SWIFT DRAIN

PRODUCT CATALOG · 2026 EDITION

Swiftdrain 300

12″ High-Performance Concrete Trench Drain System

HPC channel body | 12″ wide internal | 14″ wide external | Built-in 0.5% fall | Load classes A – F | Run length 3.28 ft to 1,000+ ft

HPC High-Performance Concrete — cement-based, resin-free, built for the heaviest wheel loads.

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INTRODUCTION

Twelve inches of capacity, cast to carry anything.

The Swiftdrain 300 is a 12″ nominal (11.81″ / 300 mm clear) trench drain cast in high-performance concrete — a dense, cement-based composite that cures, moves and bonds like the slab around it. Galvanized steel edge rails, locked ductile iron grates and a 24-section pre-sloped run make it the one-system answer for truck courts, loading docks, ports, airports and high-flow sites where smaller channels run out of room.

12″ / 14″	24	0.5%	1,349	A – F	1,000+ ft
internal / external width (11.81″ / 14.3″)	channel sections 20 sloped · 4 neutral	built-in fall per sloped section	GPM neutral capacity SD-300-20N	load classes EN 1433	linear runs with neutral channels

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SD-300 channels with ductile iron slotted grates seated in galvanized steel rails.

MATERIAL

Why high-performance concrete.

HPC is a cement-based composite engineered for density, strength and durability. Because the channel is concrete through and through, it behaves like the encasement and slab it is cast into — the single biggest factor in a heavy-duty trench drain that stays tight for decades under trucks, forklifts and freeze-thaw.

01 Moves with the slab

Thermal expansion matched to the surrounding concrete. No differential movement at the channel wall, so no hairline gaps for water and frost to work into.

02 Monolithic bond

Cast without de-molding agents, the channel surface bonds directly with the encasement pour — drain and slab act as one structure.

03 Resin-free, non-combustible

No synthetic resins or curing agents. Rated A1 non-combustible — suited to parking structures, fuel areas and fire-sensitive sites.

04 Frost, heat & UV stable

Engineered for extreme temperatures, frost and UV exposure without cracking or warping over time.

05 Impact-tough

An impact-resistant composition reduces damage in transport, installation and everyday use.

06 Clean chemistry

100% recyclable, zero VOCs and no heavy-metal residue to leach into the ground. Can contribute to LEED credits.

07 Hydraulically smooth

A dense, smooth interior promotes self-cleaning flow, reducing maintenance and keeping capacity where it was designed.

08 Engineered by analysis

Finite Element Method (FEM) analysis shapes the body; integrated anchoring ribs add bonded surface for superior adhesion to the encasement.

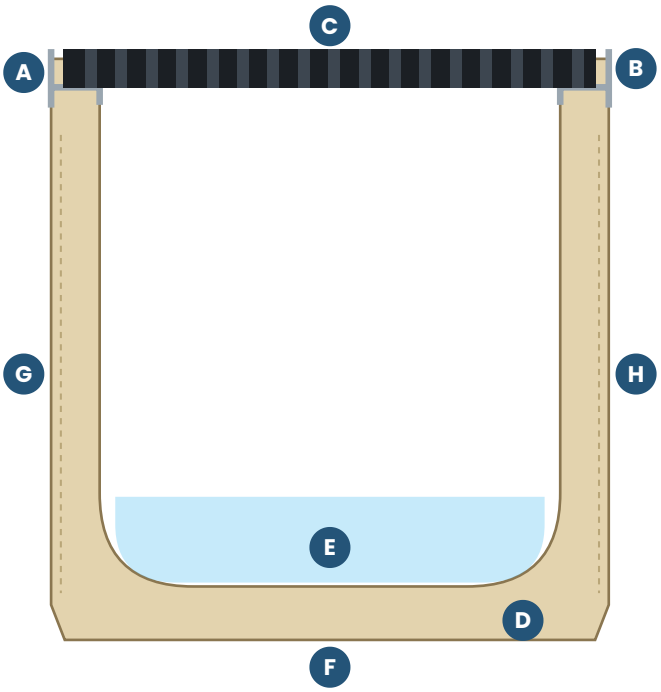
How the materials compare

Property	HPC — Swiftdrain 300	Resin-bound polymer concrete	HDPE / polypropylene
Binder	**Cement — same family as the slab**	Polyester / epoxy resin	Thermoplastic
Thermal movement vs. concrete	**Matched**	Higher	Much higher
Bond to encasement	**Chemical + mechanical**	Mechanical (release agents)	Mechanical only
Self-weight in pour	**Heavy — resists flotation**	Heavy	Light — must be anchored

Comparison is qualitative and reflects typical material behavior; consult product data for specific systems.

SYSTEM ANATOMY

Every part does a job.



SD-300-5N cross-section, grate installed.

Anti-vandal option. Locking devices restrict grate removal to authorized personnel. Four per channel section are recommended in public and high-security areas.

Built heavier where it counts. Thick HPC walls, a 0.98″ ductile iron grate and steel rails form one continuous load path from wheel to encasement.

A — Galvanized steel edge rail
Protects the channel edge from wheel impact and seats the grate. A cast-iron rail version carries Class F 900.

B — Self-locking + four-point bolting
Snap-on, quick-release grate retention backed by four bolts per grate for heavy, braking traffic.

C — Ductile iron grate
19.70″ × 13.66″ × 0.98″ (500 × 347 × 25 mm), two per channel. Slotted D 400 or longitudinal E 600.

D — Sealant groove
Interlocking male/female ends carry a groove for flexible sealant where a watertight run is required.

E — Smooth radiused interior
Flat-sided walls and a radiused invert concentrate low flows for self-cleaning velocity.

F — Vertical outlet in every channel
Each section accepts a bottom outlet — place it wherever the underground pipe lands.

G — Anchoring ribs
FEM-designed exterior ribs key the channel into the encasement and add bonded surface area.

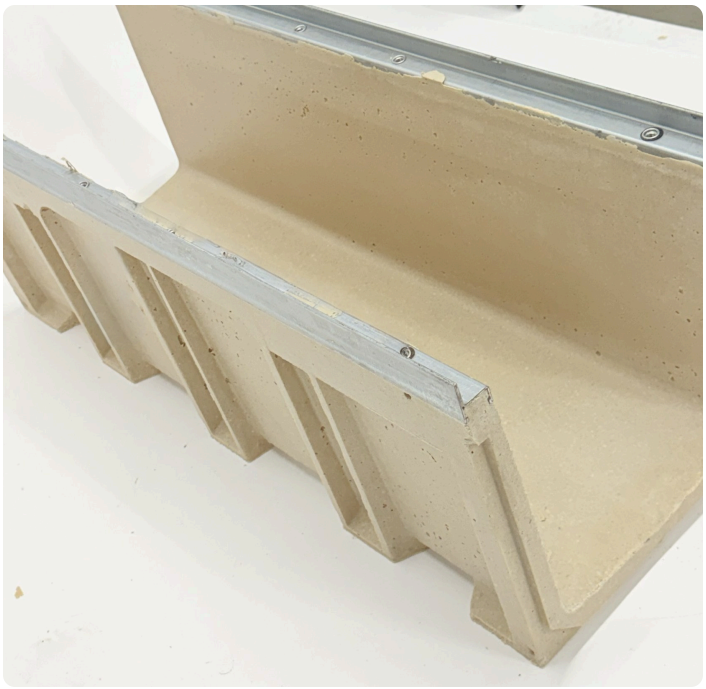
H — Flat-sided body
Straight outer walls fit tight against buildings, curbs and slab edges; mechanical anchors and rebar brackets hold line and grade.

