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POLYPROPYLENE TRENCH DRAINS



MORRIS GROUP INTERNATIONAL

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TRENCH DRAIN SYSTEM SELECTION

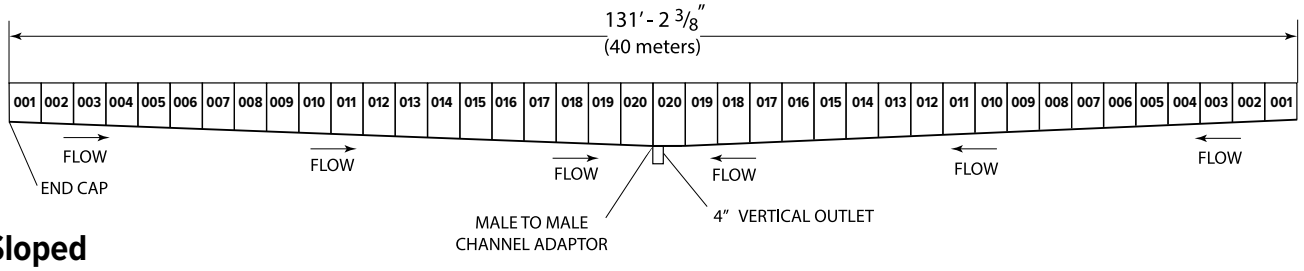
FOLLOW THESE 10 STEPS TO PROPERLY SELECT YOUR DRAINAGE SYSTEM.

To select the proper drainage system:

1. Identify the anticipated traffic traveling over the top of the trench drain.
2. Calculate the length and depth of the catchment area.
3. Consider site restrictions, utilities, invert depth of required output.
4. Identify rainfall intensity over the given area. Identify the outlet position, source and flow rate of the liquid to be drained.
5. Determine runoff surface flow characteristics.
6. Calculate required flow rate per section of drainage channel and its distribution (i.e., evenly or unevenly distributed).
7. Select the system with the appropriate capacity for the conditions identified.
8. Determine the number, size and positions of outlets to the drainage system.
9. Determine the concentration of the chemicals to which the system may be exposed. See the Chemical Resistance Chart on our website at www.jrsmith.com.
10. Select appropriate load class grate and flow rate.

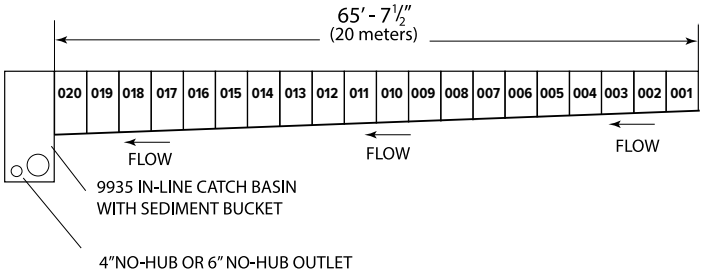
Contact your local Jay R. Smith Mfg. Co. manufacturer's rep or the Jay R. Smith Mfg. Co. Trench Drain Team. Shop Drawings are available on request.

TRENCH DRAIN SYSTEM CONFIGURATION

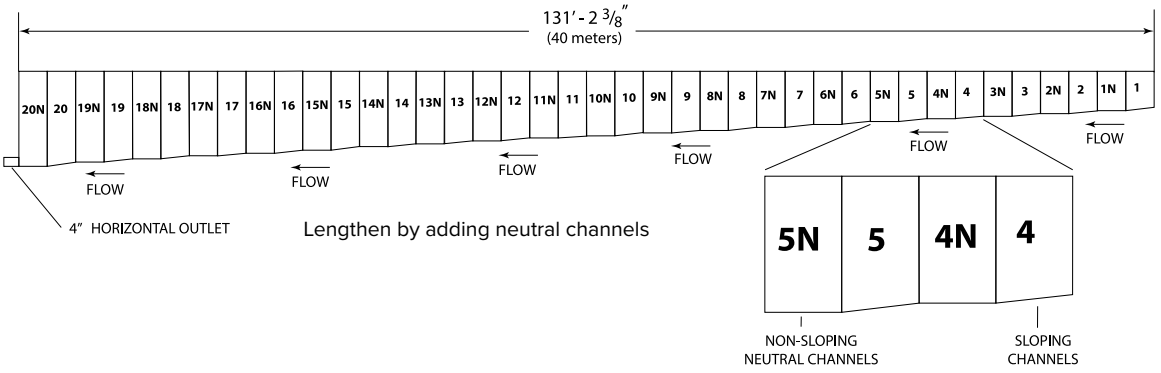


Center Outlet - Sloped

End Outlet with Catch Basin - Sloped



End Outlet - Sloped and Non-sloped



- Channels can be both pre-sloped and neutral.
- Always begin installation with the discharge channel or catch basin and work back to the shallow end.
- Arrows on channels indicate flow direction and numbers indicate sequence of installation.
- Channels and catch basins require a minimum of 4” of concrete or slab thickness, whichever is greater, around and under channel system.
- If field trimming is necessary, always trim channels at shallow end of system.
- Insert board must be maintained in the channel during the final pour.
- Trench drain should be installed 1/8” below finished elevation. This allows for positive flow into channel.
- See structural drawings for reinforcement of encasement concrete and the location of expansion joints.

Total channels based on system type.

