

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

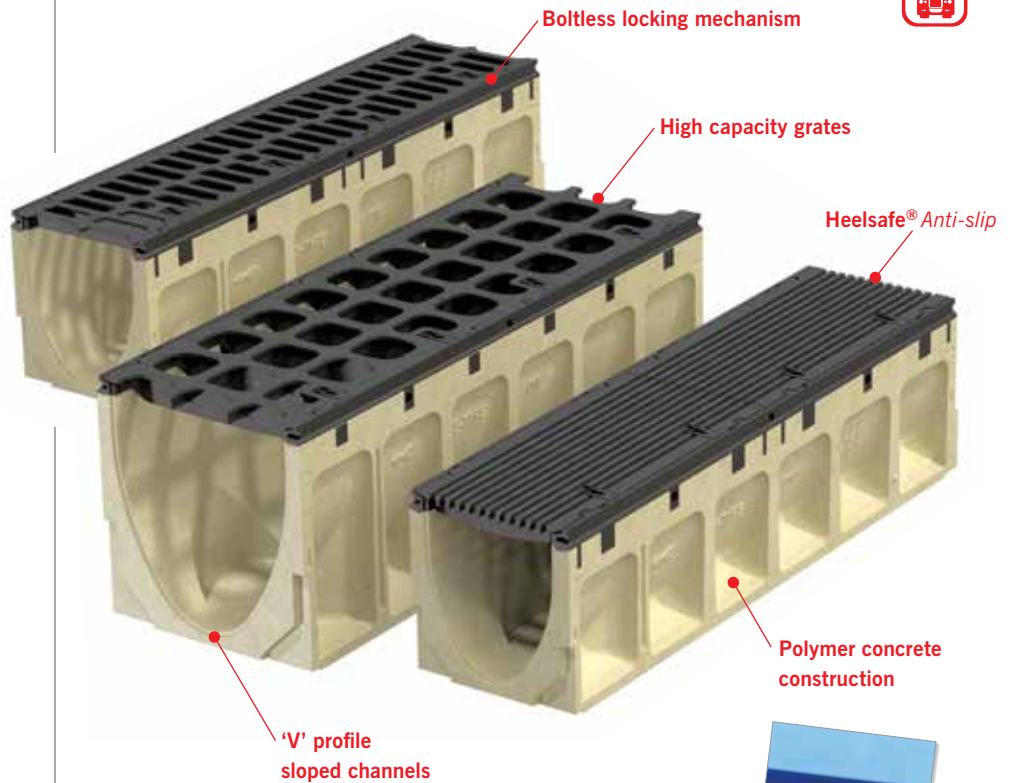
Problem Areas

- 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 TrafficDrain as a practical solution to control the width of gutter flow through the drain's continuous capture inlets.



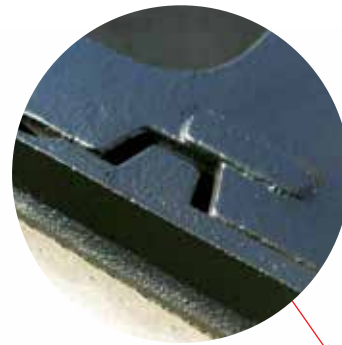
TrafficDrain combines the benefits of Polycrete® Channels¹ with a choice of purpose designed grates to minimise ponding and other dangers for road users.

The iron Hi-Flo and Transverse grates ensure maximum water intake, resulting in quick and efficient water removal from the road surface.

The Heelsafe® Anti-Slip² grate provides pedestrian safety in heavily foot trafficked areas. All grates are secured with the PowerLok® boltless locking mechanism that enables quick and easy access for maintenance operations.

¹ Polycrete® refers to ACO products made from polymer concrete.

