Typical Applications

- Motorways and highways
- Streetscapes with shared zones for pedestrians and vehicles
- Busways, bus stops and railway interchanges
- Bridge abutments and tunnel portals
- Median strips
- Right hand turn bays
- Kerbside gutters

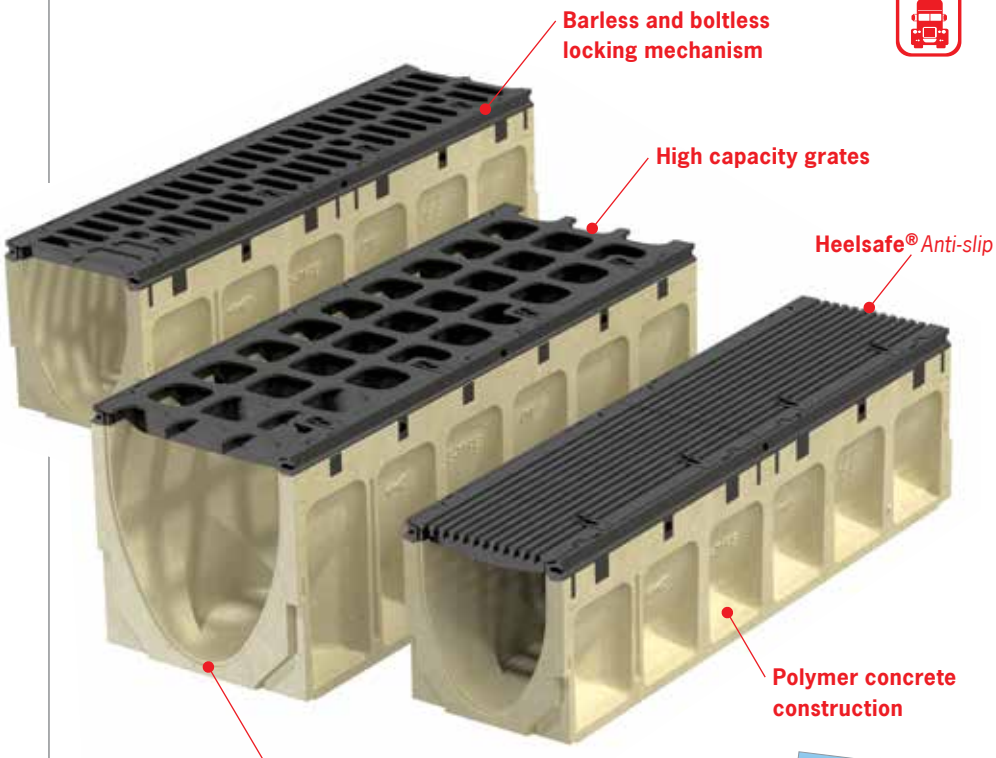
Problem Areas

- Flat pavements and road surfaces
- Restricted road shoulders
- Limited space due to underground services

Water Management

- Provision of continuous capture inlets
- Prevention of aquaplaning, property damage and water splashing pedestrians
- Containment of toxins and fuel spills in environmentally sensitive areas

Grated trench drains for roads



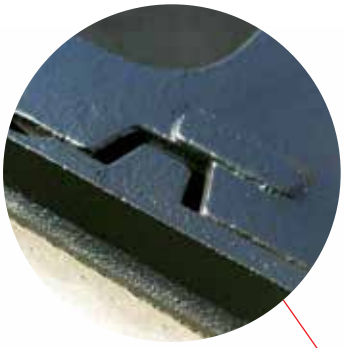
Austroads Guide to Road Design Part 5A: Drainage, acknowledges **ACO's TraffikDrain** as a practical solution to control the width of gutter flow through the drain's continuous capture inlets.

TraffikDrain combines the benefits of **Polycrete®** *Channels*[1] with a choice of purpose designed grates to minimise ponding and other dangers to road users.

The iron **Hi-Flo** and **Transverse** grates ensure maximum water intake, resulting in quick removal of water from the road surface. The iron **Heelsafe®** *Anti-Slip*[2] grate provides pedestrian safety in heavily foot trafficked areas.