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9960

12” Wide Trench Drains



FEATURES:

- Fast, long, pre-assembled runs: 9’-10” (3 meter) long channels
- 18 channels—12 sloping and 6 neutral from a depth of 7-9/16 “- 22-9/16”
- Built-in slope 1.07%
- 6 grate types:

Class C
- Stainless steel perforated and mesh
- Galvanized steel perforated and mesh
- Ductile Iron ADA
- Ductile Iron Slotted

Class E
- Ductile Iron ADA
- Ductile Iron Slotted

HYDRAULIC CAPACITY AND TRENCH DEPTH 9960 SYSTEM

Channel Number	Shallow End Depth		Deep End Depth		Slope	Single Channel		Weight Lbs.
	Inch	mm	Inch	mm		Est. CFS	Est. GPM	
9960-001	7.56	192	8.81	224	1.07%	1.85	830	76.00
9960-002	8.81	224	10.06	256	1.07%	2.68	1205	79.00
9960-003	10.06	256	11.31	287	1.07%	3.13	1407	81.00
9960-N03-1	11.31	287	11.31	287	0.0%	1.04	469	30.00
9960-N03	11.31	287	11.31	287	0.0%	3.13	1407	81.00
9960-004	11.31	287	12.56	319	1.07%	3.92	1760	83.00
9960-005	12.56	319	13.81	351	1.07%	4.43	1990	86.00
9960-006	13.81	351	15.06	383	1.07%	4.94	2220	89.00
9960-N06-1	15.06	383	15.06	383	0.0%	1.65	740	31.00
9960-N06	15.06	383	15.06	383	0.0%	4.94	2220	89.00
9960-007	15.06	383	16.31	414	1.07%	5.46	2450	92.00
9960-008	16.31	414	17.56	446	1.07%	5.97	2680	94.00
9960-009	17.56	446	18.81	478	1.07%	6.48	2910	97.00
9960-N09	18.81	478	18.81	478	0.0%	6.48	2910	97.00
9960-010	18.81	478	20.06	510	1.07%	7.00	3140	99.00
9960-011	20.06	510	21.31	541	1.07%	7.51	3370	103.00
9960-012	21.31	541	22.56	573	1.07%	8.00	3600	106.00
9960-N12	22.56	573	22.56	573	0.0%	8.00	3600	106.00

Note: Channel flow rates based on channels less grates and open ended

FIGURE NO. 9960 SYSTEM
(WITH 12” WIDE GRATE)

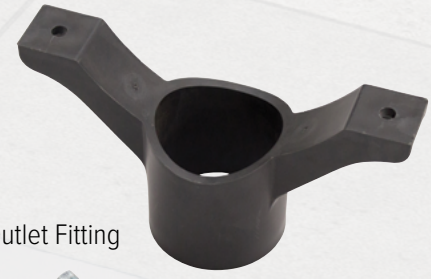
9960 SERIES TRENCH DRAIN SYSTEM ACCESSORIES



