]
1.0	0.87	0.48	2.66	0.63	7.53	0.82	10.63	0.89	20.28	1.05	36.95	1.21
1.5	1.06	0.59	3.25	0.78	9.22	1.01	13.01	1.10	24.84	1.28	45.26	1.48
2.0	1.23	0.68	3.76	0.90	10.64	1.16	15.03	1.26	28.68	1.48	52.26	1.71
2.5	1.37	0.76	4.20	1.00	11.90	1.30	16.80	1.41	32.07	1.66	58.43	1.92
3.0	1.50	0.83	4.60	1.10	13.04	1.42	18.41	1.55	35.13	1.81	64.01	2.10
3.5	1.62	0.90	4.97	1.19	14.08	1.54	19.88	1.67	37.95	1.96	69.14	2.27
4.0	1.73	0.96	5.31	1.27	15.06	1.64	21.26	1.79	40.57	2.10	73.92	2.43
4.5	1.84	1.02	5.64	1.35	15.97	1.74	22.55	1.90	43.03	2.22	78.40	2.57
5.0	1.94	1.07	5.94	1.42	16.83	1.84	23.77	2.00	45.36	2.34	82.65	2.71
7.5	2.38	1.31	7.28	1.74	20.62	2.25	29.11	2.45	55.56	2.87	101.22	3.32
10.0	2.74	1.52	8.40	2.01	23.81	2.60	33.61	2.83	64.15	3.31	116.89	3.83

Material resistance chart

	Seals		
	EPDM	NBR	FPM (Viton)
Water	very suitable	very suitable	very suitable
Acids	suitable	less suitable	very suitable
Alkalis	suitable	suitable	suitable
Alcohol	suitable	suitable	suitable
Acetone	suitable	not suitable	not suitable
Benzene	not suitable	less suitable	suitable
Mineral oils	not suitable	suitable	very suitable
Vegetable oils	not suitable	very suitable	very suitable
Vegetable fats	not suitable	very suitable	very suitable
Animal fats	not suitable	very suitable	very suitable
Fuel resistance	not suitable	suitable	very suitable
Oxidation resistance	very suitable	not suitable	suitable
Weather resistance	suitable	not suitable	very suitable
Temperature resistance: continuous/short-term	100 °C / 120 °C	90 °C / 120 °C	150 °C / 200 °C
Temperature resistance at low temperatures	-50 °C	-30 °C	-20 °C
Permeability of gas	low	low	very low
Physical strength	good	good	good
Resistant against stiffening	good	good	good
Wear	good	good	very good

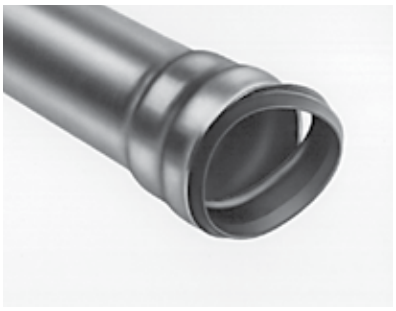
ACO GM-X Pipe material information

Corrosion proofing

All pipes and fittings are hot galvanized inside and out. The zinc coating is on average 400 g/m2 or 56 µ. It is impact-resistant and shock-proof. The zinc coating produces a cathodic protection of the cut edges thus preventing bottom rust. In addition, the insides of the pipes and fittings are given an alkyd-melamine resin based plastic coating.

Due to this internal coating of the pipes, frictional resistance on the internal surfaces is reduced and incrustation largely prevented. Together with the zinc coating, optimum corrosion protection is achieved. Both the hot galvanizing and the additional internal coating meet the requirements of EN 1123 Part 1.

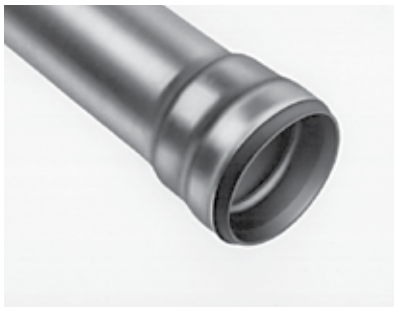
Socket joint for GM-X sockets



1. The seal is placed obliquely on the lower edge of the socket chamber.

2. Using your index finger to press the seal to one side, push it into the socket chamber.

The lubricant dries out in time. The socket joint can be loosened again by heating the socket area. A correct fit of the inserted pipe end into the socket is especially important for the installation of vacuum and pressurised piping systems. The use of a corresponding marking on the pipe end avoids installation mistakes.



3. On releasing, the seal should pop into the socket chamber.
(Adjust where necessary)
Note:
The outside seal edge collar must rest on the socket rim.

