

# ACO Surface Water Management



## **ACO DRAIN®** *PowerDrain Leaflet*

### **Introduction to the heavy duty PowerDrain System**

**S100K – 100mm width, ductile iron edge channel**

**S200K – 200mm width, ductile iron edge channel**

**S300K – 300mm width, ductile iron edge channel**



## ACO DRAIN®

ACO Drain® is the leading modular trench drain system and is ideal for commercial applications ranging from petrol stations to airports.

ACO Drain® systems comprise Polycrete® Channels\*, factory manufactured modular units made from corrosion resistant polymer concrete. Channels are to be used with grates from a variety of materials for all loading applications. ACO Drain® systems are available in 50mm, 100mm, 200mm and 300mm internal widths, and most systems have a built-in slope for up to 40 continuous metres.

The ACO Drain® brand is segmented into different product ranges, dependent on use.

### 1. Standard Products

KlassikDrain  
PowerDrain  
SlabDrain

### 2. Specialty Products

Brickslot  
MiniKlassik  
Grated Pits



## PowerDrain

PowerDrain is available in 100mm, 200mm and 300mm widths and is a heavy duty general purpose trench drain comprising modular Polycrete® Channels\*. Each interconnecting unit is manufactured complete with integrally cast ductile iron edge rails.

A choice of 2 grates (including Heelsafe® Anti-Slip) is available up to load class G (AS 3996). This is equivalent to approximately 30 tonne wheel load.

For quick locking and removal during installation and maintenance, all grates are locked down with the patented, barless and boltless mechanism, PowerLok.

\* Polycrete® refers to ACO Products made from polymer concrete

### Typical applications

- Airports
- Highways
- Heavy duty industrial areas
- Petrol stations
- Docks and ports
- Military bases
- Truck stops



Product overview – S100K / S200K / S300K



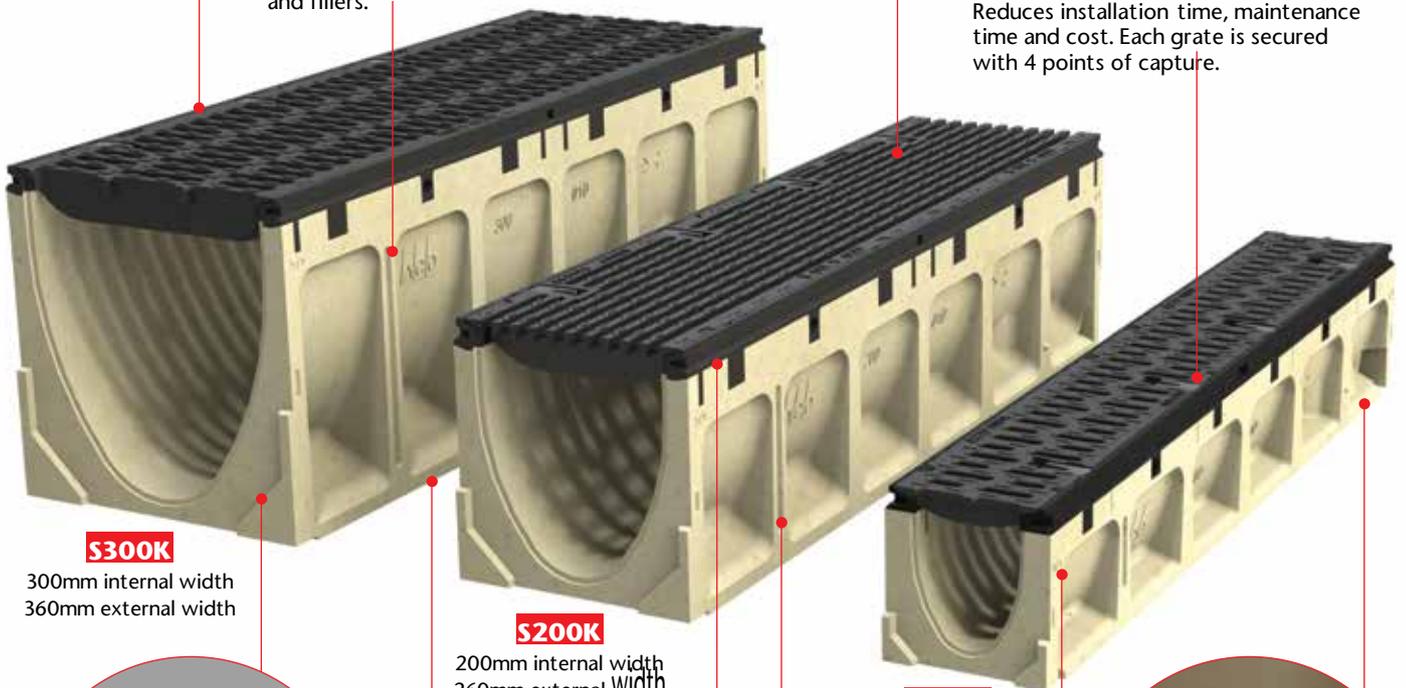
**'Anti-shunt' lugs** – recesses in grate fit around lugs on the edge rail to prevent longitudinal movement.