4”, 6” and 8”
Universal Horizontal Cap

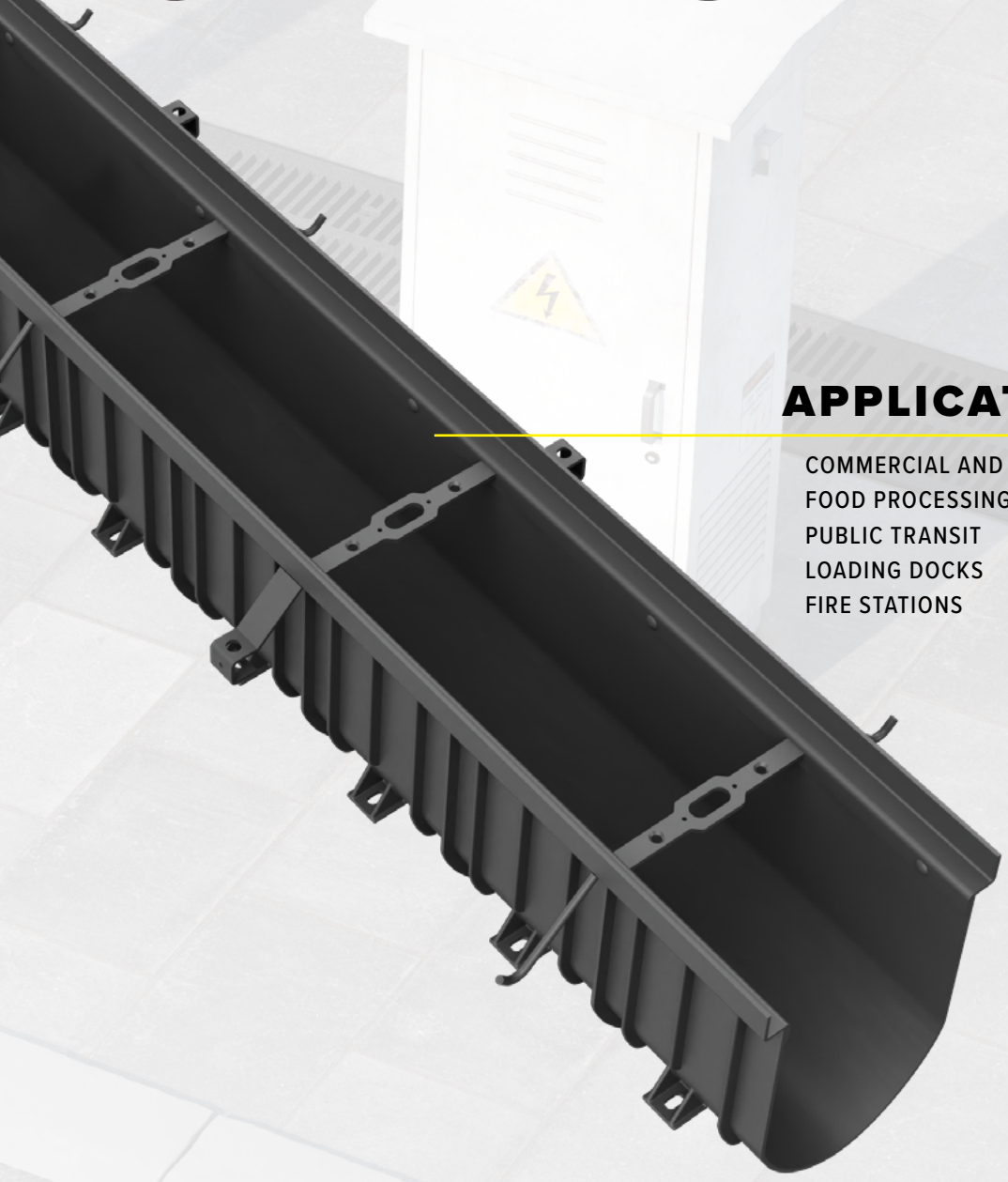


End Cap



4”, 6”, and 8”
No-Hub Vertical Outlet Fitting

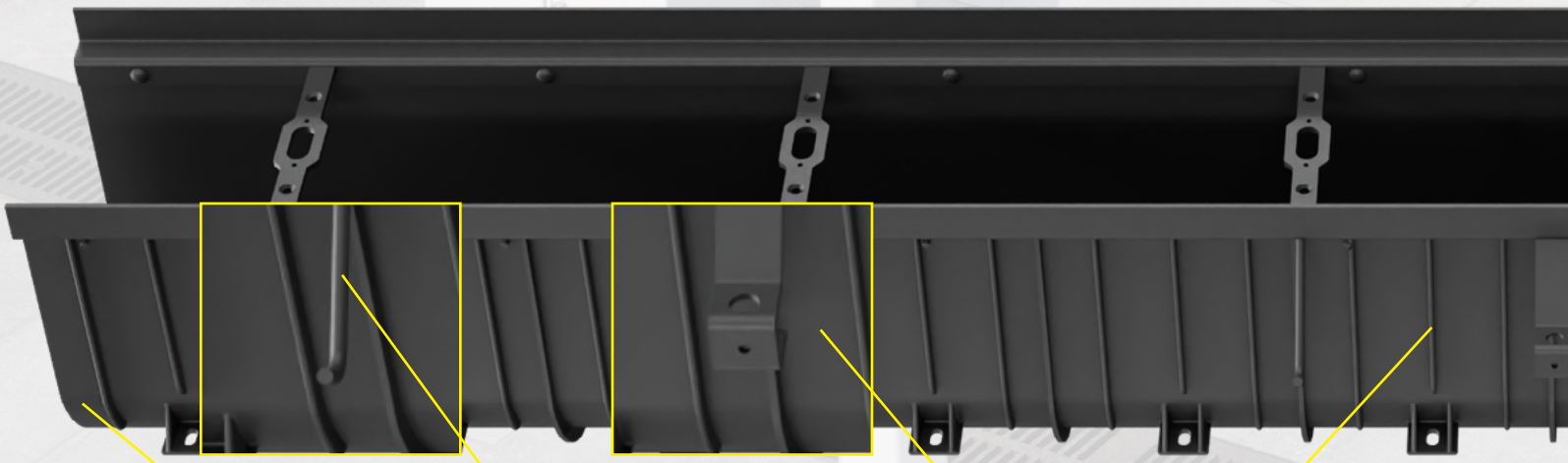




APPLICATIONS:

COMMERCIAL AND MUNICIPAL DRIVEWAYS
FOOD PROCESSING
PUBLIC TRANSIT
LOADING DOCKS
FIRE STATIONS

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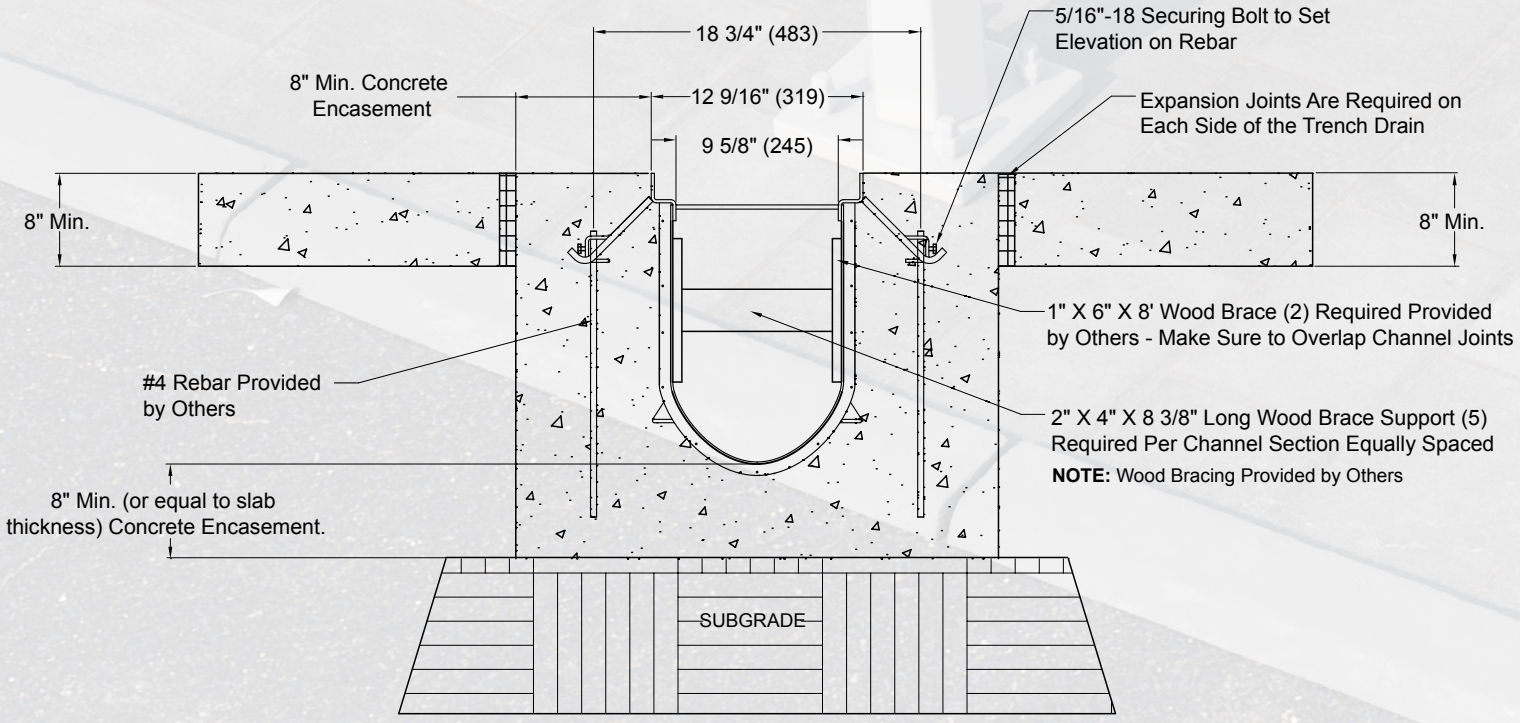