At a glance

39.37″	14.3″	4 bolts	166–240 lb	4,000 psi
laying length 2 grates per channel	overall width 11.81″ clear	per grate, plus self-locking clips	channel weight resists flotation	minimum encasement concrete

THE 300 UP CLOSE

Concrete, steel and iron — nothing else.



Left. End view: ductile iron grate seated in the galvanized rail, bolted at four points, over the wide radiused HPC invert.

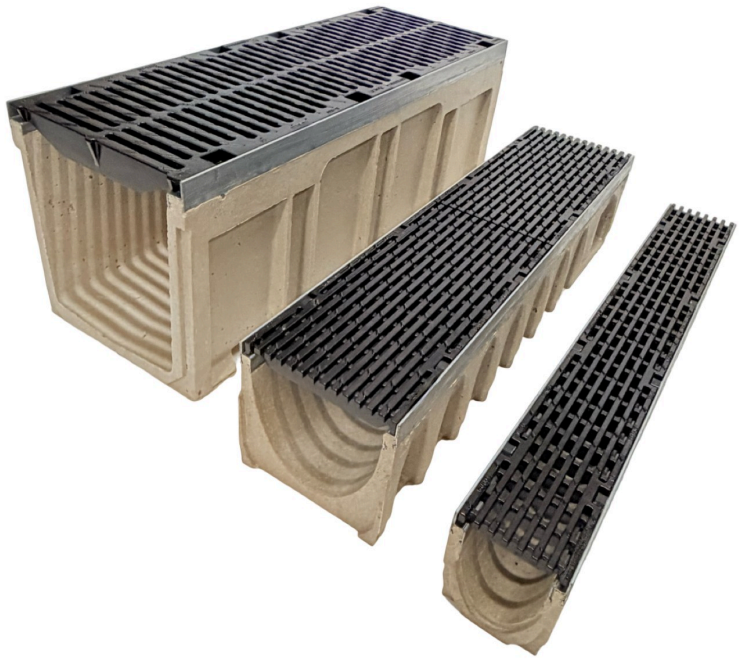
Top right. Side wall: folded steel rail, flat-sided body and the recessed panels that key the channel into the encasement.

Bottom right. Open channel: smooth interior, rail bolting points and the stepped base that seats the run on its bedding.

THE HPC FAMILY

One material. Three widths.

The 300 is the largest of the Swiftdrain HPC channels. Same material, same rail-and-grate logic, same installation method — so one crew and one spec can cover the whole site, sizing each run to its flow.



Left to right: Swiftdrain 300, 200 and 100 HPC channels with ductile iron grates.

300

12″ nominal · 11.81″ clear

Truck courts, docks, ports, airports, long runs and high-intensity storms. Neutral capacity 870 – 1,349 GPM.

200

8″ nominal · 7.87″ clear

Parking lots, roadways, decks and loading aprons. The mid-size workhorse.

100

4″ nominal · 3.94″ clear

Narrow-profile lines for pedestrian areas, plazas and light-duty traffic.

When to step up to the 300. Choose the 300 when the design flow at the outlet exceeds what an 8″ channel carries, when a run is long enough that a smaller channel would need extra outlets, when a wide grate is needed to catch sheet flow across a large slab, or when the site calls for Class E 600 or F 900 loading.

APPLICATIONS

Where the 300 works.

Swiftdrain 300 draining a commercial lot through a New York winter.

From high-traffic commercial spaces to heavy-duty industrial zones, the 300 delivers wherever superior drainage is required: wide enough to intercept sheet flow across big slabs, deep enough to move storm volumes, strong enough for solid-tire forklifts and aircraft.

Sized for the big slab. A 13.66″ grate gives the widest catch line in the HPC family — fewer bypass losses at driveway entrances, dock aprons and long parking-lot gutters.

Winter-ready. Resin-free HPC and steel rails handle plows, salt and freeze-thaw cycles; a wide grate keeps snow-melt moving.

Application	Typical load class	Recommendation
Loading docks, truck courts & warehouses	E 600	Longitudinal ductile grate; 12″ encasement; anti-vandal locks optional.
Airports, ports & container yards	F 900	Cast-iron rail channel with F 900 grate; engineered encasement.
Parking lots & garages	C 250 – D 400	Slotted ductile grate; continuous loads without deterioration.
Roadways & transit hubs	D 400	Bolted slotted grate for high-footfall, high-traffic zones.
Government & municipal projects	C 250 – E 600	Long-lasting, low-maintenance infrastructure drainage.
Commercial & residential developments	B 125 – D 400	Functional with a clean, architectural concrete finish.
Sports facilities & stadiums	B 125 – D 400	Keeps concourses, fields and service roads dry and safe.
Landscaping & hardscape	A 15 – C 250	Integrates with pavers and plazas; heel-friendly patterns on request.

Load class is set by the actual traffic, not the site type. When in doubt, specify the next class up.

LOAD CLASSES

EN 1433 — choosing the class.

EN 1433 sorts drainage channels into six classes, A 15 to F 900. The number is the proof test load in kilonewtons applied in the lab — well above the everyday working load. The installed class is the lowest of the grate rating, the rail and the encasement built around the channel.

Class	Test load kN	Test load lb	Typical use	Swiftdrain 300 grate
A 15	15	3,372	Pedestrians, cyclists, landscaped areas	Any 300 grate
B 125	125	28,100	Sidewalks, light vehicles, residential parking	Any 300 grate
C 250	250	56,200	Curb zones, road shoulders, car parks	Galv. perf. / mesh, SS mesh, slotted DI
D 400	400	89,920	Roadways, parking lots, commercial vehicles	Slotted DI
E 600	600	134,800	Docks, industrial floors, forklifts, high wheel loads	Longitudinal DI
F 900	900	202,300	Airports, ports, extreme wheel loads	Cast-iron rail + F grate

Grate × load class

Grate	A 15	B 125	C 250	D 400	E 600	F 900
Ductile iron slotted · SD-300-GDS · galvanized rail	•	•	•	•	—	—
Ductile iron longitudinal · SD-300-GDL · galvanized rail	•	•	•	•	•	—
F 900 grate · SD-300-GDF · cast-iron rail channel	•	•	•	•	•	•
Stainless steel mesh · SD-300-SM	•	•	•	—	—	—
Galvanized steel mesh · SD-300-GM	•	•	•	—	—	—
Galvanized steel perforated · SD-300-GP	•	•	•	—	—	—

Rule 1 — the weakest link governs. A Class E grate in a Class C encasement is a Class C installation. Size the concrete surround to the class (page 17).