**Ductile iron grates** – rated up to AS 3996 load class G (approx. 30 tonne wheel load) heavy duty ductile iron Slotted or Intercept **Heelsafe**® Anti-Slip grates.

**Polymer concrete** – a durable yet lightweight material made from polyester resin binder reinforced by mineral aggregates and fillers.

**PowerLok** – is a patented, barless and boltless locking system that provides easy fitting and removal of grates. Reduces installation time, maintenance time and cost. Each grate is secured with 4 points of capture.



**S300K**

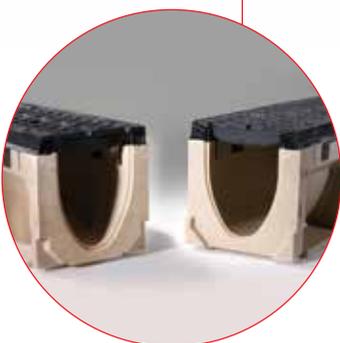
300mm internal width  
360mm external width

**S200K**

200mm internal width  
260mm external width

**S100K**

100mm internal width  
160mm external width



**Interconnecting end profiles** allow easy and effective joining of channels. **SF Sealant Groove** – a groove is cast into both ends of every channel. The combined groove allows for a bead of appropriate flexible sealant to be inserted at joints, if required.