Polypropylene Material:

- Max temp of 180°F vs. 140°F for polyethylene
- Lighter weight and faster to install than cast-in-place
- Better chemical resistance than polyethylene
- Includes UV inhibitors

Vertical Outlets

- 4”, 6”, and 8” no-hub vertical outlets
- Mounting lugs on every 9-13/16” centers
- End outlets and end caps available



INSTALLATION IN CONCRETE

FIGURE NO. 9960 SYSTEM
(WITH 12” WIDE GRATE)

ZIPTRENCH®



Heavy polypropylene ribbing throughout to reinforce during concrete pour

Ribbing every 3” for added sidewall strength and a mechanical lock into encasement concrete

Male/female lap joints for speed

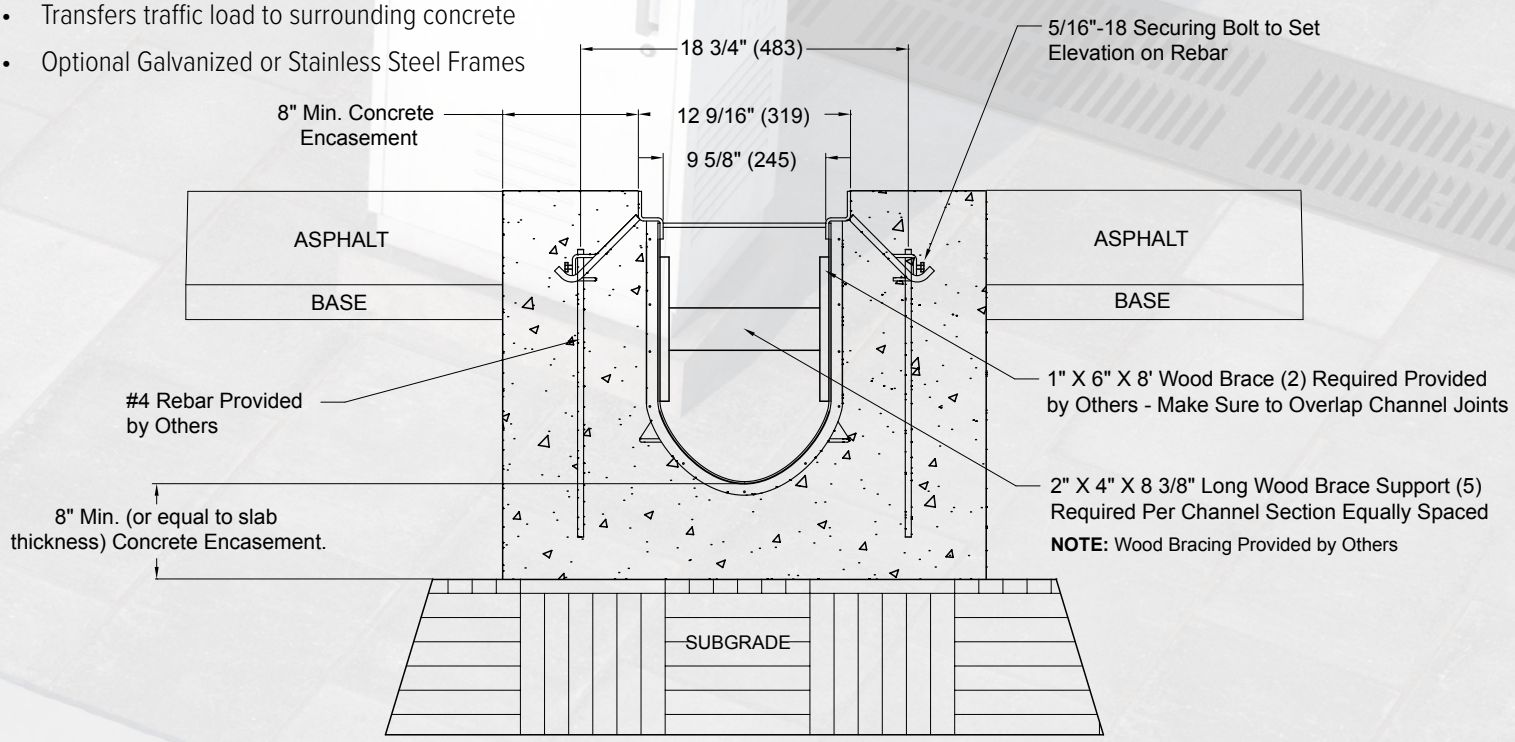
MADE IN USA

Frames:

- One piece - 9’-10” (3 meters) long. Frame Ships assembled to channel
- 7 gauge
- Extra heavy-duty painted steel frame is standard
- Transfers traffic load to surrounding concrete
- Optional Galvanized or Stainless Steel Frames

Weight:

- Average weight—channel and frame without grates is 91 lbs

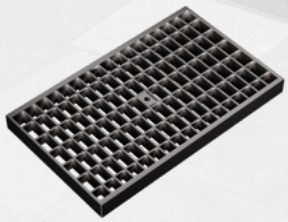


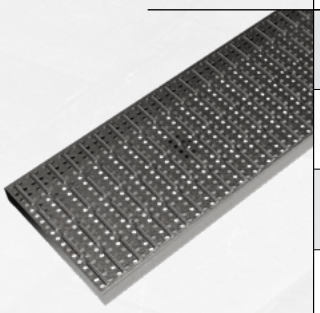
INSTALLATION IN ASPHALT

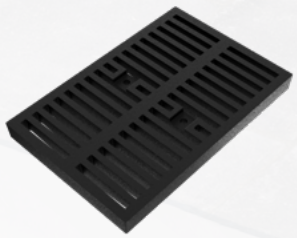
SMITH TRENCH DRAIN

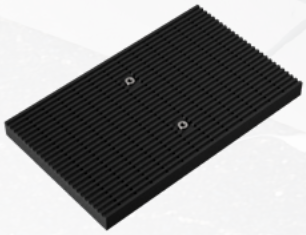
Load Class C: Heavy Duty

EN1433 Class C - 56,000 lbs. 1,162 psi for commercial pneumatic tire traffic patterns, forklifts, and tractor trailers