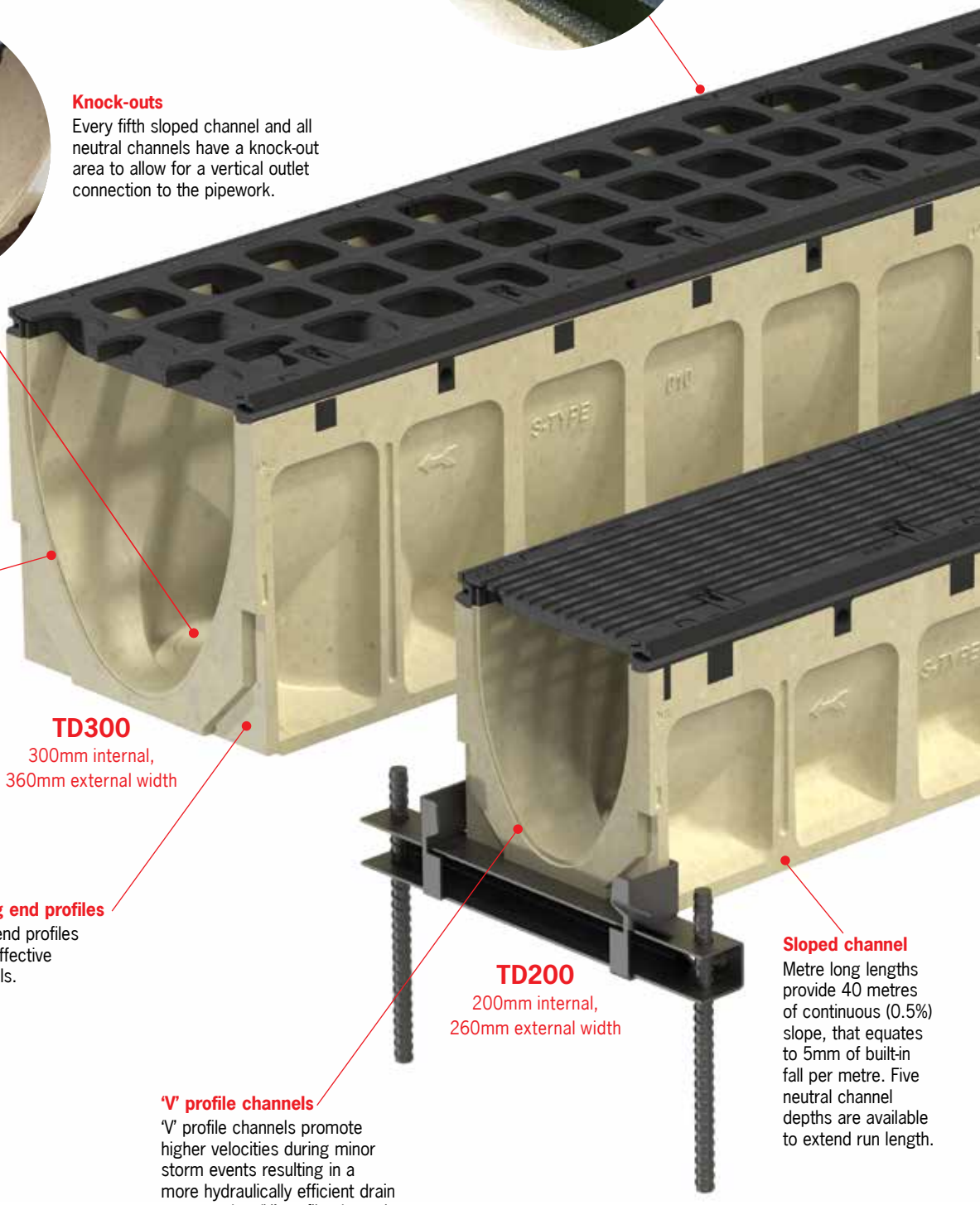
All grates are secured with the **PowerLok®** barless and boltless locking system that enables quick and easy access for maintenance operations.

[1]Polycrete® refers to ACO products made from polymer concrete.
[2]Heelsafe® is ACO's trademark for a pedestrian friendly grate.



Anti-shunt lugs
Recesses in grates fit around anti-shunt lugs on the edge rail to prevent longitudinal movement under dynamic wheel loads.

Knock-outs
Every fifth sloped channel and all neutral channels have a knock-out area to allow for a vertical outlet connection to the pipework.



SF Sealant Groove
SF Sealant Groove is cast into both ends of the channel and allows for a bead of flexible sealant to be applied at the channel joints. The sealant ensures contaminated water does not infiltrate into environmentally sensitive areas.