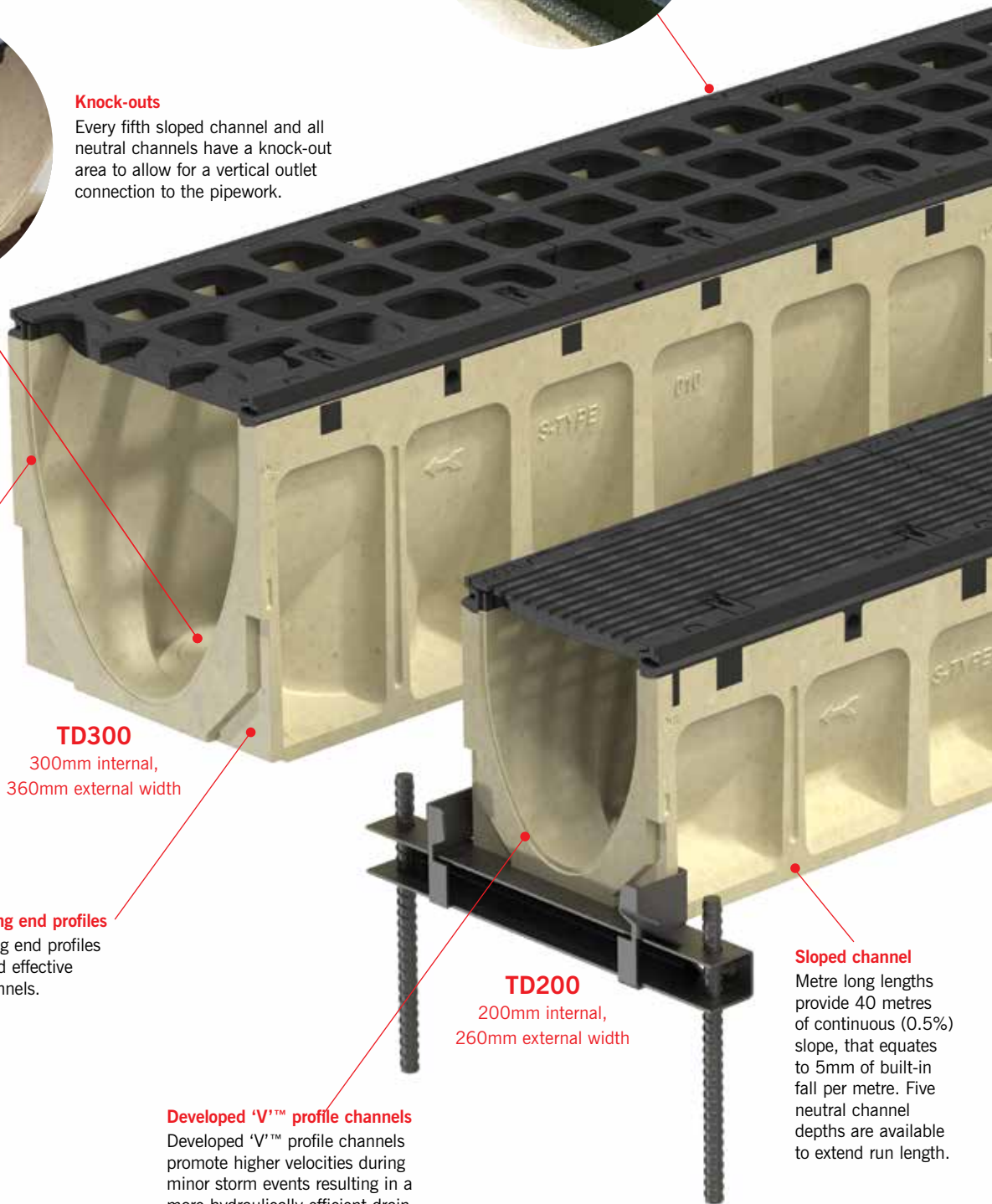
² Heelsafe® is ACO's trademark for a pedestrian friendly grate.



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.