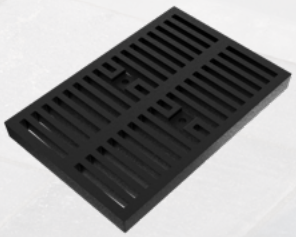
Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
Galvanized Steel Mesh	9960-GM1G	1m	7.8	121.00	C	X	X	✓	52.1	✓	X
Galvanized Steel Mesh	9960-GM.5G	.5m	3.9	58.00	C	X	X	✓	52.1	✓	X
Stainless Steel Mesh	9960-SSM1G	1m	7.8	121.00	C	X	X	✓	52.1	✓	X
Stainless Steel Mesh	9960-SSM.5G	.5m	3.9	58.00	C	X	X	✓	52.1	✓	X
Perforated Galvanized Steel	9960-GP1G	1m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
Perforated Galvanized Steel	9960-GP.5G	.5m	5.7	14.10	C	✓	✓	✓	22.6	✓	X
Perforated Stainless Steel	9960-SSP1G	1m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
Perforated Stainless Steel	9960-SSP.5G	.5m	5.7	14.10	C	✓	✓	✓	22.6	✓	X
Slotted Ductile Iron	9960-MC5G	.5m	10.2	34.10	*C	X	X	X	31.1	✓	✓
ADA Ductile Iron	9960-MADAC.5G	.5m	12.8	22.50	*C	✓	✓	✓	25.8	✓	✓

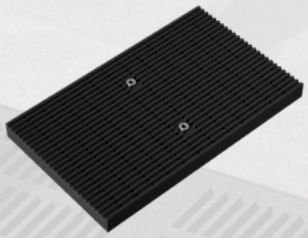
FIGURE NO. 9960 SYSTEM
(WITH 12” WIDE GRATE)

ZIPTRENCH®

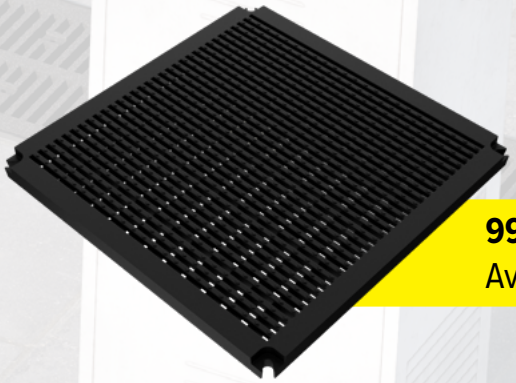
Load Class E: Heavy Duty

EN1433 Class E - 135,000 lbs. - 2,788 psi for commercial solid tire traffic patterns, forklifts and impacts from steel struts or metal wheels





Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
Slotted Ductile Iron	9960-M.5G	.5m	10.2	34.10	*C	X	X	X	31.1	✓	✓
ADA Ductile Iron	9960-MADA.5G	.5m	12.8	22.50	*C	✓	✓	✓	25.8	✓	✓



9960CB-ADA Catch Basin
Available in Load Class C and D

9960CB-2x2 Catch Basin





9960CB Catch Basin

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9940

6” Wide Trench Drains with Extra Heavy Duty Frame



FEATURES:

- Fast, long, pre-assembled runs shipped from factory: 9’-10” (3 meter) long channels
- 18 Channels - 12 sloping channels and 6 neutral channels from a depth of 4.81” to 13.81”
- Built-in slope .6%
- See grades on pages 20-21

HYDRAULIC CAPACITY AND TRENCH DEPTH 9940 SYSTEM

Channel Number	Shallow End Depth		Deep End Depth		Slope	Single Channel		Weight Lbs.
	Inch	mm	Inch	mm		Est. CFS	Est. GPM	
9940-001	4.81	122	5.56	141	0.6%	0.29	130	38.00
9940-002	5.56	141	4.38	160	0.6%	0.31	139	39.00
9940-003	4.38	160	7.06	179	0.6%	0.34	153	40.00
9940-N03-1	7.06	179	7.06	179	0.0%			13.00
9940-N03	7.06	179	7.06	179	0.0%			40.00
9940-004	7.06	179	7.81	196	0.6%	0.35	153	41.00
9940-005	7.81	196	8.56	267	0.6%	0.39	162	42.00
9940-006	8.56	267	9.31	236	0.6%	0.42	162	44.00
9940-N06-1	9.31	236	9.31	236	0.0%			15.00
9940-N06	9.31	236	9.31	236	0.0%			44.00
9940-007	9.31	236	10.05	256	0.6%	0.45	202	45.00
9940-008	10.05	256	10.81	275	0.6%	0.47	211	47.00
9940-009	10.81	275	11.56	294	0.6%	0.49	220	49.00
9940-N09	11.56	294	11.56	294	0.0%			51.00
9940-010	11.56	294	12.31	313	0.6%	0.53	238	51.50
9940-011	12.31	313	13.05	332	0.6%	0.56	251	51.00
9940-012	13.05	332	13.81	352	0.6%	0.58	251	51.00
9940-N12	13.81	352	13.81	352	0.0%			51.00