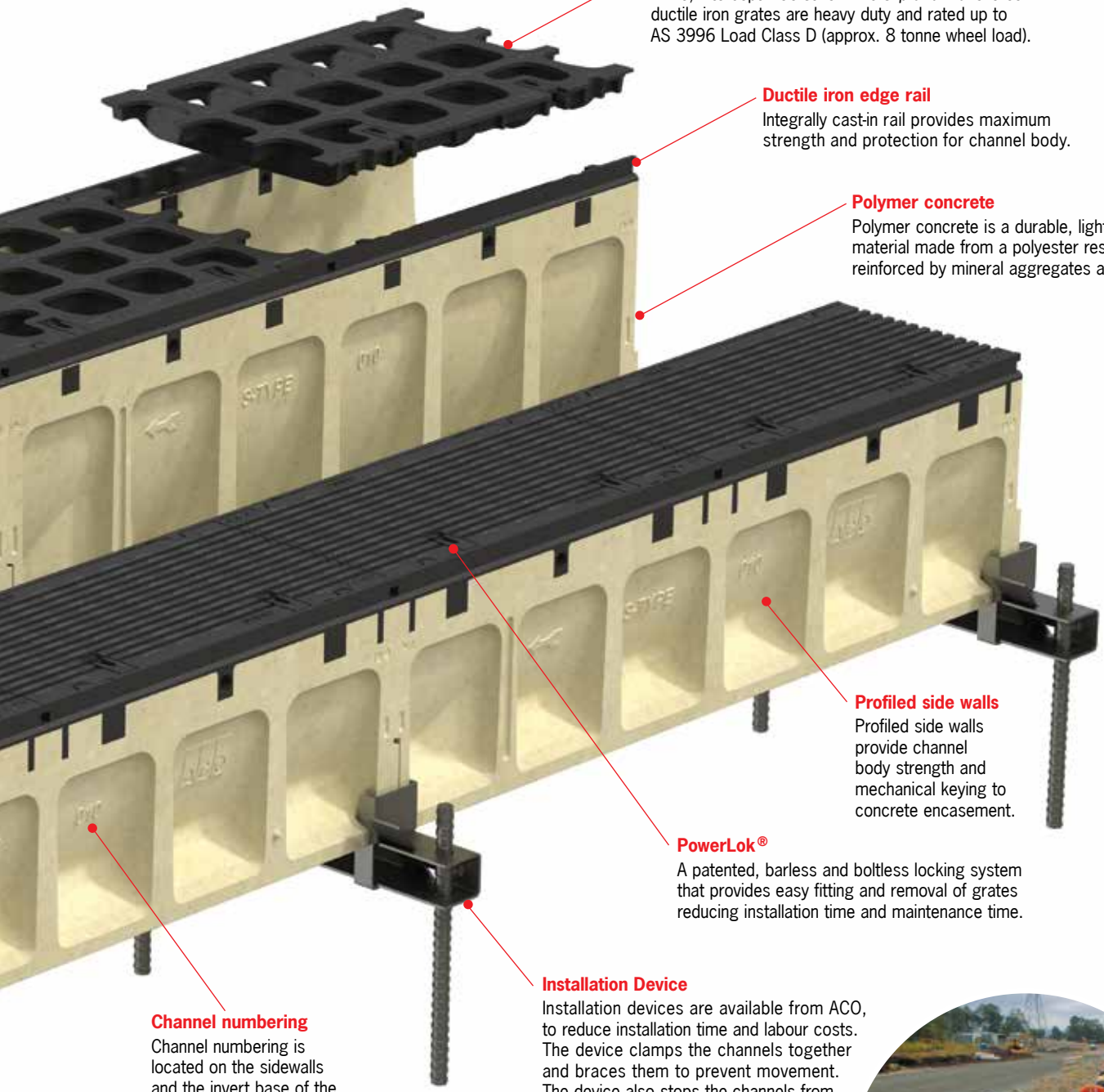
TD300
300mm internal,
360mm external width

Interconnecting end profiles
Interconnecting end profiles allow easy and effective joining of channels.

TD200
200mm internal,
260mm external width

'V' profile channels
'V' profile channels promote higher velocities during minor storm events resulting in a more hydraulically efficient drain compared to 'U' profile channels.

Sloped channel
Metre long lengths provide 40 metres of continuous (0.5%) slope, that equates to 5mm of built-in fall per metre. Five neutral channel depths are available to extend run length.



Ductile iron grates

Hi-Flo, Intercept **Heelsafe®** *Anti-Slip* and Transverse ductile iron grates are heavy duty and rated up to AS 3996 Load Class D (approx. 8 tonne wheel load).

Ductile iron edge rail

Integrally cast-in rail provides maximum strength and protection for channel body.