Rule 2 — when unsure, go up. Delivery trucks, refuse vehicles and forklifts routinely exceed the design assumption for a "car park." One class higher is cheap insurance.

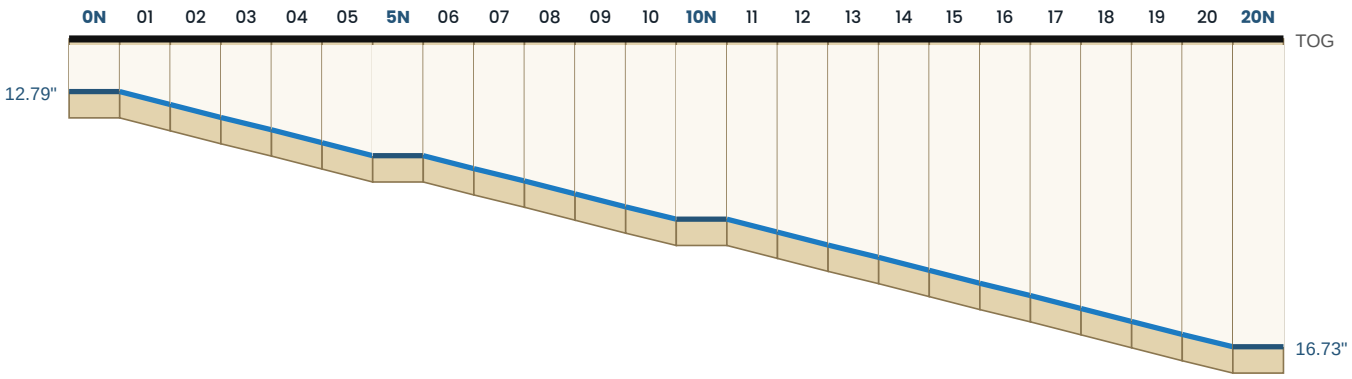
Rails set the ceiling. Galvanized or stainless steel rails take the 300 to Class E 600. For Class F 900 the channel is supplied with cast-iron rails.

North American projects. For HS-20 / HS-25 highway loading, Class C 250 is a common minimum and D 400 or higher is typical for trucks; confirm with the engineer of record.

CHANNEL RANGE

Twenty-four sections. One continuous fall.

Each 39.37″ (1 m) channel drops its invert 0.20″ — a 0.5% built-in slope — so sections 1 through 20 lay end to end into a 65.6 ft run that falls 3.94″ over a flat trench bottom. Four neutral sections (0N, 5N, 10N, 20N) hold depth to extend runs indefinitely, start shallow, or step down along the line.



FLOW → invert depth below top of grate · neutral (N) sections hold depth · vertical scale exaggerated

Neutral sections

SKU	Body depth	Invert depth	Matches	Max flow	Weight
SD-300-0N	14.17″	12.79″	Inlet of section 1	870 GPM	166.7 lb
SD-300-5N	15.15″	13.78″	Outlet of section 5	984 GPM	181.0 lb
SD-300-10N	16.14″	14.76″	Outlet of section 10	1,103 GPM	195.3 lb
SD-300-20N	18.11″	16.73″	Outlet of section 20	1,349 GPM	240.3 lb

Sloped · SD-300-01 to -20

0.5% fall per section. Body 14.17″ at the inlet of section 1 to 18.11″ at the outlet of section 20.

Neutral · 0N, 5N, 10N, 20N

Constant depth matching sections 0, 5, 10 and 20. Use anywhere in a run, or alone for flat runs of any length.

Reading the SKU

SD-300-07 = 300 series, sloped section 7.
SD-300-10N = neutral at section-10 depth.

0.197″
invert fall per sloped section

3.94″
total fall, sections 1 – 20

0.99″
neutral step 0N → 5N → 10N

1.97″
neutral step 10N → 20N

Run math. 1 section = 39.37″ (3.28 ft) · 3 sections ≈ 9.8 ft · sections 1–20 = 65.6 ft of continuous fall · add neutral channels to carry the run to 1,000+ ft.

DIMENSION TABLE

SD-300 channel data.

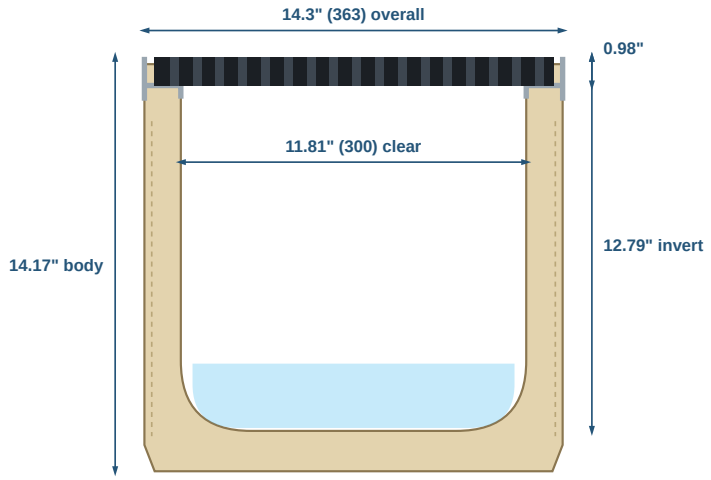
All sections 39.37″ (1,000 mm) long × 14.3″ wide overall × 11.81″ (300 mm) clear. Depths measured from top of grate. Invert = top of grate to channel bottom. Weights exclude grates.