**Ductile iron edge rail** – integrally cast-in rail provides maximum strength and protection for channel body.

**Profiled side walls** – provide channel body strength and mechanical keying to concrete encasement.

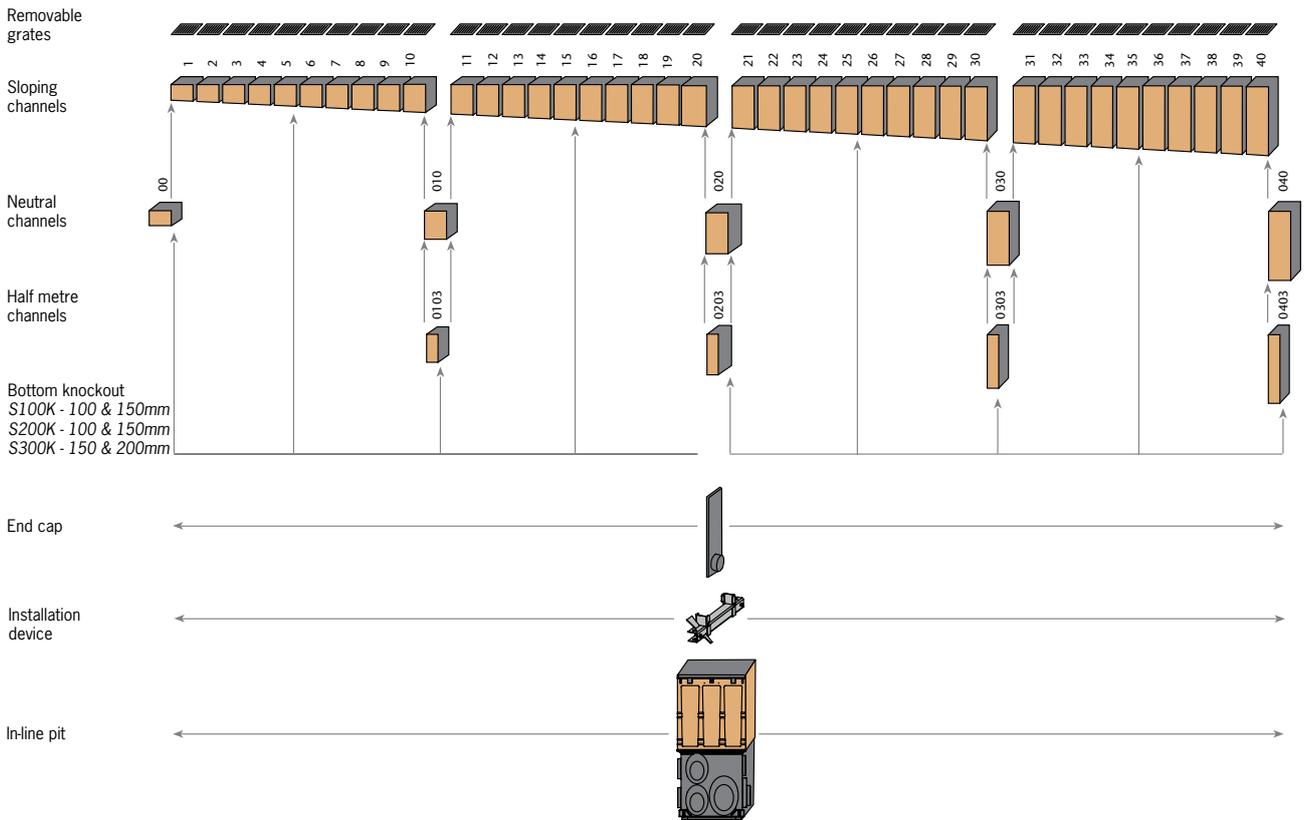


**Knock-outs** are included on every fifth channel unit to allow vertical outlet connection to the pipework.

**Sloped (0.5%) channel** – metre long units provide 40 metres continuous slope. This equates to 5mm fall per metre. Five neutral channels extend run lengths. Four half metre units and accessories are also available.

**Channel identification and system numbering** – in addition to channel numbering on sidewalls and (invert) base of channel, each end of the channel indicates the number of the channel that will connect to it.

## Typical system layout – S100K / S200K / S300K



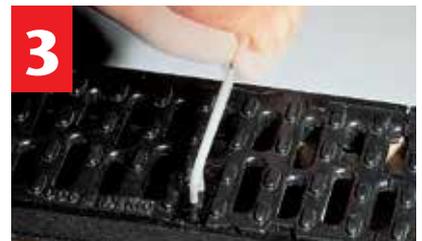
## PowerLok – barless and boltless locking system



1 To open PowerLok, insert tool between rail and PowerLok device.



2 Rotate tool 90°; PowerLok device should push away from rail.



3 To close, place hook part of tool into 'V' and push towards rail.

## PowerLok – safety clip (optional)



For areas of security or safety concerns, the PowerLok safety clip provides a visual alert to confirm the grate is locked and secure.



The safety clip push-fits next to the locked PowerLok device. Safety clip sits flush with grate surface and grate cannot be unlocked.



To open PowerLok device, the safety clip must be removed. If no red block is visible, the locking is not guaranteed. This provides a visual alert that grates may not be locked.