4. The seal is coated all-over inside with GM-X lubricant.

5. The pipe end is inserted into the socket by turning gently until it is located on the lower socket end.

Care and maintenance

Operation and Maintenance

With care taken during the fabrication and installation, cleaning before handing over to the client should present no special problems, although more attention than normal may be required if the installation period has been prolonged. Where surface contamination is suspected, immediate attention to cleaning after site fixing will encourage a trouble-free product.

Cleaning Galvanised Steel

Galvanised steel surfaces can be cleaned and rinsed with clean water. Stubborn stains are to be removed with a stiff bristled brush. Do not use a wire brush.

Galvanised Steel Maintenance

Heavy damage to the galvanised surface exposes the underlying metal to the atmosphere and corrosion will result if not treated. Any corrosion should be removed by light abrasion and the area treated with one of the many commercially available zinc sprays using the manufacturers' instructions.

Installation guide

Installation

A significant task falls upon the installer, who, in the final analysis, determines the practical value of a drainage installation. The superior quality of our pipe material and the first-class processing of our products help him in this task.

Drainage installations have to be able to be constructed without problems and work without malfunctions. Any connection problem can be quickly and economically resolved by the availability of an extensive range of fittings.

The fully technically developed socket joint enables rapid and simple plug-in assembly, just by turning the pipe and the fitting in the socket.

Steel pipes and fittings are easy to handle, impact-resistant and shock-proof, unaffected by rough treatment during processing.

The GM-X Drain pipe range can also be supplied with two sockets. When a pipe is cut to size, there is a piece left over with a socket, which can be used as an extra fitting piece.

Steel drain pipes and fittings - together with the characteristic plug-in socket joint - give the installed drain pipe a practically self-supporting stability. The use of pipe clips and holding devices is only necessary at a few places in the installation.

Pipe fixing

For horizontally laid pipes, the dead weight of the pipe plus the possible water content and the number of fixing points are to be taken into account when choosing fixing materials.
The following GM-X fixing devices can be supplied:

- Securing clips for axial thrust and for suspending the pipes (perforated belt or steel hoop)
- Pipe clips with knock-in pin or rod for welding on without sound-proofing insert
- Pipe clips for threaded pin with or without sound-proofing insert

DN	Weight
40	2.9 kg
50	4.0 kg
70	7.0 kg
80	9.4 kg
100	12.8 kg
125	22.0 kg
150	29.0 kg
200	58.0 kg

Cutting to length

Cutting to length can be done with a pipe cutter, a cutting-off wheel or a saw. Pipes cut to length with a wheel or saw must be de-burred before being inserted in the socket so as not to damage the seal.

Production monitoring

GM-X drain pipes and fittings are subject to production monitoring by the Bavarian Institute for Technical Building Equipment and Domestic Water Supplies, Würzburg branch.

GM-X seals are subject to third-party monitoring by the North Rhine-Westphalia State Materials Testing Office, Dortmund.

Quality management

GM-X drain pipes and fittings are subject to production monitoring in accordance to DIN EN ISO 9001.

Certification

GM-X pipes and special fittings are certified by renowned test registers. This underlines their high operational safety.

Associated ACO Building Drainage Product Ranges

ACO PIPE ®

ACO PIPE® is manufactured from thin-wall austenitic stainless steel in grades 304 and 316 and is pickle passivated for optimum durability and corrosion resistance. ACO Pipe® is available in a wide range of socketed waste pipework products and accessories for above and below ground rainwater and industrial wastewater drainage applications. Used together with other ACO products it creates a perfect system and one stop sustainable drainage solution with unique advantages to the customer – lightweight, easy installation, low thermal expansion co-efficient, sustainable material, hygienic, near zero maintenance. When used with ACO stainless steel gullies and channel systems it provides a unique system for building drainage.

ACO DeckLine 125

ACO DeckLine 125 is a shallow invert hot-dipped galvanised steel linear drainage system for applications up to and including Load Class C 250. It is ideally suited for parking decks and areas such as structural slabs or where excavation depth is limited. Available off the shelf ACO DeckLine is durable, 100% watertight and easy to install. ACO DeckLine 125 is tested and certified to BS EN 1433.

ACO Stainless Steel Gully Systems

ACO Stainless Steel Gullies are manufactured as standard in both stainless steel grade 304 and 316, and are pickle passivated for optimum durability and corrosion resistance. All ACO gullies are designed for optimum hygiene performance and meet the stringent demands of modern hygienic installations. Available in various ranges to suit any application, each range offers a selection of products to meet all industrial and commercial drainage requirements. ACO stainless steel gullies can be used in either a standalone single point gully application or, with other ACO products, such as ACO Modular 125+, ACO PIPE® and ACO Engineered Solutions channel drainage, to provide a complete drainage solution.

All product brochures are available for viewing and downloading at www.acobd.co.uk

ACO Technologies plc

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  Civils + Infrastructure
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- ACO Sport
- ACO Wildlife
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The ACO Group: A strong family you can depend on.