Note: Channel flow rates based on channels less grates and open ended

FIGURE NO. 9940 SYSTEM

ZIPTRENCH®

9940 SERIES TRENCH DRAIN SYSTEM ACCESSORIES



Horizontal Cap



End Cap

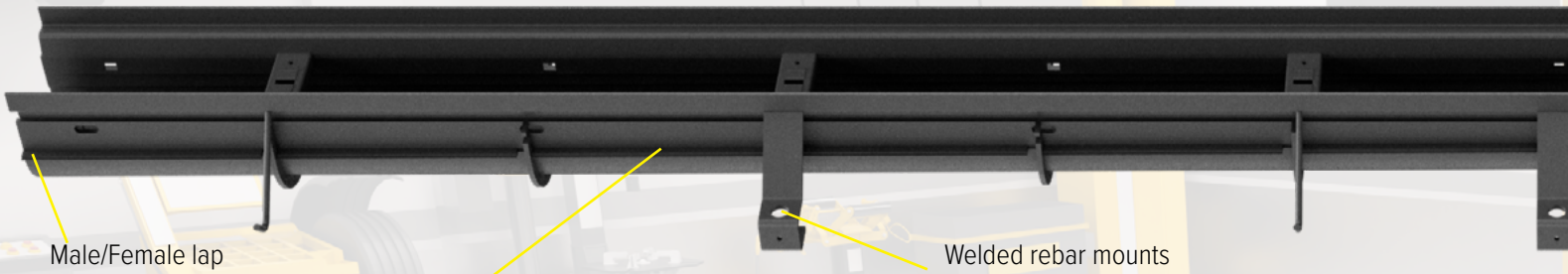


4” No-Hub Vertical Outlet Fitting (Snaps on anywhere on the channel)



APPLICATIONS:

COMMERCIAL AND MUNICIPAL DRIVEWAYS
FOOD PROCESSING
PUBLIC TRANSIT
LOADING DOCKS
FIRE STATIONS

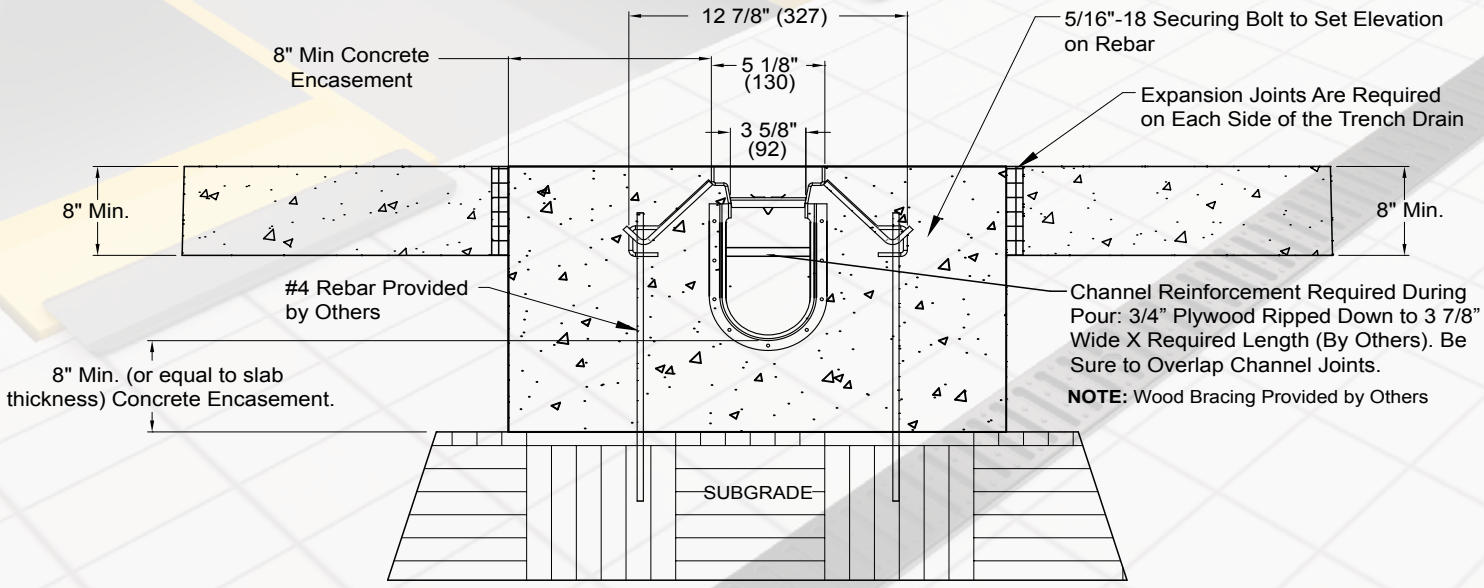


Polypropylene Material:

- Max temp of 180°F vs. 140°F for polyethylene
- Lighter weight and faster to install than cast-in-place.
- Better chemical resistance than polyethylene.
- Includes UV inhibitors.

Weight:

- Average weight—channel and frame without grates is 45 lbs.
- Grate weight is listed on pages 20-21.