Parts table

	S100K – 100mm internal width			S200K – 200mm internal width			S300K – 300mm internal width		
	Channel Part No.	Invert <sup>2</sup> mm	Weight kg	Channel Part No.	Invert <sup>2</sup> mm	Weight kg	Channel Part No.	Invert <sup>2</sup> mm	Weight kg
<b>00 Neutral channel (1m)<sup>1</sup></b>	<b>67041</b>	100	22.5	<b>68041</b>	200	36.1	<b>69041</b>	300	59.1
1 Sloped channel (1m)	<b>67001</b>	105	22.5	<b>68001</b>	205	36.1	<b>69001</b>	305	59.1
2 Sloped channel (1m)	<b>67002</b>	110	22.9	<b>68002</b>	210	36.6	<b>69002</b>	310	59.6
3 Sloped channel (1m)	<b>67003</b>	115	23.4	<b>68003</b>	215	37.1	<b>69003</b>	315	60.2
4 Sloped channel (1m)	<b>67004</b>	120	23.8	<b>68004</b>	220	37.6	<b>69004</b>	320	60.7
5 Sloped channel (1m) <sup>1</sup>	<b>67005</b>	125	24.3	<b>68005</b>	225	38.1	<b>69005</b>	325	61.3
6 Sloped channel (1m)	<b>67006</b>	130	24.7	<b>68006</b>	230	38.6	<b>69006</b>	330	61.9
7 Sloped channel (1m)	<b>67007</b>	135	25.2	<b>68007</b>	235	39.1	<b>69007</b>	335	62.4
8 Sloped channel (1m)	<b>67008</b>	140	25.6	<b>68008</b>	240	39.6	<b>69008</b>	340	63.0
9 Sloped channel (1m)	<b>67009</b>	145	26.1	<b>68009</b>	245	40.1	<b>69009</b>	345	63.5
10 Sloped channel (1m) <sup>1</sup>	<b>67010</b>	150	26.5	<b>68010</b>	250	40.6	<b>69010</b>	350	64.1
<b>010 Neutral channel (1m)<sup>1</sup></b>	<b>67043</b>	150	26.5	<b>68043</b>	250	40.6	<b>69042</b>	350	64.1
<b>0103 Neutral channel (0.5m)<sup>1</sup></b>	<b>67044</b>	150	13.7	<b>68044</b>	250	26.5	<b>69045</b>	350	35.3
11 Sloped channel (1m)	<b>67011</b>	155	27.0	<b>68011</b>	255	41.1	<b>69011</b>	355	64.6
12 Sloped channel (1m)	<b>67012</b>	160	27.4	<b>68012</b>	260	41.6	<b>69012</b>	360	65.2
13 Sloped channel (1m)	<b>67013</b>	165	27.9	<b>68013</b>	265	42.1	<b>69013</b>	365	65.8
14 Sloped channel (1m)	<b>67014</b>	170	28.3	<b>68014</b>	270	42.6	<b>69014</b>	370	66.3
15 Sloped channel (1m) <sup>1</sup>	<b>67015</b>	175	28.8	<b>68015</b>	275	43.1	<b>69015</b>	375	66.9
16 Sloped channel (1m)	<b>67016</b>	180	29.3	<b>68016</b>	280	43.6	<b>69016</b>	380	67.4
17 Sloped channel (1m)	<b>67017</b>	185	29.7	<b>68017</b>	285	44.1	<b>69017</b>	385	68.0
18 Sloped channel (1m)	<b>67018</b>	190	30.2	<b>68018</b>	290	44.6	<b>69018</b>	390	68.5
19 Sloped channel (1m)	<b>67019</b>	195	30.6	<b>68019</b>	295	45.1	<b>69019</b>	395	69.1
20 Sloped channel (1m) <sup>1</sup>	<b>67020</b>	200	31.1	<b>68020</b>	300	45.6	<b>69020</b>	400	69.7
<b>020 Neutral channel (1m)<sup>1</sup></b>	<b>67045</b>	200	31.1	<b>68045</b>	300	45.6	<b>69044</b>	400	69.7
<b>0203 Neutral channel (0.5m)<sup>1</sup></b>	<b>67046</b>	200	15.7	<b>68046</b>	300	29.9	<b>69047</b>	400	38.5
21 Sloped channel (1m)	<b>67021</b>	205	31.5	<b>68021</b>	305	46.1	<b>69021</b>	405	70.2
22 Sloped channel (1m)	<b>67022</b>	210	32.0	<b>68022</b>	310	46.6	<b>69022</b>	410	70.8