Polymer concrete

Polymer concrete is a durable, lightweight material made from a polyester resin binder, reinforced by mineral aggregates and fillers.

Profiled side walls

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

PowerLok®

A patented, barless and boltless locking system that provides easy fitting and removal of grates reducing installation time and maintenance time.

Channel numbering

Channel numbering is located on the sidewalls and the invert base of the channel. The number of the connecting channel is embossed and located at the end of each channel to aid identification.

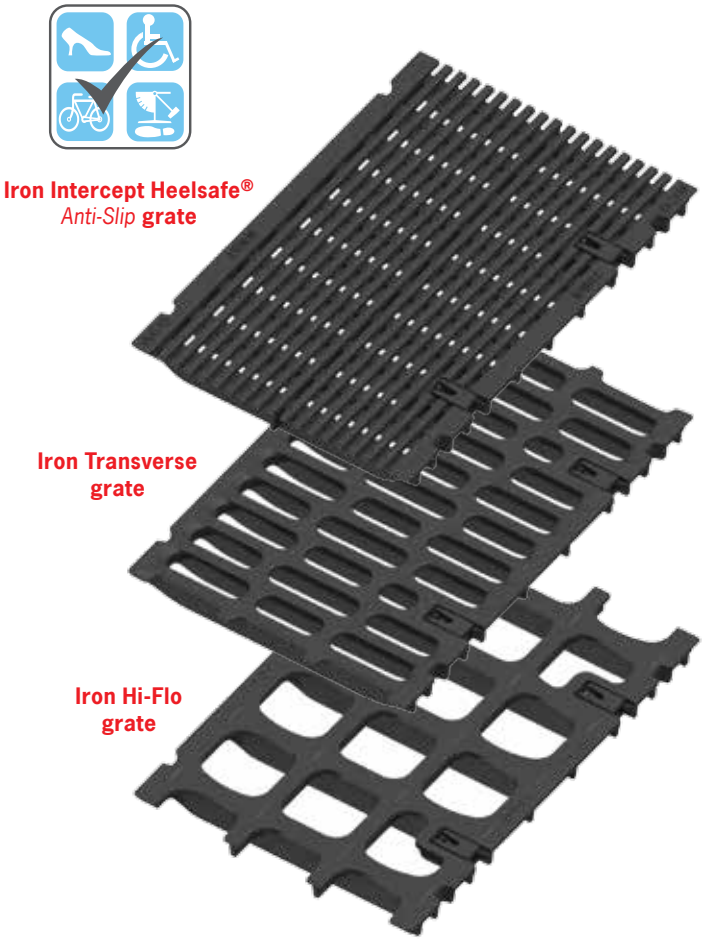
Installation Device

Installation devices are available from ACO, to reduce installation time and labour costs. The device clamps the channels together and braces them to prevent movement. The device also stops the channels from floating during the single concrete pour.

TraffikDrain grates

All TraffikDrain grates are purpose designed to meet Australian road requirements.

- Rated to Load Class D 210kN, AS 3996 *Access Covers and Grates*. NATA endorsed test reports available
- Bicycle wheel compliant in all directions, AS 3996
- Manufactured from ductile iron Grade 500/7, AS 1831 *Ductile Cast Iron*
- Anti-shunt provisions prevent longitudinal movements from dynamic wheel loads
- **PowerLok®** is a barless and boltless locking system that provides easy fitting and removal of grates reducing installation time and maintenance time



Pedestrian safe grate

Iron Intercept Heelsafe® *Anti-Slip* **grate**

The Iron Intercept **Heelsafe®** *Anti-Slip* grate is designed to be heel friendly and slip resistant for pedestrian crossings and other high pedestrian traffic areas.

The grate has 8mm slots that meet the requirements of:

- Clause 3.3.5 – Surface Openings in Pedestrian Areas, AS 3996 *Access Covers and Grates*
- Clause 9(c) – Ground and Floor Surfaces addressing wheelchair and walking cane safety, AS 1428.2 *Design for Access and Mobility*

This grate is independently tested for slip resistance to P3 (wet pendulum) and R10 (oil-wet platform), AS 4586 *Slip resistance classification of new pedestrian surface materials*. NATA endorsed test reports are available.

