

Dura Trench

GRATE INFLOW CALCULATIONS

$Q_{REQ'D} (AREA * 125) = 1.09 CFS$
 ↳ SEE STORM CALLS.

05B24DI INSERT GRATE PART NUMBER IN CELL TO LEFT
 22.0 INSERT LENGTH OF TRENCH DRAIN RUN TO LEFT IN FEET → PLAN LENGTH = 22 LF

HEAD (IN)	HEAD (FT)	OPEN AREA (IN ² / FT)	OPEN AREA (FT ² / FT)	MAX INFLOW (GPM/FT)	MAX FLOW RATE (CFS/FT)	TOTAL CAPTURE OF TRENCH RUN (CFS)
0.125	0.010	21.48	0.149	36	0.079	1.7
0.250	0.021	21.48	0.149	50	0.112	2.5
0.500	0.042	21.48	0.149	71	0.159	3.5
0.750	0.063	21.48	0.149	87	0.194	4.3
1.000	0.083	21.48	0.149	101	0.224	4.9
1.250	0.104	21.48	0.149	113	0.251	5.5
1.500	0.125	21.48	0.149	123	0.275	6.0
1.750	0.146	21.48	0.149	133	0.297	6.5
2.000	0.167	21.48	0.149	142	0.317	7.0
2.250	0.188	21.48	0.149	151	0.336	7.4
2.500	0.208	21.48	0.149	159	0.355	7.8
2.750	0.229	21.48	0.149	167	0.372	8.2
3.000	0.250	21.48	0.149	174	0.389	8.5
4.000	0.333	21.48	0.149	201	0.449	9.9
5.000	0.417	21.48	0.149	225	0.502	11.0
6.000	0.500	21.48	0.149	247	0.549	12.1
7.000	0.583	21.48	0.149	266	0.594	13.1
8.000	0.667	21.48	0.149	285	0.635	14.0
9.000	0.750	21.48	0.149	302	0.673	14.8

*** for additional assistance please contact customer support at 770-505-6575 or visit us on the web at www.trenchdrain.net

Formula used for calculations is:

$$Q = 448.2 * C_d * A * (2 * g * h)^{0.5}$$

where

Q = flow rate (gpm)

C_d = discharge coefficient (0.6 assumed)

A = open area of grate

g = gravitational acceleration (32 ft/sec/sec)

h = head above grate (in)

AT 0.08' OF HEAD, GRATE CAPACITY = 4.9 cfs > 1.09 cfs REQ'D.

$Q_{REQ'D} (AREA * RS) = 1.09 \text{ CFS}$
 $\rightarrow$ SEE STORMCALLS

4 INTERNAL TRENCH WIDTH

0.013 MANNINGS ROUGHNESS (CONC)
 0.009 MANNINGS ROUGHNESS (FRP)
 0.75 GRATE HEIGHT (IN)
 2 BOTTOM CORNER RADIUS (IN)

*NOTES:

SLOPE (%)	SECTION #	START INVERT (IN)	END INVERT (IN)	Cross sectional area (cu ft)	Wetted Perimeter (ft)	FLOW RATE FORMING SYSTEMS (CFS)	FLOW RATE FORMING SYSTEMS (GPM)	FLOW RATE PRECAST SYSTEM (CFS)	FLOW RATE PRECAST SYSTEM (GPM)	RADIUS SECTION STORAGE (GAL)
0.5	4.5	4.0	4.5	0.09	0.82	0.17	78	0.25	113	5.5
	5.0	4.5	5.0	0.11	0.90	0.21	93	0.30	134	6.4
	5.5	5.0	5.5	0.12	0.98	0.24	108	0.35	155	7.2
	6.0	5.5	6.0	0.13	1.07	0.27	122	0.39	177	8.0
	6.5	6.0	6.5	0.15	1.15	0.31	137	0.44	198	8.8
	7.0	6.5	7.0	0.16	1.23	0.34	152	0.49	219	9.7
	7.5	7.0	7.5	0.18	1.32	0.37	167	0.54	241	10.5
	8.0	7.5	8.0	0.19	1.40	0.41	182	0.59	263	11.3
	8.5	8.0	8.5	0.20	1.48	0.44	197	0.63	284	12.2
	9.0	8.5	9.0	0.22	1.57	0.47	212	0.68	306	13.0
	9.5	9.0	9.5	0.23	1.65	0.51	227	0.73	328	13.8
	10.0	9.5	10.0	0.25	1.73	0.54	242	0.78	350	14.7
	10.5	10.0	10.5	0.26	1.82	0.57	257	0.83	371	15.5
	11.0	10.5	11.0	0.27	1.90	0.61	272	0.88	393	16.3
	11.5	11.0	11.5	0.29	1.98	0.64	287	0.92	415	17.2
	12.0	11.5	12.0	0.30	2.07	0.67	303	0.97	437	18.0
	12.5	12.0	12.5	0.31	2.15	0.71	318	1.02	459	18.8
	13.0	12.5	13.0	0.33	2.23	0.74	333	1.07	481	19.6
	13.5	13.0	13.5	0.34	2.32	0.78	348	1.12	503	20.5
	14.0	13.5	14.0	0.36	2.40	0.81	363	1.17	525	21.3
	14.5	14.0	14.5	0.37	2.48	0.84	378	1.22	547	22.1
	15.0	14.5	15.0	0.38	2.57	0.88	394	1.27	569	23.0
	15.5	15.0	15.5	0.40	2.65	0.91	409	1.32	591	23.8
	16.0	15.5	16.0	0.41	2.73	0.94	424	1.36	613	24.6
	16.5	16.0	16.5	0.43	2.82	0.98	439	1.41	635	25.5
	17.0	16.5	17.0	0.44	2.90	1.01	455	1.46	657	26.3
	17.5	17.0	17.5	0.45	2.98	1.05	470	1.51	679	27.1
	18.0	17.5	18.0	0.47	3.07	1.08	485	1.56	701	28.0
	18.5	18.0	18.5	0.48	3.15	1.11	500	1.61	723	28.8
	19.0	18.5	19.0	0.50	3.23	1.15	515	1.66	745	29.6
	19.5	19.0	19.5	0.51	3.32	1.18	531	1.71	767	30.5
	20.0	19.5	20.0	0.52	3.40	1.22	546	1.76	789	31.3
	20.5	20.0	20.5	0.54	3.48	1.25	561	1.81	811	32.1
	21.0	20.5	21.0	0.55	3.57	1.28	576	1.86	833	32.9
	21.5	21.0	21.5	0.56	3.65	1.32	592	1.90	855	33.8
	22.0	21.5	22.0	0.58	3.73	1.35	607	1.95	877	34.6
	22.5	22.0	22.5	0.59	3.82	1.39	622	2.00	899	35.4
	23.0	22.5	23.0	0.61	3.90	1.42	638	2.05	921	36.3
	23.5	23.0	23.5	0.62	3.98	1.45	653	2.10	943	37.1
	24.0	23.5	24.0	0.63	4.07	1.49	668	2.15	965	37.9
	24.5	24.0	24.5	0.65	4.15	1.52	683	2.20	987	38.8
	25.0	24.5	25.0	0.66	4.23	1.56	699	2.25	1009	39.6
	25.5	25.0	25.5	0.68	4.32	1.59	714	2.30	1031	40.4

Slope of the bottom of the trench drain

TRENCH CAPACITY