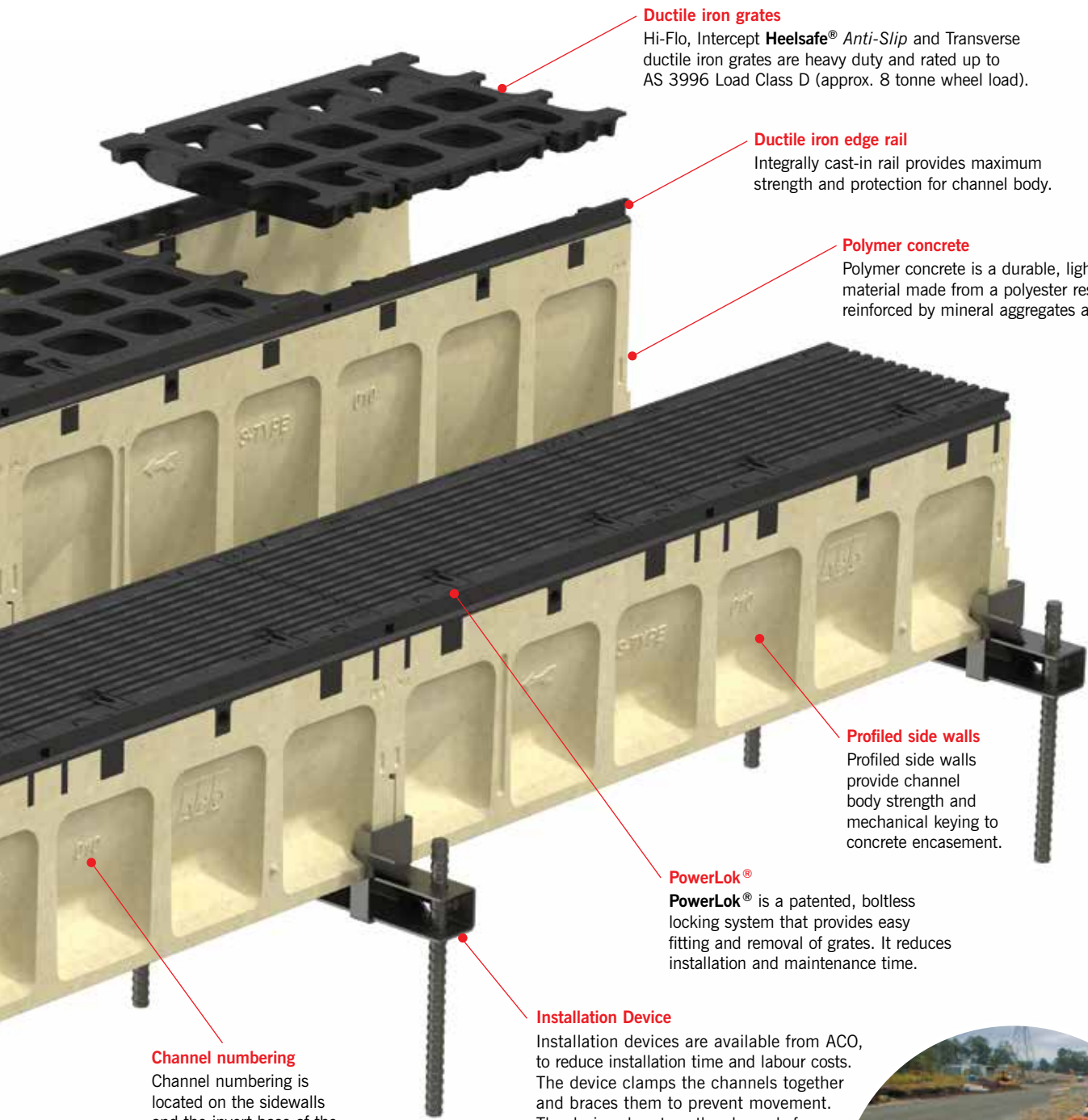
TD300
300mm internal,
360mm external width

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

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

TD200
200mm internal,
260mm external width

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®

PowerLok® is a patented, boltless locking system that provides easy fitting and removal of grates. It reduces installation and maintenance time.

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.

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.