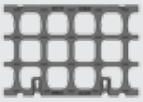
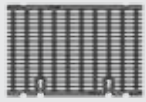
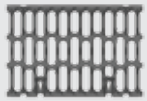
High capacity grates

Iron Hi-Flo and Iron Transverse grate

ACO's high capacity grates are designed with large efficient inlets to ensure high water intake, resulting in quick stormwater removal from road surfaces. These features offer the following benefits:

- Easy cleaning with or without grate removal
- Channel can be inspected through the top of the grate
- Leaves do not block inlets

TD200 Grates (to suit 200mm channels)		Length mm	Part No.	Weight kg				
LOAD CLASS D 210kN – AS3996 (approximate wheel load 8,000kg)								
	Iron Hi-Flo	500	142127	6.1	×	×	✓	×
	Iron Intercept[1] **Heelsafe®** *Anti-Slip*	500	142125	8.7	✓	✓	✓	✓
	Iron Transverse	500	142145	6.8	×	×	✓	×

TD300 Grates (to suit 300mm channels)		Length mm	Part No.	Weight kg				
LOAD CLASS D 210kN – AS3996 (approximate wheel load 8,000kg)								
	Iron Hi-Flo	500	142128	10.5	×	×	✓	×
	Iron Intercept[1] **Heelsafe®** *Anti-Slip*	500	142126	14.8	✓	✓	✓	✓
	Iron Transverse	500	142146	11.2	×	×	✓	×

[1] Meets ASME A112.6.3 Section 7.12 (American high heel standard).

PowerLok® safety clip *(optional)*

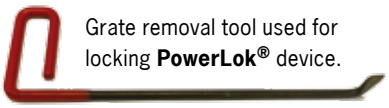
Safety clip sits flush with grate surface and grate cannot be unlocked. The red coloured safety clips provide a visual indication that the grates are locked.

Specific user requirements

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

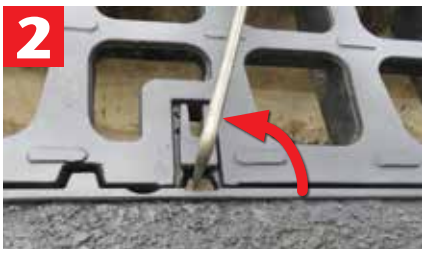
- Wheelchair compliant to AS 1428.2, Clause 9(c). Slots cannot exceed 13mm (width), 150mm (length). Longitudinal grates are to be placed at right angles to the principal direction of travel.
- Grates designed to resist the penetration of a 10mm heel.
- Bicycle tyre penetration resistant to AS 3996. Criteria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

PowerLok® barless & boltless locking system *(standard)*



Grate removal tool used for locking **PowerLok®** device.

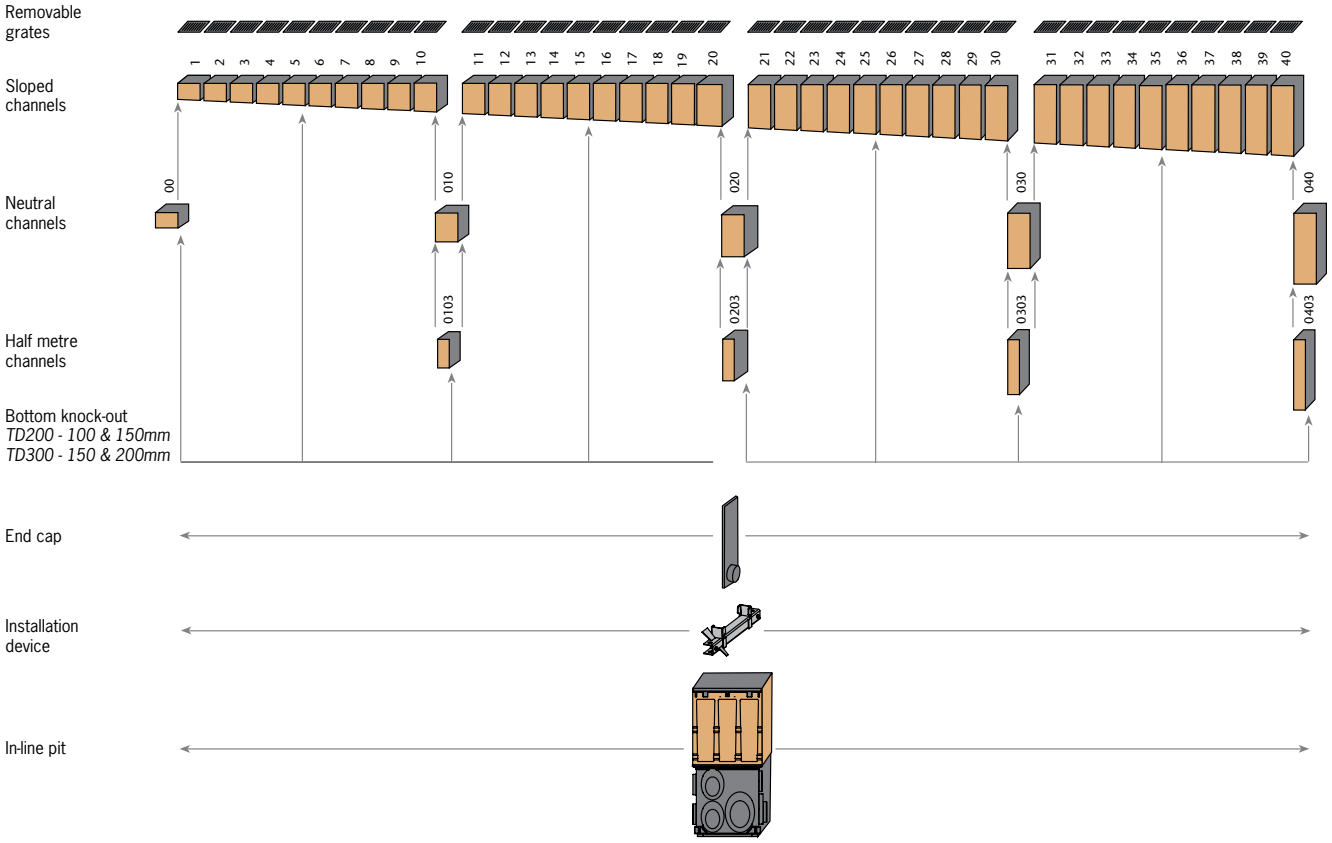
To open **PowerLok®**, insert tool between rail and **PowerLok®** device.