SKU	Section	Slope	Overall body (in)		Invert (in)		Max flow			Weight	
			Min	Max	Min	Max	GPM	LPS	CFS	lb	kg
SD-300-0N	**300/0**	**0%**	**14.17**	**14.17**	**12.79**	**12.79**	**870**	**55**	**1.9**	**166.7**	**75.6**
SD-300-01	300/1	0.5%	14.17	14.37	12.79	12.99	—	—	—	168.2	76.3
SD-300-02	300/2	0.5%	14.37	14.57	12.99	13.19	—	—	—	171.1	77.6
SD-300-03	300/3	0.5%	14.57	14.76	13.19	13.38	—	—	—	173.9	78.9
SD-300-04	300/4	0.5%	14.76	14.96	13.38	13.58	—	—	—	176.8	80.2
SD-300-05	300/5	0.5%	14.96	15.15	13.58	13.78	—	—	—	179.7	81.5
SD-300-5N	**300/5-0**	**0%**	**15.15**	**15.15**	**13.78**	**13.78**	**984**	**62**	**2.19**	**181.0**	**82.1**
SD-300-06	300/6	0.5%	15.15	15.35	13.78	13.98	—	—	—	182.5	82.8
SD-300-07	300/7	0.5%	15.35	15.55	13.98	14.17	—	—	—	185.4	84.1
SD-300-08	300/8	0.5%	15.55	15.75	14.17	14.37	—	—	—	188.3	85.4
SD-300-09	300/9	0.5%	15.75	15.94	14.37	14.57	—	—	—	191.1	86.7
SD-300-10	300/10	0.5%	15.94	16.14	14.57	14.76	—	—	—	194.0	88.0
SD-300-10N	**300/10-0**	**0%**	**16.14**	**16.14**	**14.76**	**14.76**	**1,103**	**70**	**2.5**	**195.3**	**88.6**
SD-300-11	300/11	0.5%	16.14	16.34	14.76	14.96	—	—	—	196.7	89.2
SD-300-12	300/12	0.5%	16.34	16.54	14.96	15.16	—	—	—	201.3	91.3
SD-300-13	300/13	0.5%	16.54	16.73	15.16	15.35	—	—	—	206.1	93.5
SD-300-14	300/14	0.5%	16.73	16.93	15.35	15.55	—	—	—	210.8	95.6
SD-300-15	300/15	0.5%	16.93	17.13	15.55	15.75	—	—	—	215.4	97.7
SD-300-16	300/16	0.5%	17.13	17.32	15.75	15.94	—	—	—	220.2	99.9
SD-300-17	300/17	0.5%	17.32	17.52	15.94	16.14	—	—	—	224.9	102.1
SD-300-18	300/18	0.5%	17.52	17.72	16.14	16.34	—	—	—	229.5	104.2
SD-300-19	300/19	0.5%	17.72	17.91	16.34	16.54	—	—	—	234.1	106.2
SD-300-20	300/20	0.5%	17.91	18.11	16.54	16.73	—	—	—	239.0	108.4
SD-300-20N	**300/20-0**	**0%**	**18.11**	**18.11**	**16.73**	**16.73**	**1,349**	**85**	**3.0**	**240.3**	**109.0**

Maximum flow is published for neutral sections (full-depth open-channel capacity). Sloped sections at equal depth carry more because of their built-in fall; Swiftdrain engineering will run a hydraulic takeoff for any layout.

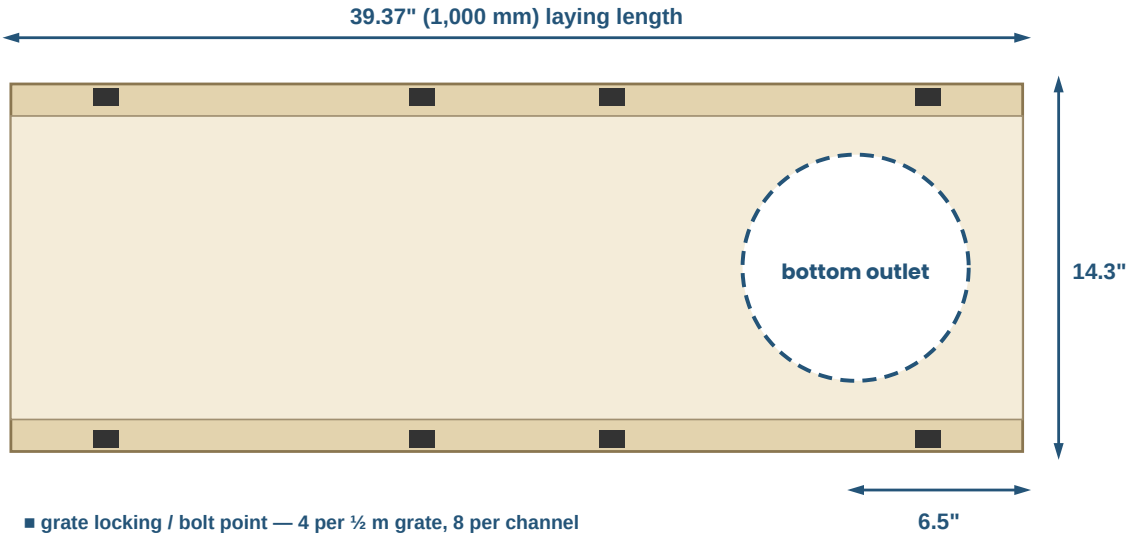
CHANNEL DRAWINGS

Section, plan & key dimensions.



Cross-section · SD-300-0N shown · not to scale

SD-300 channel body	
Material	High-performance concrete (HPC)
Edge rail	Galvanized steel (E 600) · cast iron (F 900)
Laying length	39.37″ (1,000 mm)
Overall width	14.3″ (363 mm)
Clear width	11.81″ (300 mm)
Grate seat	0.98″ (25 mm)
Body depth	14.17″ – 18.11″
Invert depth	12.79″ – 16.73″
Built-in slope	0.5% (sloped sections)
Vertical outlet	Bottom outlet possible in every section
Joints	Male/female, sealant groove
Anchorage	Anchoring ribs + mechanical anchors
Grates per channel	Two × 19.70″ (½ m)
Weight	166.7 – 240.3 lb (75.6 – 109.0 kg)



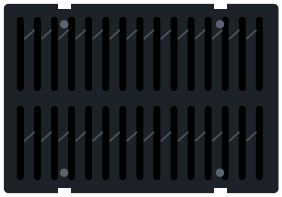
Plan view · one 1 m section · bottom-outlet position centered 6.5″ from the downstream end

CAD details (DWG / PDF) for every section are available from Swiftdrain engineering: design@swiftdrain.com.

GRATES

Six grates, one locking system.

Every 300 grate snaps into the self-locking rail and bolts at four points — two per channel, mixable along a run.



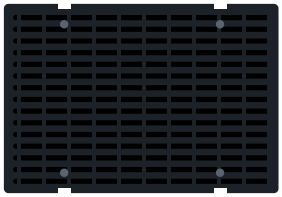
D 400

Ductile iron slotted

`SD-300-GDS · patterns P001 / P002 / P003`

The standard 300 grate. Two rows of transverse slots with raised diagonal ribs for traction; bolted at four points. Parking, roadways, transit.

Length	19.6″ (½ m)
Width × height	13.7″ × 1.0″
Slot width	0.5″ – 0.7″ by pattern
Locking	Self-lock + 4 bolts
Material	Ductile iron, coated
Test load	89,920 lb (400 kN)



E 600

Ductile iron longitudinal

`SD-300-GDL`

Longitudinal bar mesh for commercial solid-tire traffic and impacts from steel struts or metal wheels — forklift rated.

Length	19.70″ (500 mm)
Width × height	13.66″ × 0.98″
Mesh	1.14″ × 0.51″
Weight	29.32 lb (13.3 kg)
Inlet area	227 in² per meter
Test load	134,800 lb (600 kN)

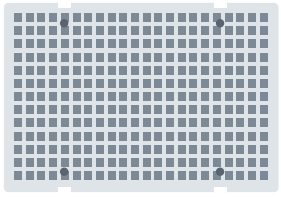
F 900

F 900 heavy-duty grate

`SD-300-GDF · cast-iron rail channel`

For airports, ports and container yards. Supplied with the cast-iron-rail version of the 300 channel; specified project by project.