23 Sloped channel (1m)	<b>67023</b>	215	32.4	<b>68023</b>	315	47.1	<b>69023</b>	415	71.4
24 Sloped channel (1m)	<b>67024</b>	220	32.8	<b>68024</b>	320	47.6	<b>69024</b>	420	71.9
25 Sloped channel (1m) <sup>1</sup>	<b>67025</b>	225	33.3	<b>68025</b>	325	48.1	<b>69025</b>	425	72.4
26 Sloped channel (1m)	<b>67026</b>	230	33.7	<b>68026</b>	330	48.6	<b>69026</b>	430	73.0
27 Sloped channel (1m)	<b>67027</b>	235	34.2	<b>68027</b>	335	49.1	<b>69027</b>	435	73.6
28 Sloped channel (1m)	<b>67028</b>	240	34.7	<b>68028</b>	340	49.6	<b>69028</b>	440	74.1
29 Sloped channel (1m)	<b>67029</b>	245	35.1	<b>68029</b>	345	50.1	<b>69029</b>	445	74.7
30 Sloped channel (1m) <sup>1</sup>	<b>67030</b>	250	35.6	<b>68030</b>	350	50.6	<b>69030</b>	450	75.3
<b>030 Neutral channel (1m)<sup>1</sup></b>	<b>67047</b>	250	35.6	<b>68047</b>	350	50.6	<b>69046</b>	450	75.3
<b>0303 Neutral channel (0.5m)<sup>1</sup></b>	<b>67048</b>	250	17.7	<b>68048</b>	350	32.0	<b>69049</b>	450	41.8
31 Sloped channel (1m)	<b>67031</b>	255	36.0	<b>68031</b>	355	51.2	<b>69031</b>	455	75.8
32 Sloped channel (1m)	<b>67032</b>	260	36.5	<b>68032</b>	360	51.7	<b>69032</b>	460	76.4
33 Sloped channel (1m)	<b>67033</b>	265	36.9	<b>68033</b>	365	52.2	<b>69033</b>	465	76.9
34 Sloped channel (1m)	<b>67034</b>	270	37.4	<b>68034</b>	370	52.7	<b>69034</b>	470	77.5
35 Sloped channel (1m) <sup>1</sup>	<b>67035</b>	275	37.8	<b>68035</b>	375	53.2	<b>69035</b>	475	78.1
36 Sloped channel (1m)	<b>67036</b>	280	38.3	<b>68036</b>	380	53.7	<b>69036</b>	480	78.6
37 Sloped channel (1m)	<b>67037</b>	285	38.7	<b>68037</b>	385	54.2	<b>69037</b>	485	79.2
38 Sloped channel (1m)	<b>67038</b>	290	39.2	<b>68038</b>	390	54.7	<b>69038</b>	490	79.7
39 Sloped channel (1m)	<b>67039</b>	295	39.6	<b>68039</b>	395	55.2	<b>69039</b>	495	80.3
40 Sloped channel (1m) <sup>1</sup>	<b>67040</b>	300	40.1	<b>68040</b>	400	55.7	<b>69040</b>	500	80.8
<b>040 Neutral channel (1m)<sup>1</sup></b>	<b>67049</b>	300	40.1	<b>68049</b>	400	55.7	<b>69048</b>	500	80.8
<b>0403 Neutral channel (0.5m)<sup>1</sup></b>	<b>67050</b>	300	19.8	<b>68050</b>	400	36.0	<b>69050</b>	500	45.5
Type 900 In-line pit (0.5m) <sup>3</sup>	<b>142547</b>	737 <sup>4</sup>	39.3	<b>142548</b>	843 <sup>4</sup>	32.3	<b>142549</b>	956 <sup>4</sup>	39.9
Type 900 In-line plastic rubbish basket	<b>01498</b>	–	0.5	<b>13999</b>	–	0.5	<b>98653</b>	–	1.6
Optional plastic riser							<b>141729</b>	300	4.5
Plastic rubbish basket – long							<b>98665</b>	–	1.8
Universal end cap	<b>96824</b>	317 <sup>4</sup>	0.2	<b>96823</b>	420 <sup>4</sup>	0.6	<b>96827</b>	520 <sup>4</sup>	1.1
Debris strainer for 100mm knockout	<b>93488</b>	–	0.1	<b>93488</b>	–	0.1			
Installation device	<b>97477</b>	–	1.3	<b>97478</b>	–	1.8	<b>97479</b>	–	2.2
Grate removal tool	<b>01318</b>	–	0.1	<b>01318</b>	–	0.1	<b>01318</b>	–	0.1
<b>PowerLok</b> safety clip	<b>10443</b>	–	–	<b>10443</b>	–	–	<b>10443</b>	–	–