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

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

Typical system layout – TD200 / TD300



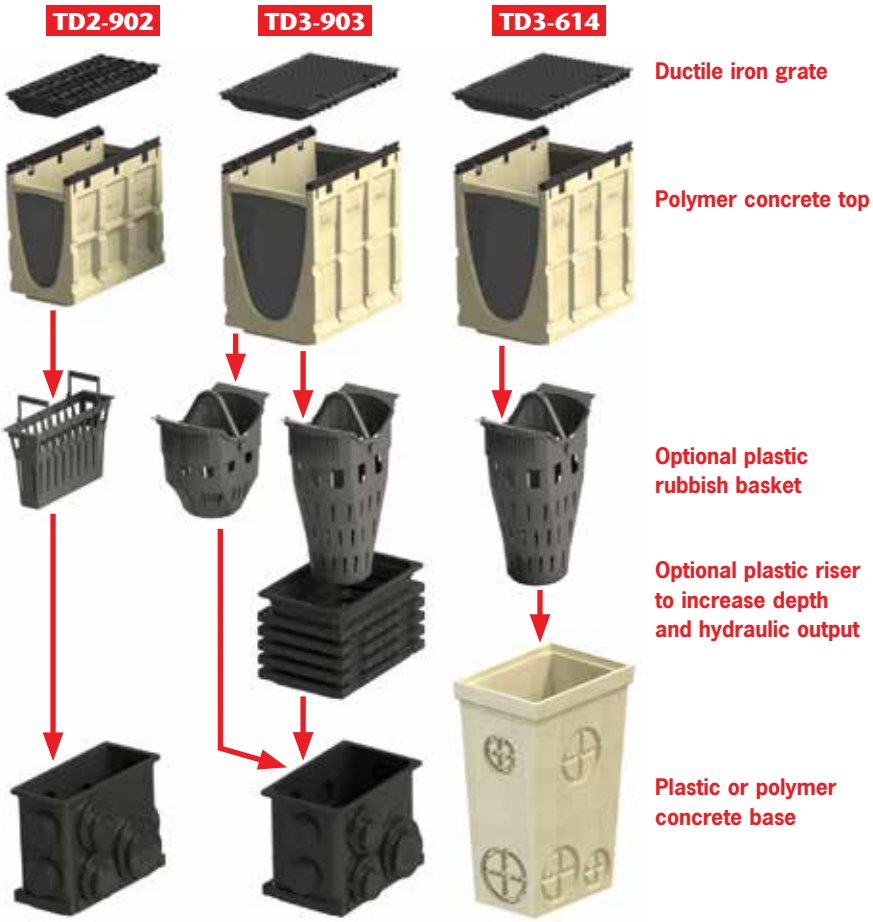
In-line pit options

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.