Length	19.70″ (½ m)
Rail	Cast iron
Locking	Bolted
Use	Aircraft, straddle carriers
Test load	202,300 lb (900 kN)
Data	Project submittal



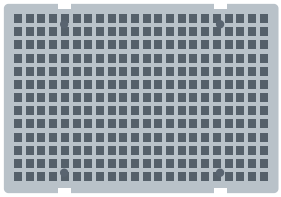
C 250

Stainless steel mesh

`SD-300-SM`

Corrosion-resistant stainless mesh for food and beverage plants, wash bays, coastal sites and architectural plazas.

Length	19.70″ (½ m)
Width	13.66″
Material	Stainless steel
Locking	Self-lock + 4 bolts
Test load	56,200 lb (250 kN)



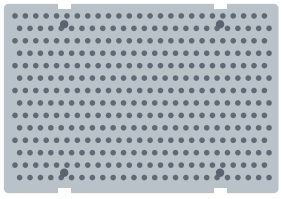
C 250

Galvanized steel mesh

`SD-300-GM`

Welded galvanized steel mesh for maximum open area and fast intake — pedestrian zones, landscaping and car parks.

Length	19.70″ (½ m)
Width	13.66″
Material	Galvanized steel
Locking	Self-lock + 4 bolts
Test load	56,200 lb (250 kN)



C 250

Galvanized steel perforated

`SD-300-GP`

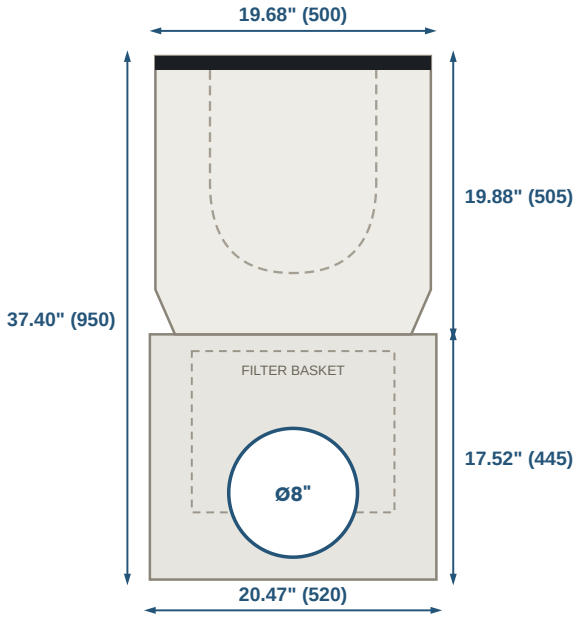
Hot-dip galvanized plate with round perforations. Heel-friendly surface for walkways, plazas and car parks.

Length	19.70″ (½ m)
Width	13.66″
Material	Galvanized steel
Locking	Self-lock + 4 bolts
Test load	56,200 lb (250 kN)

Size the encasement to the grate class. ADA routes: openings may not pass a ½" sphere — ask for an ADA selection. SKUs are catalog designations; F 900 data with project submittal.

CATCH BASIN SYSTEM

SD-300-CB — where every run ends.



332 catch basin system, front elevation · inches (mm)

SD-300-CB (332) catch basin	
Material	HPC with galvanized steel rail
Overall	22.05″ × 14.17″ × 37.40″ (560 × 360 × 950 mm)
Throat	11.81″ (300 mm)
Outlet	8″ pipe, gasketed female socket
Slope	0%
Load rating	To Class E with appropriate grate
Weight	273.37 lb (124.0 kg)

Channel guides

Cast guides at the invert of 0N, 5N, 10N and 20N; cut out the end at the run height and seal with flexible sealant.

Sediment control

A removable filter basket and debris trap catch grit before it reaches the storm line — lift out through the grate opening.

Pipe connection

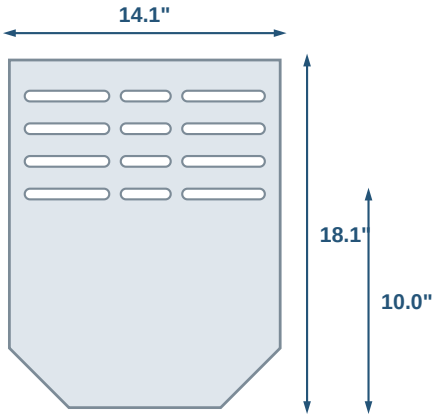
Supplied with a PVC pipe adapter and flexible rubber coupling to connect 8″ PVC; cast iron soil pipe also requires the adapter.

Mixing widths. An adapter plate lets 4″, 6″ or 8″ channels discharge into the same 300 catch basin, so several runs of different sizes can share one common outlet.

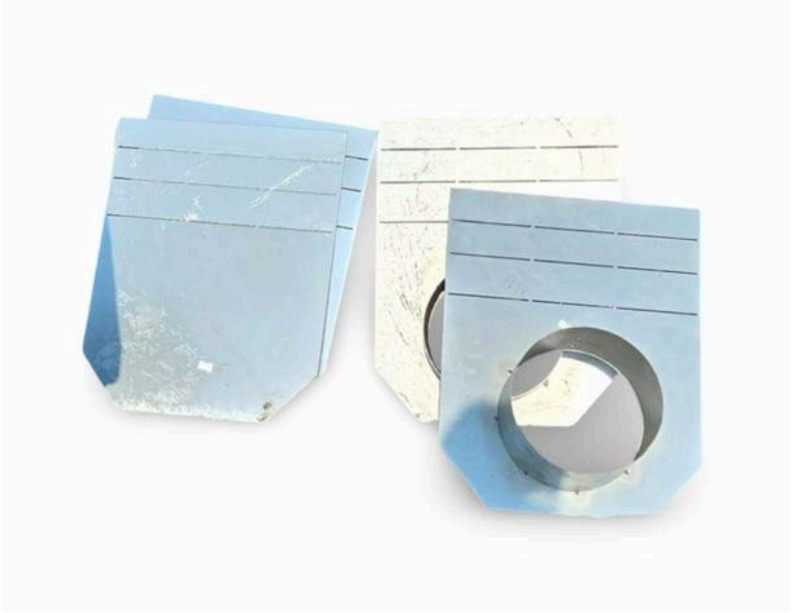
ACCESSORIES

Everything to finish the run.

Item	Description	Material
SD-300-CB	Catch basin system (332), 8″ outlet, with pipe adapter and coupling	HPC / galv. steel
SD-300-FB	Filter basket / debris trap for catch basin	Plastic
SD-300-EC	End cap, closed — high (upstream) end; scored to fit any section depth	Galvanized steel
SD-300-EO	End outlet — low-side pipe transition for 3″, 4″, 6″, 8″ or 12″ pipe	Galvanized steel
SD-300-BO	No-hub bottom outlet — fitted at the knock-out in any channel	Steel
SD-300-AP	Adapter plate — joins 4″/6″/8″ channels into a 300 catch basin	Galvanized steel
SD-300-AV	Anti-vandal locking device (4 per section recommended)	Galvanized steel
SD-300-RB	Rebar installation bracket (one per joint + one per run)	Steel
SD-300-KD	Grate key driver for bolted grates	Steel



SD-300-EC galvanized end cap · 0.1″ plate · scored break-lines set the cap to section depth · inches



Closed end cap (left) and end outlet with pipe spigot (right).