Notes:

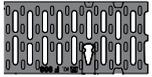
1. This channel offers bottom knockout feature; S100K – 100mm round and 150mm oval, S200K – 100mm and 150mm round, S300K – 150mm and 200mm round.
2. Inverts shown are male ends, for female invert depths – subtract 5mm from male invert (except neutral channels where it will be the same as the male invert). To calculate overall channel depth, add 25mm to invert depth.
3. In-line pit assembly (polymer concrete top with ductile iron edge rail and plastic base).
4. Overall depth of in-line pit and end caps.

## PowerDrain PowerLok grates

### S100K grates

Length mm Part No. Wgt kg    

#### LOAD CLASS G - AS 3996 900kN - approximate wheel load 30,000kg

	Iron Slotted	500	96082	5.6	✓	✗	✓	✗
	Iron Intercept <sup>1</sup> <b>Heelsafe<sup>®</sup></b> <i>Anti-Slip</i>	500	141299	6.8	✓	✓	✓	✓

### S200K grates

Length mm Part No. Wgt kg    

#### LOAD CLASS G - AS 3996 900kN - approximate wheel load 30,000kg

	Iron Slotted	500	71976	14.5	✗	✗	✓	✗
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#### LOAD CLASS D - AS 3996 210kN - approximate wheel load 8,000kg

	Iron Intercept <sup>1</sup> <b>Heelsafe<sup>®</sup></b> <i>Anti-Slip</i>	500	142685	8.5	✓	✓	✓	✓
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#### LOAD CLASS E - AS 3996 400kN - approximate wheel load 13,700kg

	Iron Intercept <sup>1</sup> <b>Heelsafe<sup>®</sup></b> <i>Anti-Slip</i>	500	141215	11.7	✓	✓	✓	✓
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### S300K grates

Length mm Part No. Wgt kg    

#### LOAD CLASS G - AS 3996 900kN - approximate wheel load 30,000kg

	Iron Slotted	500	02445	24.4	✗	✗	✓	✗
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#### LOAD CLASS D - AS 3996 210kN - approximate wheel load 8,000kg

	Iron Intercept <sup>1</sup> <b>Heelsafe<sup>®</sup></b> <i>Anti-Slip</i>	500	142686	15.0	✓	✓	✓	✓
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#### LOAD CLASS E - AS 3996 400kN - approximate wheel load 13,700kg

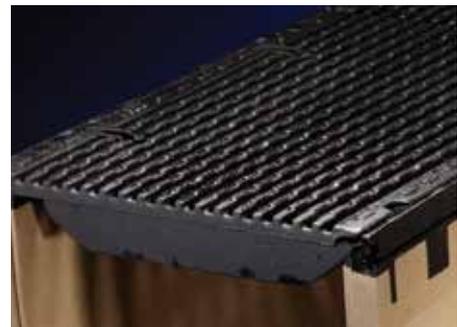
	Iron Intercept <sup>1</sup> <b>Heelsafe<sup>®</sup></b> <i>Anti-Slip</i>	500	141223	19.2	✓	✓	✓	✓
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<sup>1</sup> Meets ASME A112.6.3 Section 7.12 (American high heel standard).