TrafficDrain grates

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

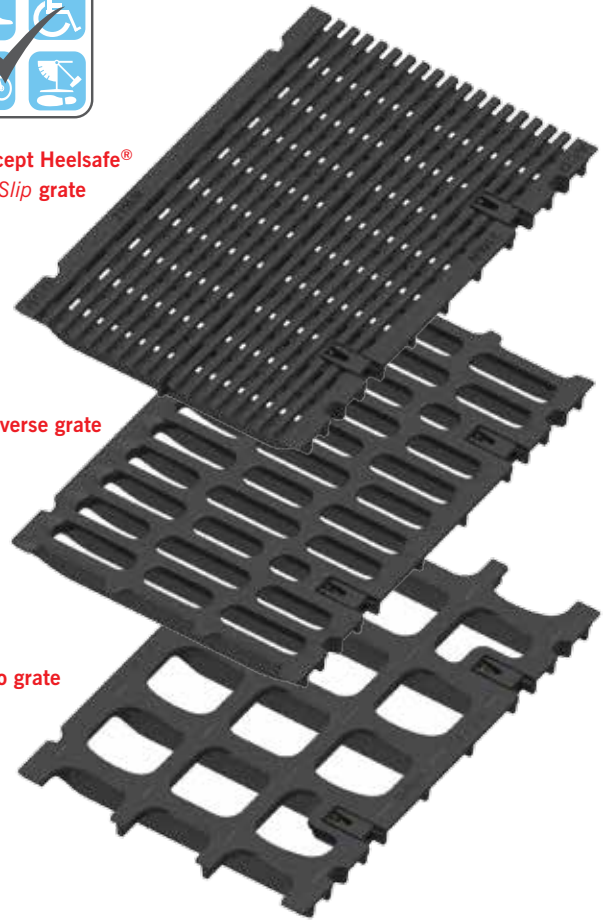
- Rated to Load Class D 210kN, AS 3996 *Access Covers and Grates*. NATA endorsed test reports available
- Bicycle wheel compliant in all directions, AS 3996
- Manufactured from ductile iron Grade 500/7, AS 1831 *Ductile Cast Iron*
- Anti-shunt provisions prevent longitudinal movements from dynamic wheel loads
- **PowerLok**[®] boltless locking system for quick grate removal and replacement to encourage regular and unobstructed access when maintenance is required



Iron Intercept Heelsafe[®]
Anti-Slip grate

Iron Transverse grate

Iron Hi-Flo grate



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*

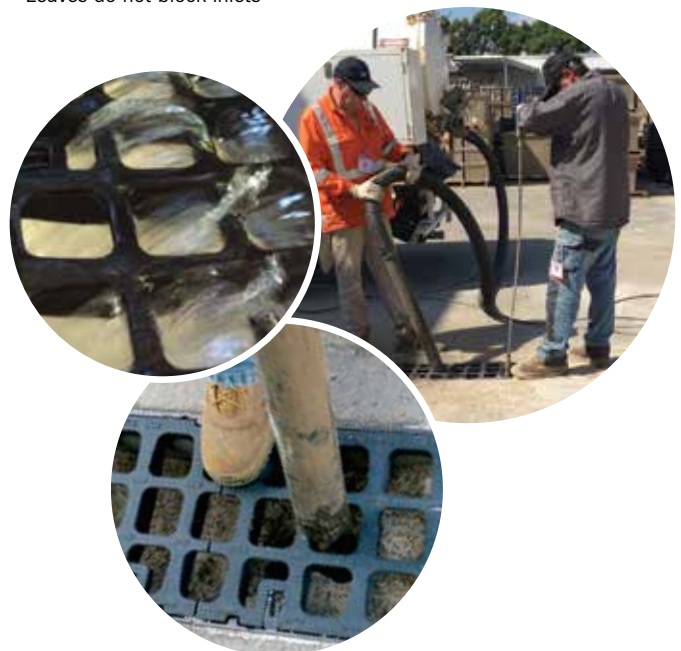
This grate is independently tested for slip resistance to P3 (wet pendulum) and R10 (oil-wet platform), AS/NZS 4586 *Slip resistance classification of new pedestrian surface materials*. NATA endorsed test reports are available.








High capacity grates





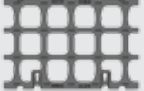


Iron Hi-Flo and Iron Transverse grate

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	Weight kg				
LOAD CLASS D 210kN – AS 3996 (approximate wheel load 8,000kg)							
	Iron Hi-Flo	500	6.1	✗	✗	✓	✗
	Iron Intercept Heelsafe® <i>Anti-Slip</i> ¹	500	8.7	✓	✓	✓	✓
	Iron Transverse	500	6.8	✗	✗	✓	✗