End caps

Factory-scored along set depths — fit to the channel, snap off the unwanted strip, and seal.

Outlets

End outlets for in-line pipe; bottom outlets for pipe below the run. Each channel has the knock-out.

Low-VOC sites

Where adhesives are restricted, outlets and caps can be held with tape during the pour.

RUN LAYOUTS

Five ways to lay out a 300 run.

Neutral run

10N	10N	10N	10N	10N	10N	10N	10N	CB

any neutral depth; outlet anywhere

Linear run, sloped sections

1	2	3	4	5	6	7	8	9	10	CB

10 sections ≈ 32.8 ft

Sloped run extended with neutrals

0N	1	2	3	4	5	5N	6	7	8	9	10	10N	CB

Step-slope run (neutrals stepping down)

0N	0N	0N	5N	5N	5N	10N	10N	10N	20N	20N	20N	CB

Counter-directional run to a central basin

1	2	3	4	5	6	7	CB	7	6	5	4	3	2	1

two runs, one outlet

Laying rules

Start at the outlet. Set the catch basin or outlet section first and lay upstream. Section numbers rise toward the outlet: highest number at the basin, counting down to section 1.

Flow arrows. Every sloped channel is labeled with its number and a flow arrow — keep the arrow pointed downstream. Neutrals are labeled "N".

Extending past 20. After section 20, continue with 20N neutrals or start a second run into a new basin.

Steps. Neutral runs can step down 0N → 5N → 10N → 20N to gain fall without sloped sections.

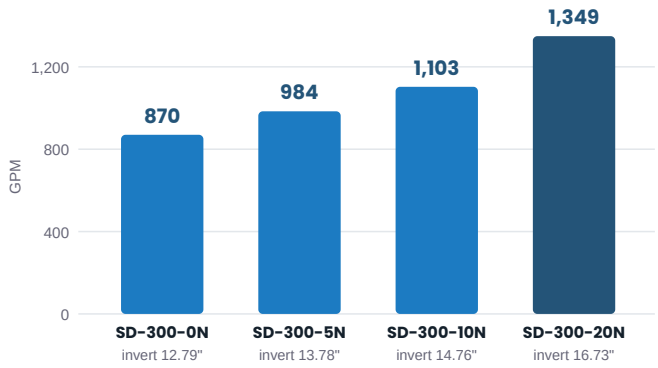
Quick quantity guide

Sections	Run length	Typical set
3	9.8 ft	1 – 3 + basin
6	19.7 ft	1 – 6 + basin
10	32.8 ft	1 – 10 + basin
20	65.6 ft	1 – 20 + basin
30	98.4 ft	1 – 20 + ten 20N + basin
2 × 20	131 ft	counter-directional to one basin

Quoted per 1 m section (3.28 ft). Lengths not divisible by a section round up and are field-cut to the exact dimension.

HYDRAULICS & SIZING

Capacity where it counts — at the outlet.



Maximum flow, neutral sections, full depth

A trench drain collects water along its length, so flow builds toward the outlet. Size the system by checking the design flow arriving at the outlet section against that section's capacity.

Section	GPM	L/s	CFS
SD-300-0N	870	55	1.90
SD-300-5N	984	62	2.19
SD-300-10N	1,103	70	2.50
SD-300-20N	1,349	85	3.00

Worked example — truck court

Step	Input	Result
Catchment	140 ft × 100 ft concrete truck court	14,000 ft² = 0.321 acre
Runoff coefficient C	Concrete pavement	0.95
Rainfall intensity i	Local design storm (example)	6.0 in/hr
Rational method Q = C·i·A	0.95 × 6.0 × 0.321	1.83 cfs ≈ 822 GPM
Run	Sections 1–20 + ten 20N into SD-300-CB	≈ 98 ft along the dock face
Check at outlet	SD-300-20N neutral capacity 1,349 GPM	**OK — ≈ 39% reserve**

Conservative by design. The neutral rating ignores the extra capacity sloped sections gain from their fall. For long runs, roof leaders or high-intensity storms, request a Swiftdrain hydraulic takeoff.

Use your local IDF data. The 6 in/hr figure is illustrative. Use the jurisdiction's design-storm intensity and return period.

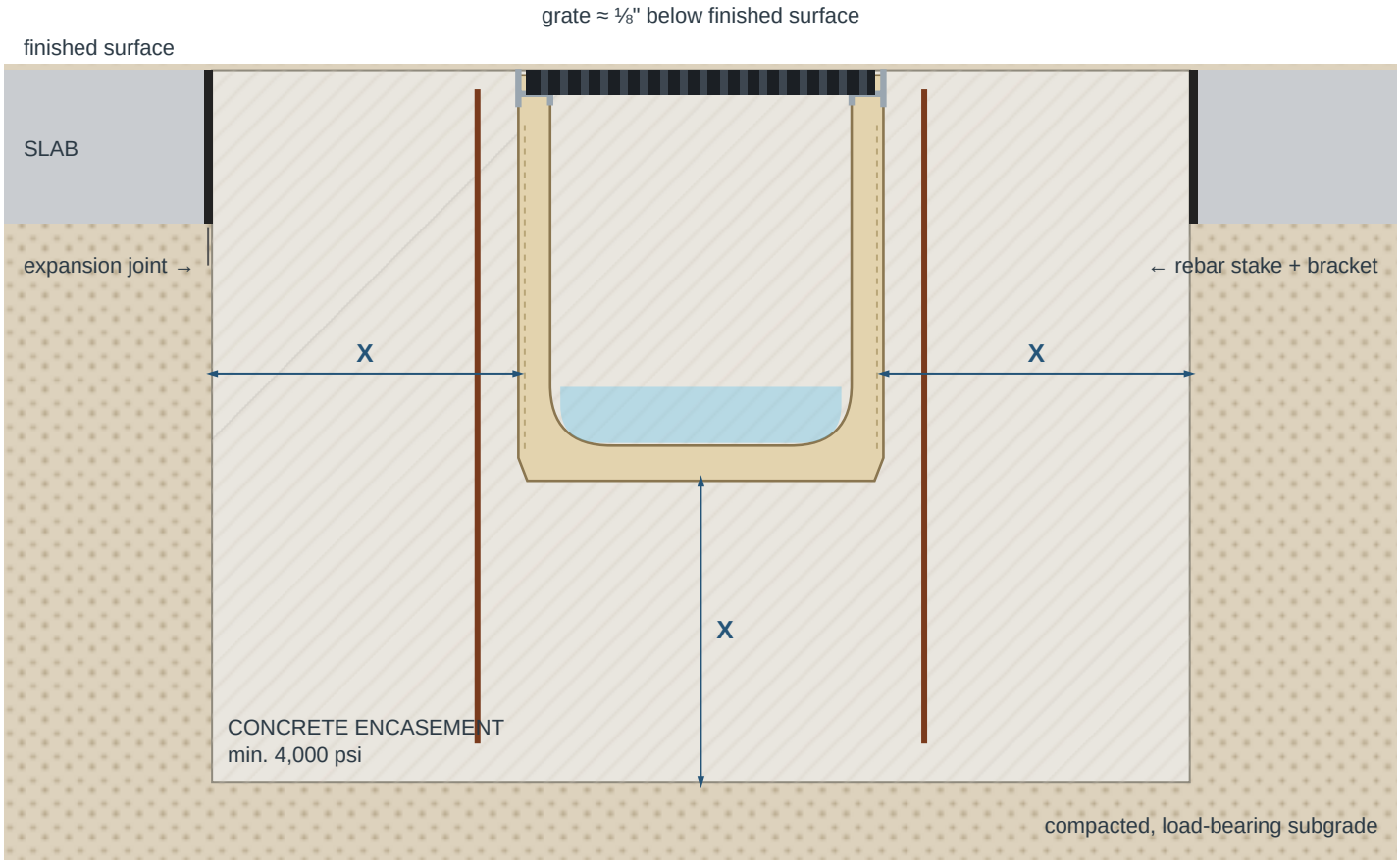
Quick sizing — maximum paved catchment per outlet