## Heelsafe<sup>®</sup> Anti-Slip grates



ACO believes that pedestrian safe grates and slip resistance go hand in hand. The grates with the **Heelsafe<sup>®</sup> Anti-Slip** trademark, comply to the standards AS 3996, AS 4586 and all the specific user requirements below. For more information visit [www.heelsafe.co.nz](http://www.heelsafe.co.nz)



Iron Intercept **Heelsafe<sup>®</sup> Anti-Slip** grate

## Specific user requirements

ACO's grates meet some or all of the legislative requirements described below:

-  Wheelchair compliant to AS 1428.2, Clause 9(c). Slots cannot exceed 13mm (width), 150mm (length). Longitudinal grates are to be placed at right angles to the principal direction of travel.
-  Grates designed to resist the penetration of a 10mm heel.
-  Bicycle tyre penetration resistant to AS 3996. Criteria on slot length dependant on slot width.
-  Pedestrian safe grates with slip resistance, rated to AS 4586.

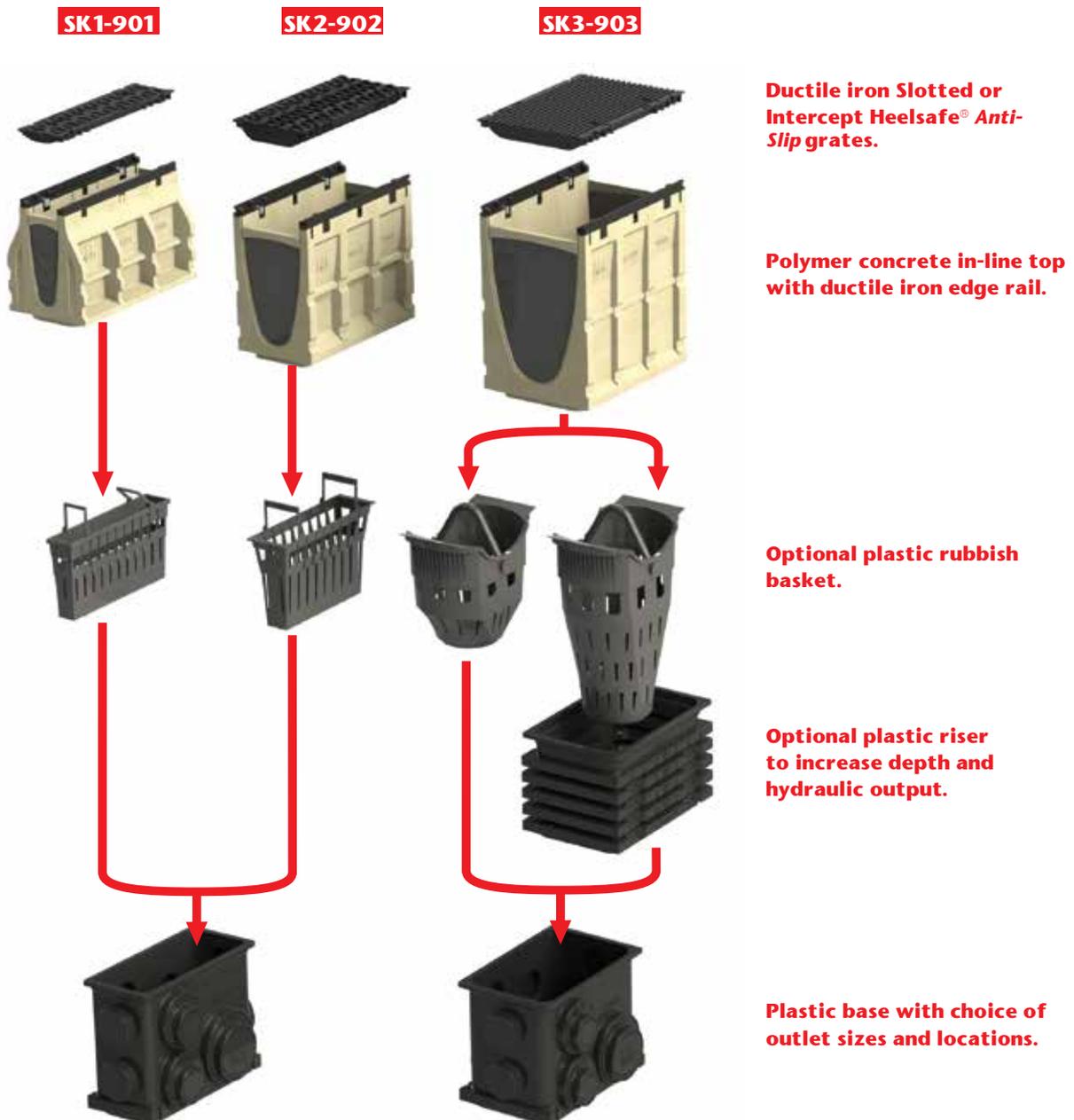
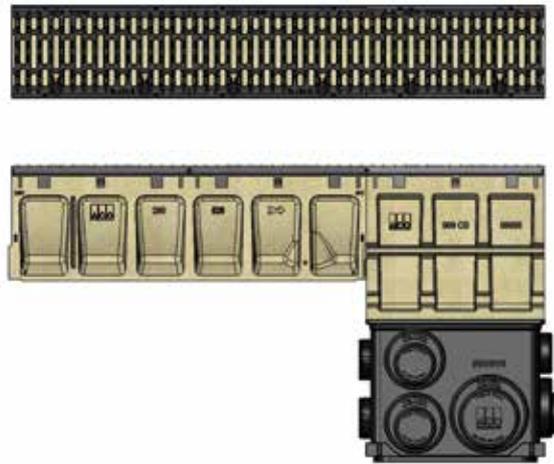