TD3-614 in-line pit allows for connection through the long side wall with a reinforced concrete pipe up to DN375.



Parts table

	TD200 – 200mm internal width			TD300 – 300mm internal width		
	Channel Part No.	Invert[2] mm	Weight kg	Channel Part No.	Invert[2] mm	Weight kg
00 Neutral channel (1m)[1]	**148041**	200	36.1	**149041**	300	59.1
1 Sloped channel (1m)	**148001**	205	36.1	**149001**	305	59.1
2 Sloped channel (1m)	**148002**	210	36.6	**149002**	310	59.6
3 Sloped channel (1m)	**148003**	215	37.1	**149003**	315	60.2
4 Sloped channel (1m)	**148004**	220	37.6	**149004**	320	60.7
5 Sloped channel (1m)[1]	**148005**	225	38.1	**149005**	325	61.3
6 Sloped channel (1m)	**148006**	230	38.6	**149006**	330	61.9
7 Sloped channel (1m)	**148007**	235	39.1	**149007**	335	62.4
8 Sloped channel (1m)	**148008**	240	39.6	**149008**	340	63.0
9 Sloped channel (1m)	**148009**	245	40.1	**149009**	345	63.5
10 Sloped channel (1m)[1]	**148010**	250	40.6	**149010**	350	64.1
010 Neutral channel (1m)[1]	**148043**	250	40.6	**149042**	350	64.1
0103 Neutral channel (0.5m)[1]	**148044**	250	26.5	**149045**	350	35.3
11 Sloped channel (1m)	**148011**	255	41.1	**149011**	355	64.6
12 Sloped channel (1m)	**148012**	260	41.6	**149012**	360	65.2
13 Sloped channel (1m)	**148013**	265	42.1	**149013**	365	65.8
14 Sloped channel (1m)	**148014**	270	42.6	**149014**	370	66.3
15 Sloped channel (1m)[1]	**148015**	275	43.1	**149015**	375	66.9
16 Sloped channel (1m)	**148016**	280	43.6	**149016**	380	67.4
17 Sloped channel (1m)	**148017**	285	44.1	**149017**	385	68.0
18 Sloped channel (1m)	**148018**	290	44.6	**149018**	390	68.5
19 Sloped channel (1m)	**148019**	295	45.1	**149019**	395	69.1
20 Sloped channel(1m)[1]	**148020**	300	45.6	**149020**	400	69.7
020 Neutral channel (1m)[1]	**148045**	300	45.6	**149044**	400	69.7
0203 Neutral channel (0.5m)[1]	**148046**	300	29.9	**149047**	400	38.5
21 Sloped channel (1m)	**148021**	305	46.1	**149021**	405	70.2
22 Sloped channel (1m)	**148022**	310	46.6	**149022**	410	70.8
23 Sloped channel (1m)	**148023**	315	47.1	**149023**	415	71.4
24 Sloped channel (1m)	**148024**	320	47.6	**149024**	420	71.9
25 Sloped channel (1m)[1]	**148025**	325	48.1	**149025**	425	72.4
26 Sloped channel (1m)	**148026**	330	48.6	**149026**	430	73.0
27 Sloped channel (1m)	**148027**	335	49.1	**149027**	435	73.6
28 Sloped channel (1m)	**148028**	340	49.6	**149028**	440	74.1
29 Sloped channel (1m)	**148029**	345	50.1	**149029**	445	74.7
30 Sloped channel (1m)[1]	**148030**	350	50.6	**149030**	450	75.3
030 Neutral channel (1m)[1]	**148047**	350	50.6	**149046**	450	75.3
0303 Neutral channel (0.5m)[1]	**148048**	350	32.0	**149049**	450	41.8
31 Sloped channel (1m)	**148031**	355	51.2	**149031**	455	75.8
32 Sloped channel (1m)	**148032**	360	51.7	**149032**	460	76.4
33 Sloped channel (1m)	**148033**	365	52.2	**149033**	465	76.9
34 Sloped channel (1m)	**148034**	370	52.7	**149034**	470	77.5
35 Sloped channel (1m)[1]	**148035**	375	53.2	**149035**	475	78.1
36 Sloped channel (1m)	**148036**	380	53.7	**149036**	480	78.6
37 Sloped channel (1m)	**148037**	385	54.2	**149037**	485	79.2
38 Sloped channel (1m)	**148038**	390	54.7	**149038**	490	79.7
39 Sloped channel (1m)	**148039**	395	55.2	**149039**	495	80.3
40 Sloped channel (1m)[1]	**148040**	400	55.7	**149040**	500	80.8
040 Neutral channel (1m)[1]	**148049**	400	55.7	**149048**	500	80.8
0403 Neutral channel (0.5m)[1]	**148050**	400	36.0	**149050**	500	45.5
Type 900 In-line pit (0.5m)[3]	**142687**	843[5]	32.3	**142688**	956[5]	39.9
Type 900 In-line plastic rubbish basket	**13999**	–	0.5	**98653**	–	1.6
Optional plastic riser				**141729**	300	4.5
Plastic rubbish basket – long				**98665**	–	1.8
Type 614 in-line pit (0.5m)[4]				**142689**	1261[5]	103.2
Universal end cap	**96823**	420[5]	0.6	**96827**	520[5]	1.1
Debris strainer for 100mm knockout	**93488**	–	0.1			
Installation device	**97478**	–	1.8	**97479**	–	2.2
Grate removal tool	**01318**	–	0.1	**01318**	–	0.1
PowerLok safety clip	**10443**	–	–	**10443**	–	–