Rainfall intensity	SD-300-0N	SD-300-5N	SD-300-10N	SD-300-20N
4 in/hr	22,200 ft²	25,100 ft²	28,200 ft²	34,500 ft²
6 in/hr	14,800 ft²	16,800 ft²	18,800 ft²	23,000 ft²
8 in/hr	11,100 ft²	12,600 ft²	14,100 ft²	17,200 ft²

Rational method, C = 0.95 (concrete or asphalt), outlet section at neutral full-depth capacity. Pervious or landscaped catchments carry more area per outlet.

INSTALLATION DETAIL

The encasement is part of the drain.



Typical section · channel encased in concrete on both sides and below · dimension X per load class

Minimum encasement X

Class	X	Rail	Use
A 15	8″ (200 mm)	Galvanized	Pedestrian
B 125	10″ (250 mm)	Galvanized	Light vehicles
C 250	10″ (250 mm)	Galvanized	Car parks, curbs
D 400	12″ (300 mm)	Galvanized	Roadways, trucks
E 600	12″ (300 mm)	Galvanized	Docks, forklifts
F 900	12″ (300 mm) min.	Cast iron	Airports, ports

Minimum dimensions for good ground. Poor soils and low-bearing pavements need more; reinforcing steel may be required. Engineering advice governs.

Concrete

Minimum 4,000 psi compressive strength, on both sides and below, vibrated to fill between the ribs with no voids.

Set it low

Finished surface about ⅛″ above the grate so all water reaches the grate, not the rail.

Asphalt & pavers

Up to Class C, asphalt or pavers may meet the channel edge; above Class C use a full concrete surround. Pavers next to the channel are bonded to the haunch.

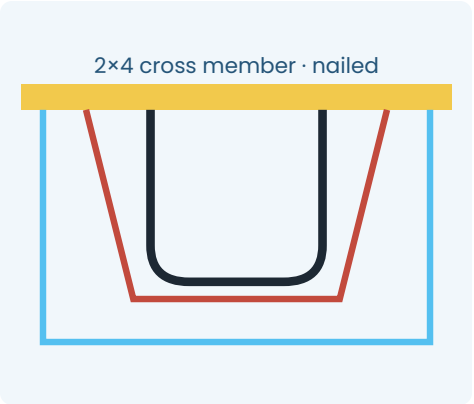
Joints

Transverse joints at channel joints; continuous, flexible longitudinal joints between encasement and slab.

POSITIONING METHODS

Three ways to hold line and grade.

The 300 is heavy enough to resist flotation, but every run must be fixed at line and grade before the pour. Choose the method that suits the crew and the site.



A · Patty method

Set channels on brick or block risers to height. Make all outlet and pipe connections. Place low-slump concrete "patties" around the risers, at least 2″ up the channel and over the side keys. Let them set, lower the next channel vertically into a tight joint, then pour.

B · Mechanical support

Drive #4 or #5 rebar either side and clamp installation brackets at the required height. One bracket per joint plus one per run — 10 channels need 11. Tighten every wing nut before the pour.

C · Suspension method

Span the trench with 2×4s — three to four per 300 channel — and hang the channel on wire or strapping. Shim to level, then nail or bolt the cross members down: an unanchored run can float during the pour. First lift about 2″ up the sides; let it set before the rest.

Brace the walls. Keep grates (wrapped in plastic or tape) or snug ¾″ plywood in the rail during the pour so concrete pressure cannot squeeze the walls. Bridge channel joints with the grates and shim one side to keep a clearance gap.

Pour evenly. Place concrete on both sides at once and vibrate with a wand vibrator. Cover open outlets so fresh concrete stays out of the channel. Remove bracing after 24 hours of cure.

Which method?

Method	Best for	Watch for
A · Patty	Most sites; crews already pouring concrete; long straight runs	Patties must set before the main pour; keep joints clean
B · Mechanical support	Fast, adjustable setting to laser grade; soft or variable subgrade	One bracket per joint plus one; tighten every wing nut
C · Suspension	Slab-edge or formed pours; channels set from above	Anchor every cross member — an unanchored run can float

INSTALLATION SEQUENCE

Eight steps from trench to traffic.

1 Plan & mark
Lay out the run from the outlet against the shop drawing. Run a string line or laser at finished surface along the full length.

2 Excavate
Width = 14.3″ + 2X. Depth = deepest section + X. Remove loose material and compact a firm, load-bearing base.

3 Set the outlet
Place the SD-300-CB or outlet section first. Fit the pipe adapter and coupling and connect the discharge pipe.

4 Lay upstream
Set channels in descending section order with flow arrows downstream. Push male/female ends tight; seal joints if a watertight run is required.

5 Fix line & grade
Patties, rebar brackets or suspension. Check line, level, and that the grate will sit about ⅛″ below finished surface.

6 Brace & protect
Grates or plywood in the rails, tape over grates, cover open outlets.

7 Encase
Pour to dimension X for the load class, both sides evenly, vibrating to fill under and between the ribs.

8 Finish & commission
Finish pavement, cure 24 h, remove protection, flush the run, install filter basket, bolt grates and anti-vandal locks.

Do
Start at the outlet · keep grates in during the pour · vibrate the encasement · make all discharge connections before concrete · protect the run from traffic heavier than its installed class until paving is complete.

Don't
Drive over an unencased channel · roll asphalt across the grates · hammer directly on the channel to open a knock-out · let a slab joint end at the channel wall · set the grate flush or proud.

On the truck
Channels in section order, catch basin, end caps and outlets, brackets, grates, bolts and locks. Check the packing list against the layout.