TD300 Grates (to suit 300mm channels)		Length mm	Weight kg				
LOAD CLASS D 210kN – AS 3996 (approximate wheel load 8,000kg)							
	Iron Hi-Flo	500	10.5	✗	✗	✓	✗
	Iron Intercept Heelsafe® <i>Anti-Slip</i> ¹	500	14.8	✓	✓	✓	✓
	Iron Transverse	500	11.2	✗	✗	✓	✗

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





PowerLok® safety clip (optional)



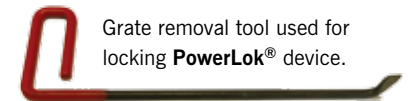
Safety clip sits flush with grate surface and grate cannot be unlocked. The red coloured safety clips provide a visual indication that the grates are locked.

Symbols

The symbols described below represent the grate legislative requirements.

-  AS 1428.2, Clause 9(c) Slots cannot exceed 13mm (width); 150mm (length). Longitudinal grates need 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 resistance to AS 3996. Criteria placed on slot length dependant on slot width.
-  Pedestrian safe grates with slip resistance. Rated to AS/NZS 4586.

PowerLok® boltless locking system (standard)



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

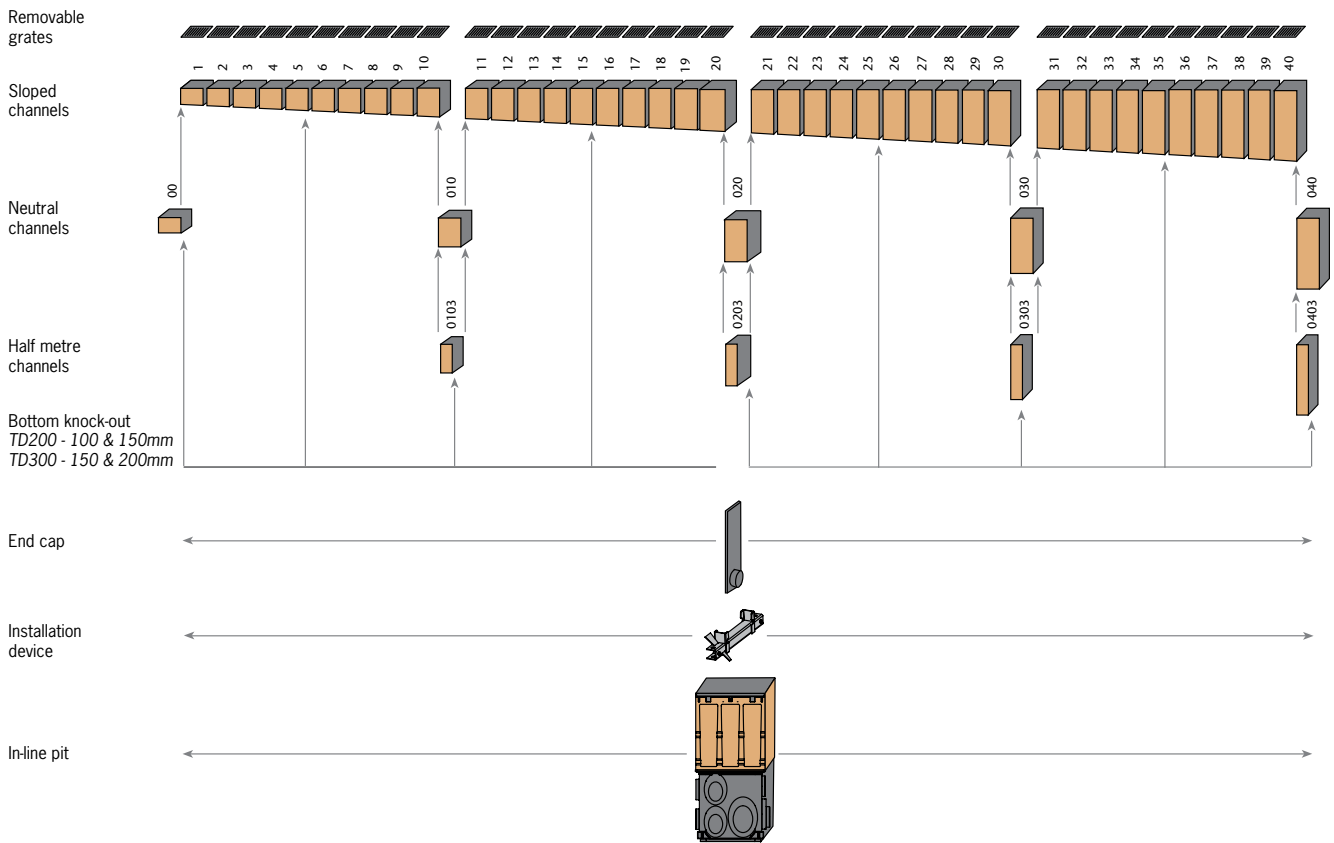


Rotate tool 90°; **PowerLok®** device should push away from rail.



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

Typical system layout – TD200/TD300



In-line pit options

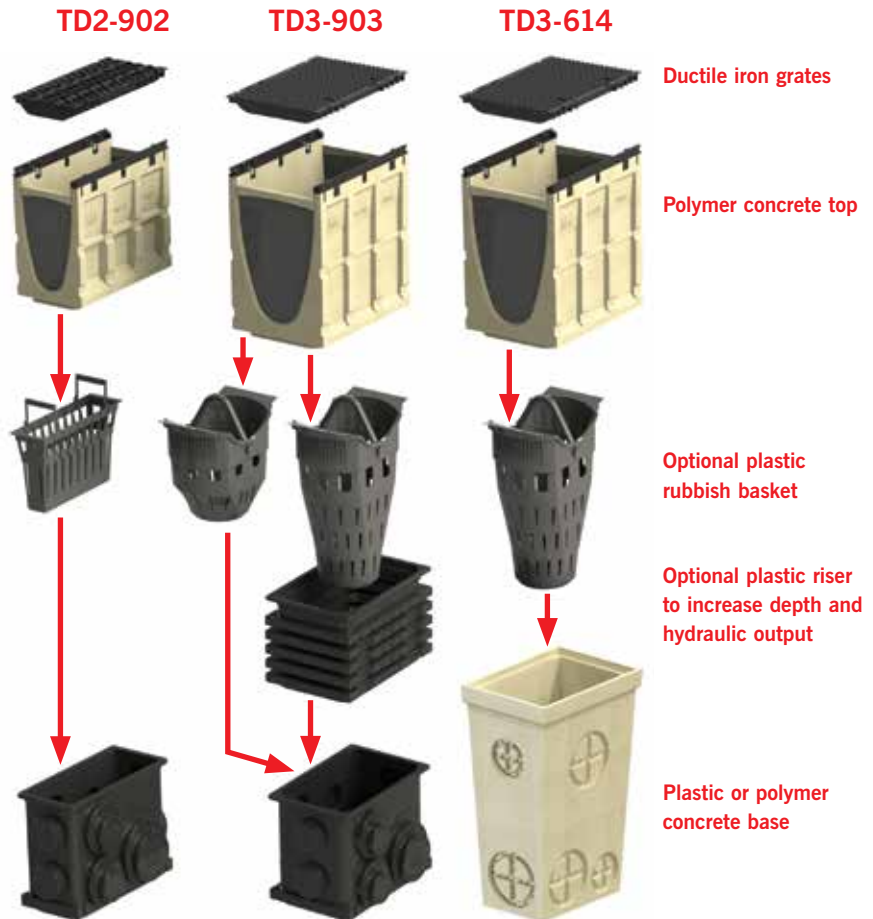
For seamless aesthetics, in-line pits are the same width as the trench run.



In-line pits are used as the outlet to the underground pipework for a trench run. They provide easy access to the pipe system for maintenance.

The in-line pit consists of a polymer concrete top complete with grate and a plastic or polymer concrete base. Optional accessories, such as rubbish baskets and risers are available.