**In-line pit options**

Polymer concrete in-line pits are most commonly used as the outlet to the underground pipework for a trench run. They provide the highest hydraulic output and allow easy access to the pipe system for maintenance.

Type 900 in-line pits are the same width as the trench run.

The polymer concrete in-line top enables the same grate to be used as the trench run for a seamless finish.



Both SK1-901 and SK2-902 in-line pits use same base – provides suitable width/access for pipe maintenance.

## ACO Products

### Building Drainage

#### ACO Wexel

Cast iron floor and roof drains

#### ACO Stainless

Industrial stainless steel linear drainage systems

#### ACO Food

Stainless steel drainage systems for food and beverage applications

#### ACO Gully

Stainless steel floor gullies for hygiene and chemical resistance

#### ACO Pipe

Stainless steel push-fit waste pipe system

#### ACO Buildline

Drainage products for thresholds, balconies, green roofs and building facades

#### ACO Passavant

Grease separators, freestanding and in ground types

#### QuARTz by ACO

Designer bathroom floor drainage solutions

### Surface Water Management

#### ACO Drain

Modular trench drain systems for commercial, industrial and landscape applications.

#### ACO Sport

Surface drainage and building accessories for track & field.

#### ACO Infrastructure

Surface drainage products engineered for highways, urban roads and bridges.

#### ACO Cablemate

Electrical and communication pits/ducts with a variety of covers.

#### ACO StormBrixx

A unique and patented plastic geocellular storm water management system.

#### ACO Self

Simple drainage and building components

#### ACO Access

Access covers available in a number of sizes and materials

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