Site tools
Laser or string line, #4/#5 rebar, concrete vibrator, flexible sealant, diamond or masonry saw, rubber mallet.

Safety
Eye, breathing and hand protection when cutting or drilling; keep sparks from grinding away from flammables.

IN THE FIELD

How a 300 run goes in.

Setting to the string line

A two-person crew lowers each channel onto the bedding, tight to the previous joint, with the string line at finished grade.

Setting on block risers

Each channel goes onto block risers at string-line height, push-fit tight to the last joint, ready for the concrete patties.

Encasing the run

Concrete placed evenly along both sides while grates stay wrapped and in the rails.

Ready for the slab

An encased run between slab pours, plated over to keep traffic moving on an active site.

FABRICATION & MAINTENANCE

Cut it on site. Keep it running for decades.

On-site fabrication

Cutting

Cut channels with a masonry or diamond disc saw; cut grates with a band saw and metal blade. Bond cut ends with construction adhesive and clean excess from the inside before it cures.

Miters & tees

Miter channels at 45° for a 90° corner, supported with a dry-concrete patty and a tape barrier at the joint. For heavy-duty traffic, mitered grates are not recommended — form a tee so every grate keeps full support. Leave the edge rail intact at tees.

Outlets & knock-outs

Core-drill with the correct diamond bit, or stitch-drill every ⅛″ and tap out from inside. Never hammer the channel directly — always pre-drill. Dress with a grinder and seal the pipe in.

Chemical service

Where corrosive liquids are carried, seal joints and outlets with a chemically resistant sealant.

Inspection & maintenance

Inspect at least once a year, more often on sanded or high-debris sites. Check grates and locks, catch basin and filter basket, and the surrounding concrete and paving for damage, blockage or movement.

#	Routine
1	Remove grates (key driver for bolted grates)
2	Remove debris from the channel
3	Flush with water or a pressure washer
4	Repair damaged surfaces; renew joint seals
5	Empty the filter basket; clear pipe connections
6	Re-install basket and grates; confirm locks

Final inspection. Before handover: clear debris from channels and grate rebates, confirm outlet pipes are open, flush the run to check for blockages, install the filter basket and lock every grate.

Field modification quick reference

Task	Tool	Key point
Shorten a channel	Masonry or diamond disc saw	Cut to length on site; bond or seal the cut joint
Cut a grate	Band saw, metal blade	Deburr cut edges before setting the grate
90° corner	Saw, 45° miters	Support with a dry-concrete patty; use a tee for heavy-duty grates
Tee junction	Saw / cut-off tool	Mark the opening by butting channels; leave the edge rail intact
Bottom outlet	Core drill or stitch drill	Channel upside down; never hammer; seal the no-hub outlet
Catch basin entry	Cut-off tool, grinder	Cut at the cast guide for the run height; seal with flexible sealant

GUIDE SPECIFICATION

Section 33 44 16 — Utility Trench Drains.

PART 1 — GENERAL

1.1 Section includes: precast high-performance concrete trench drain system with grates, catch basin and accessories. Related sections: 03 30 00 Cast-in-Place Concrete; 31 23 00 Excavation and Fill; 33 41 00 Storm Utility Drainage Piping.

1.2 References: EN 1433 Drainage channels for vehicular and pedestrian areas; ASTM A536 Ductile Iron Castings; ASTM A123 / A653 Zinc (Hot-Dip Galvanized) Coatings; 2010 ADA Standards 302.3 where on accessible routes.

1.3 Submittals: product data, layout shop drawing with section numbers, inverts and outlet elevations, grate and load-class schedule, installation instructions.

PART 2 — PRODUCTS

2.1 Manufacturer: Swiftdrain, Mineola, NY — Swiftdrain 300 HPC Trench Drain System. Substitutions per Division 01.

2.2 Channels: precast high-performance concrete (HPC), cement-based, resin-free; 11.81″ (300 mm) clear width, 39.37″ (1 m) sections; 0.5% built-in slope with neutral sections as shown; integral [galvanized steel] [cast-iron] edge rails; interlocking ends with sealant groove; bottom-outlet capability in each section; exterior anchoring ribs.

2.3 Grates: 19.70″ (½ m) lengths, [galvanized steel perforated, Class C 250] [galvanized steel mesh, Class C 250] [stainless steel mesh, Class C 250] [ductile iron slotted, Class D 400] [ductile iron longitudinal, Class E 600] [Class F 900 with cast-iron rail channel] per EN 1433; secured by self-locking connection and four-point bolting. [Provide anti-vandal locking devices, four per section.]

2.4 Catch basin: Swiftdrain SD-300-CB HPC catch basin system with rail, 8″ outlet, pipe adapter and coupling [and filter basket].

2.5 Accessories: end caps, end and bottom outlets, adapter plates and installation brackets by the trench drain manufacturer.

PART 3 — EXECUTION

3.1 Install per manufacturer's instructions, starting at the outlet and laying upstream in section order with flow arrows downstream.

3.2 Encase in concrete, minimum 4,000 psi at 28 days, to the dimensions for the specified load class on both sides and below; vibrate to eliminate voids. Brace channels with grates or plywood during the pour.

3.3 Set top of grate approximately 1/8″ below adjacent finished surface. Provide transverse and longitudinal expansion joints as shown.

3.4 Protect the installed system from loads exceeding its installed class until pavement is complete; clean channels and catch basins before acceptance.

Schedule on drawings. List channel SKUs (SD-300-01 … -20, neutrals 0N/5N/10N/20N), grate SKU, catch basin and accessories on the drainage plan.

Editable files. Word version of this spec, CAD details and project layouts from Swiftdrain engineering: design@swiftdrain.com.

SHIPPING & PROJECT SUPPORT

On site, on time and intact.

300 channels shrink-wrapped and labeled by section number, end caps packed on top, staged for shipment.

Channels are carefully strapped and palletized and ship across the United States by common carrier, LTL and a network of dedicated freight partners. Most items are in stock in New York, ready to ship.

> **Same-day proposals.** Send a plan, a sketch or a photo — get back a section-by-section layout, takeoff and quote.

What Swiftdrain engineering provides

Layouts

Section-by-section shop drawings with inverts, outlet elevations and flow arrows.

Hydraulics

Rational-method takeoffs and outlet checks for your design storm.

Submittals

Product data, load-class schedule, CAD details and this guide spec.

Field support

Pre-pour reviews and answers for the crew, from first channel to final grate.

To quote a 300 run, send	Why it matters
Run lengths and outlet locations	Sets section sequence, neutrals and catch basins
Traffic type (cars, trucks, forklifts, aircraft)	Sets grate, rail and encasement class
Surface type (concrete, asphalt, pavers)	Sets the haunch detail
Pipe size and material at the outlet	Sets end outlet, bottom outlet or catch basin adapter
Delivery address and date	Sets freight and staging

SWIFT DRAIN

Same-day proposals.
Most items in stock, ready to ship.

Send a plan, a sketch or a photo. Swiftdrain engineering returns a section-by-section layout, a takeoff and a quote — fast.

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