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				
	Part No.			Invert ² mm	Weight ⁶ kg	Part No.			Invert ² mm	Weight ⁶ kg
	Hi-Flo	Heelsafe®	Transverse			Hi-Flo	Heelsafe®	Transverse		
00 Neutral channel (1m)¹	150641	150491	150691	200	48.4	150741	150591	150791	300	80.0
1 Sloped channel (1m)	150601	150451	150651	205	48.4	150701	150551	150751	305	80.0
2 Sloped channel (1m)	150602	150452	150652	210	48.9	150702	150552	150752	310	80.5
3 Sloped channel (1m)	150603	150453	150653	215	49.4	150703	150553	150753	315	81.1
4 Sloped channel (1m)	150604	150454	150654	220	49.9	150704	150554	150754	320	81.7
5 Sloped channel (1m) ¹	150605	150455	150655	225	50.4	150705	150555	150755	325	82.2
6 Sloped channel (1m)	150606	150456	150656	230	50.9	150706	150556	150756	330	82.8
7 Sloped channel (1m)	150607	150457	150657	235	51.4	150707	150557	150757	335	83.4
8 Sloped channel (1m)	150608	150458	150658	240	51.9	150708	150558	150758	340	83.9
9 Sloped channel (1m)	150609	150459	150659	245	52.4	150709	150559	150759	345	84.4
10 Sloped channel (1m) ¹	150610	150460	150660	250	52.9	150710	150560	150760	350	85.0
010 Neutral channel (1m)¹	150643	150493	150693	250	52.9	150742	150592	150792	350	85.0
0103 Neutral channel (0.5m)¹	150644	150494	150694	250	38.8	150745	150595	150795	350	56.3
11 Sloped channel (1m)	150611	150461	150661	255	53.4	150711	150561	150761	355	85.6
12 Sloped channel (1m)	150612	150462	150662	260	53.9	150712	150562	150762	360	86.1
13 Sloped channel (1m)	150613	150463	150663	265	54.4	150713	150563	150763	365	86.7
14 Sloped channel (1m)	150614	150464	150664	270	54.9	150714	150564	150764	370	87.3
15 Sloped channel (1m) ¹	150615	150465	150665	275	55.4	150715	150565	150765	375	87.8
16 Sloped channel (1m)	150616	150466	150666	280	55.9	150716	150566	150766	380	88.4
17 Sloped channel (1m)	150617	150467	150667	285	56.4	150717	150567	150767	385	88.9
18 Sloped channel (1m)	150618	150468	150668	290	56.9	150718	150568	150768	390	89.5
19 Sloped channel (1m)	150619	150469	150669	295	57.4	150719	150569	150769	395	90.1
20 Sloped channel (1m) ¹	150620	150470	150670	300	57.9	150720	150570	150770	400	90.6
020 Neutral channel (1m)¹	150645	150495	150695	300	57.9	150744	150594	150794	400	90.6
0203 Neutral channel (0.5m)¹	150646	150496	150696	300	42.2	150747	150597	150797	400	59.5
21 Sloped channel (1m)	150621	150471	150671	305	58.4	150721	150571	150771	405	91.2
22 Sloped channel (1m)	150622	150472	150672	310	58.9	150722	150572	150772	410	91.7
23 Sloped channel (1m)	150623	150473	150673	315	59.4	150723	150573	150773	415	92.3
24 Sloped channel (1m)	150624	150474	150674	320	59.9	150724	150574	150774	420	92.8
25 Sloped channel (1m) ¹	150625	150475	150675	325	60.4	150725	150575	150775	425	93.4
26 Sloped channel (1m)	150626	150476	150676	330	60.9	150726	150576	150776	430	94.0
27 Sloped channel (1m)	150627	150477	150677	335	61.4	150727	150577	150777	435	94.5
28 Sloped channel (1m)	150628	150478	150678	340	61.9	150728	150578	150778	440	95.1
29 Sloped channel (1m)	150629	150479	150679	345	62.4	150729	150579	150779	445	95.6
30 Sloped channel (1m) ¹	150630	150480	150680	350	62.9	150730	150580	150780	450	96.2
030 Neutral channel (1m)¹	150647	150497	150697	350	62.9	150746	150596	150796	450	96.2
0303 Neutral channel (0.5m)¹	150648	150498	150698	350	44.3	150749	150599	150799	450	62.7
31 Sloped channel (1m)	150631	150481	150681	355	63.4	150731	150581	150781	455	96.7
32 Sloped channel (1m)	150632	150482	150682	360	63.9	150732	150582	150782	460	97.3
33 Sloped channel (1m)	150633	150483	150683	365	64.4	150733	150583	150783	465	97.9
34 Sloped channel (1m)	150634	150484	150684	370	64.9	150734	150584	150784	470	98.4
35 Sloped channel (1m) ¹	150635	150485	150685	375	65.4	150735	150585	150785	475	99.0
36 Sloped channel (1m)	150636	150486	150686	380	65.9	150736	150586	150786	480	99.5
37 Sloped channel (1m)	150637	150487	150687	385	66.4	150737	150587	150787	485	100.1
38 Sloped channel (1m)	150638	150488	150688	390	66.9	150738	150588	150788	490	100.6
39 Sloped channel (1m)	150639	150489	150689	395	67.4	150739	150589	150789	495	101.2
40 Sloped channel (1m) ¹	150640	150490	150690	400	67.9	150740	150590	150790	500	101.8
040 Neutral channel (1m)¹	150649	150499	150699	400	67.9	150748	150598	150798	500	101.8
0403 Neutral channel (0.5m)¹	150650	150500	150700	400	48.2	150750	150600	150800	500	66.4
Type 900 In-line pit (0.5m) ³	142302	142307	142323	843 ⁵	41.4	142303	142308	142324	956 ⁵	54.8
Type 900 In-line plastic rubbish basket		13999		–	0.5		98653		–	1.6
Optional plastic riser							141729		300	4.5
Plastic riser basket – long							98665		–	1.8
Type 614 In-line pit (0.5m) ⁴						142229	142230	142231	1261 ⁵	103.2
Universal end cap		96823		420 ⁵	0.6		96827		520 ⁵	1.1
Debris strainer for 100mm knock-out		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 with grate and plastic base).
4. Type 614 In-line pit assembly (Polycrete® top with grate and Polycrete® base).
5. Overall depth of in-line pit and end caps.
6. Weights shown are for channels / in-line pit with Hi-Flo grates. For 1m channels with Heelsafe® grates – TD200 add 5.2kg, TD300 add 8.6kg. For 1m channels with Transverse grates – TD200 add 1.4kg, TD300 add 1.4kg. Half these weights for 0.5m channels and in-line pits.
7. Channel and grate assembly come complete.