Notes:

1. These channels have a knock-out for a vertical outlet:
   TD200 – 100mm and 150mm round, TD300 – 150mm and 200mm round.
2. Inverts shown are male end, 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. Type 900 In-line pit assembly (Polycrete® top and plastic base).
4. Type 614 In-line pit assembly (Polycrete® top and Polycrete® base).
5. Overall depth of in-line pit and end caps.

Technical support and services

ACO has an established Technical Services Department with many years experience advising on surface drainage in road applications.

This free service is offered with no obligation and is supported with extensive, high quality information, brochures and technical documentation.

Services include advice at project design stage through to on-site support as required.

Trench and grate hydraulics

- Used to correctly size up trench drains
- Determine pit spacings
- Allow gutter flow width to be calculated
- Grate intake testing based on experimental results and software developed by the UNSW Water Research Laboratory

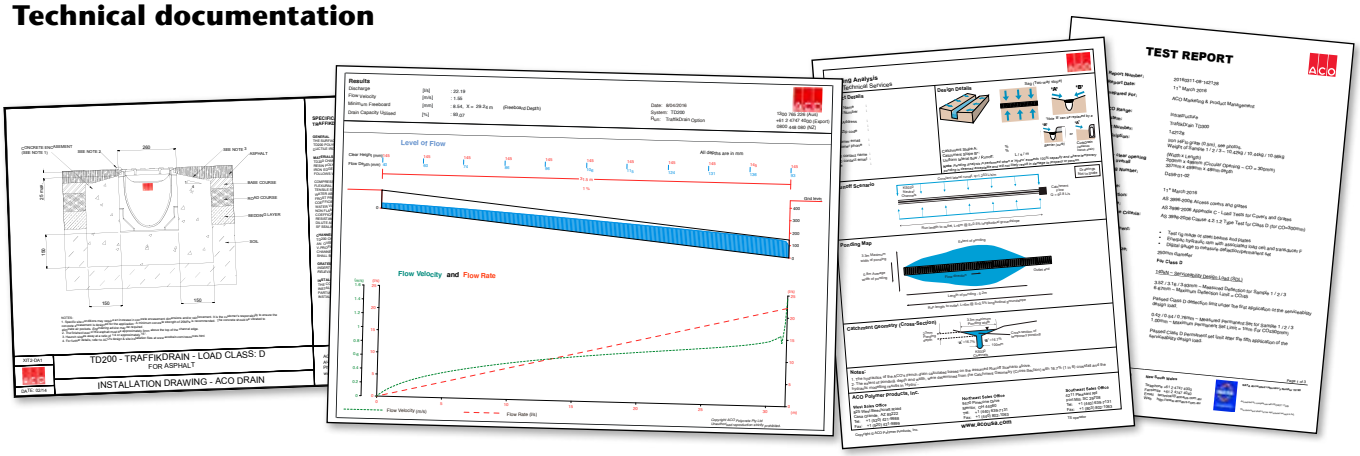
Certification

- Certificate of Compliance/Conformance available
- NATA endorsed load test reports to AS 3996
- NATA accredited ACO Laboratory – Accreditation No: 15193

Installation

- Plan and long section drawings for complex layouts
- Recommended installation drawings
- Installation cost estimate
- Cross section detail of trench drain with standard kerb and gutter
- Pit connection detail with standard Road Authority pits
- Step by step site installation manual and installation device instructions with templates are available on ACO's website

Technical documentation



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