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

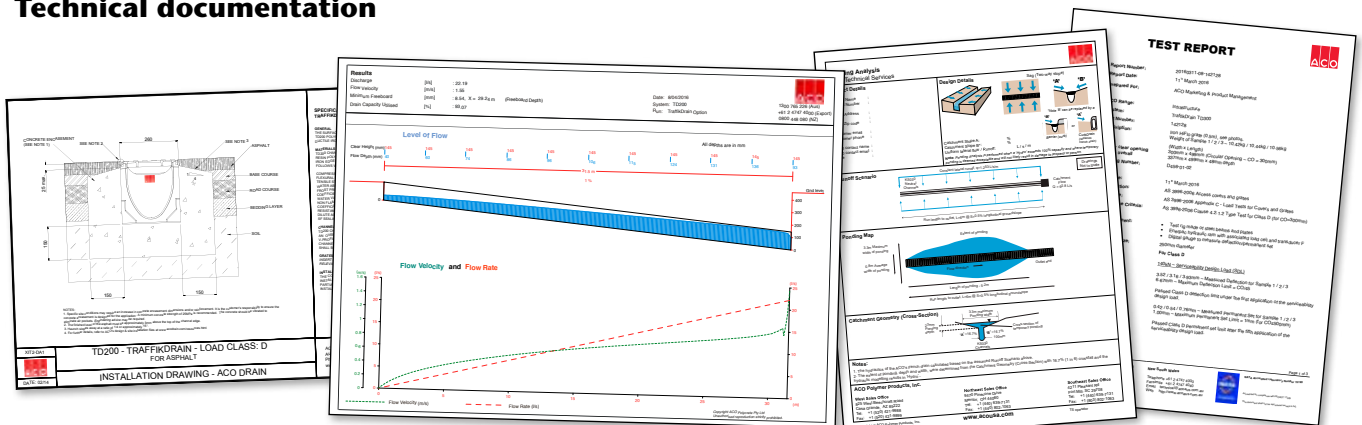


Installation

- 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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