INSTALLATION IN CONCRETE

FIGURE NO. 9940 SYSTEM

ZIPTRENCH®



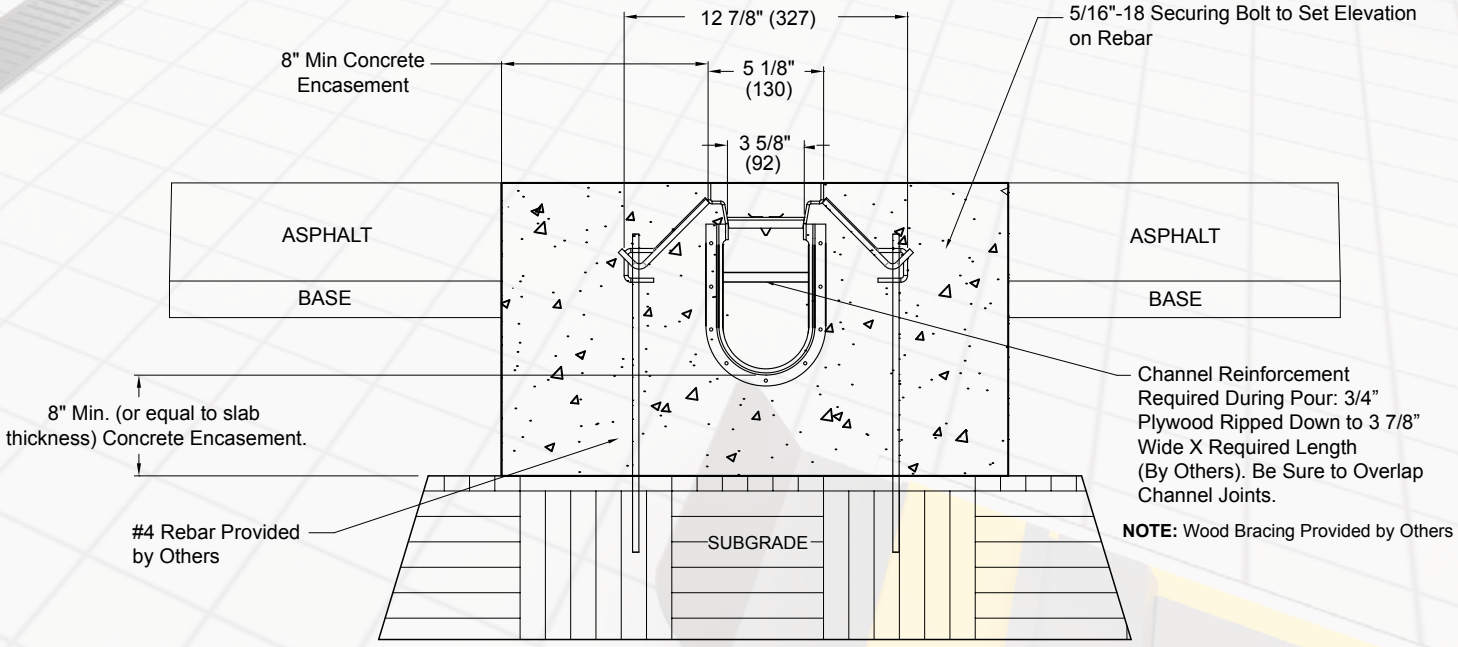
Frames:

- One piece - 9.84' (3 meters) long.
- Ships assembled to channel
- 11 gauge
- Extra heavy-duty painted steel frame is standard; also available in galvanized or stainless steel.
- Channels have features that transfer the traffic load to encasement concrete, including:
  - Extra heavy-duty frames
  - 5 3/4" (3/8" diameter) anchoring lugs (8 per frame)
  - Welded-on rebar mounts

Outlets

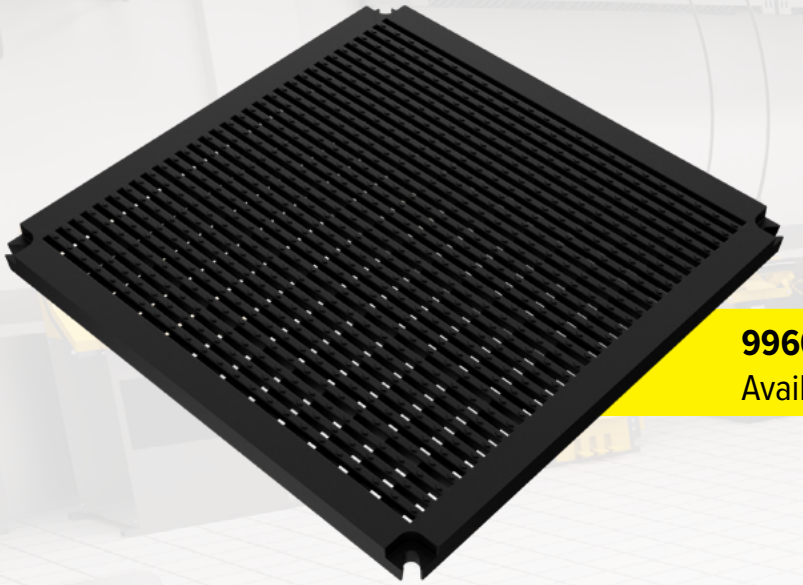
- Snap on 4" no-hub vertical outlet can be located virtually anywhere on the channel
- End outlets and end caps available. (see page 22)

MADE IN USA



INSTALLATION IN ASPHALT

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9960CB-ADA Catch Basin
Available in Load Class C and D

9960CB-2x2 Catch Basin

FIGURE NO. 9940 SYSTEM

ZIPTRENCH®



9940-CB Catch Basin

9960CB Catch Basin

9930

6” Wide Enviro-Flo® II Trench Drains



FEATURES:

- Utilizes the QuickLok® grate feature that allows the grating to be secured and removed without bolting or screwing to the channel easily
- Built-in slope of 0.6% and radiused bottom
- Load Classes A-C depending on grate selection
- Heavy Duty EN1433 Load Class C: 56,000 lbs - 1,162 psi
- Handles up to Load Class C pneumatic tire with the proper grate selection
- Integral rebar support

For depth information, see table on page 19.

9931

6” Wide Enviro-Flo® II Trench Drains with Extra Heavy Duty Frame System for Extra Heavy Duty Applications



FEATURES:

- Utilizes the QuickLok® grate feature that allows the grating to be secured to the channel easily
- Built-in slope of 0.6% and radiused bottom
- Supplied with secured grate
- Supplied with Heavy Duty Steel Frame
- Extra Heavy Duty EN1433 Class E: 135,000 - 2,788 psi
- For Commercial hard tire forklifts
- Integral rebar support

OPTIONS:

- Stainless Steel Heavy Duty Frames
- Galvanized Steel Heavy Duty Frame

FIGURE NO. 9930 AND 9931 SYSTEMS

APPLICATIONS:

COMMERCIAL AND MUNICIPAL DRIVEWAYS
FOOD PROCESSING
PUBLIC TRANSIT
LOADING DOCKS
FIRE STATIONS

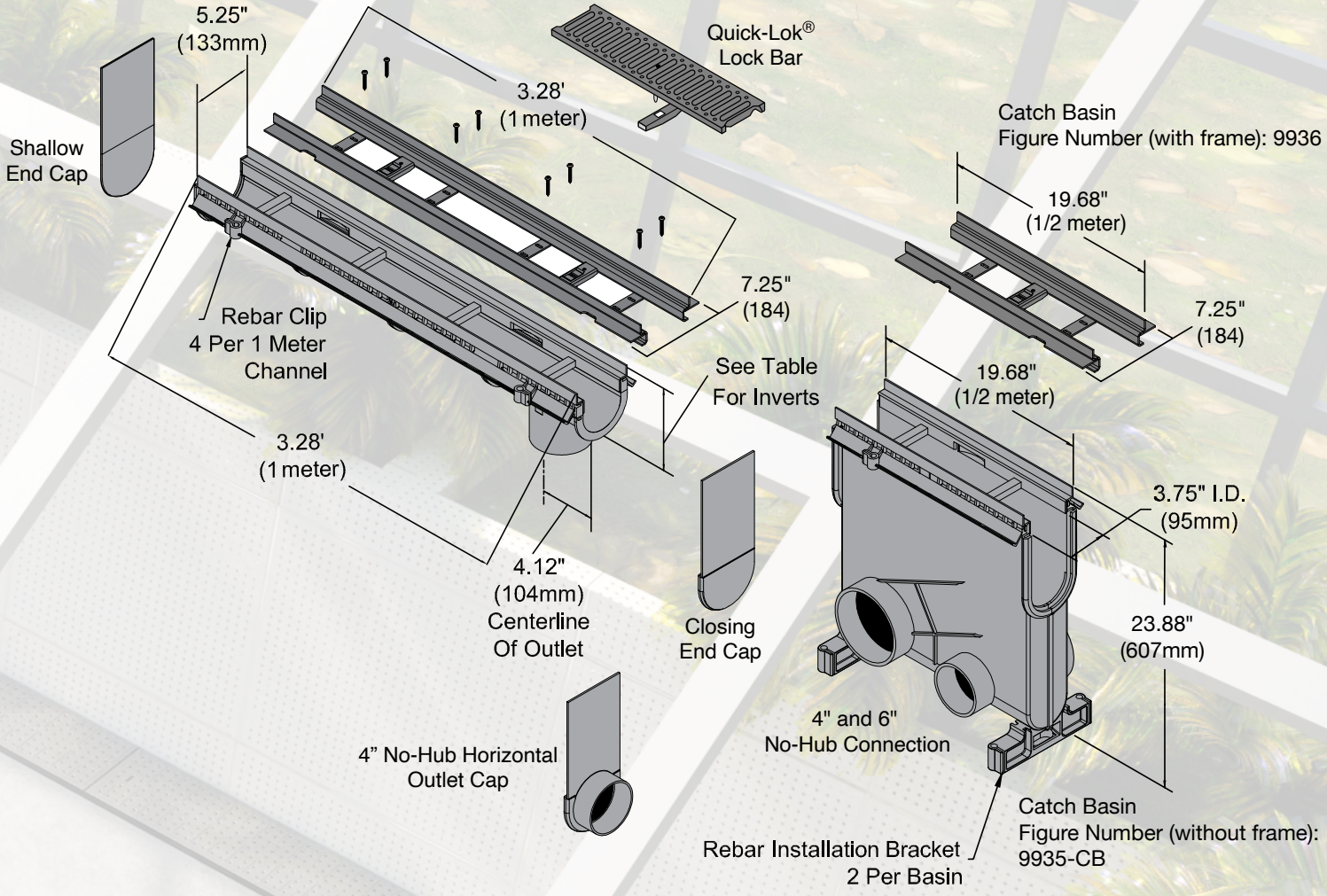


FIGURE NUMBER 9930 WHEN PAIRED WITH HEAVY DUTY STEEL FRAME BECOMES FIGURE NUMBER 9931.



9930 TRENCH DRAINS WITH CATCH BASIN
Patent No. 10,047,512



9931 TRENCH DRAINS WITH CATCH BASIN
Patent No. 10,047,512

FIGURE NO. 9930 AND 9931 SYSTEMS

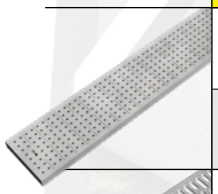
HYDRAULIC CAPACITY AND DEEP END DEPTHS 9930 AND 9931 SYSTEMS													
Channel Number	9930 Shallow End Invert		9930 Deep End Invert		9931 Shallow End Invert		9931 Deep End Invert		Slope	Single Channel Est. CFS	Est. GPM	Weight LBS.	
	Inch	MM	Inch	MM	Inch	MM	Inch	MM				9930	9931
9930-001	**4.00**	102	**4.38**	111	**5.12**	130	**5.50**	140	0.6%	0.29	130	6.50	23.02
9930-N01	**4.38**	111	**140**	111	**5.50**	140	**5.50**	140	0.0%	0.29	130	6.50	23.02
9930-002	**4.38**	111	**140**	117	**5.50**	140	**5.75**	146	0.6%	0.31	139	6.60	23.12
9930-N02	**4.62**	117	**146**	117	**5.75**	146	**5.75**	146	0.0%	0.31	139	6.60	23.12
9930-003	**4.62**	117	**146**	124	**5.75**	146	**6.00**	152	0.6%	0.34	153	6.80	23.32
9930-N03	**4.88**	124	**152**	124	**6.00**	152	**6.00**	152	0.0%	0.34	153	6.80	23.32
9930-004	**4.88**	124	**152**	130	**6.00**	152	**6.25**	159	0.6%	0.36	162	6.90	23.42
9930-N04	**5.12**	130	**159**	130	**6.25**	159	**6.25**	159	0.0%	0.36	162	6.90	23.42
9930-005	**5.12**	130	**159**	137	**6.25**	159	**6.50**	165	0.6%	0.39	175	7.00	23.52
9930-N05	**5.38**	137	**165**	137	**6.50**	165	**6.50**	165	0.0%	0.39	175	7.00	23.52
9930-006	**5.38**	137	**165**	143	**6.50**	165	**6.75**	171	0.6%	0.42	189	7.20	23.72
9930-N06	**5.63**	143	**171**	143	**6.75**	171	**6.75**	171	0.0%	0.42	189	7.20	23.72
9930-007	**5.63**	143	**171**	149	**6.75**	171	**7.00**	178	0.6%	0.45	202	7.40	23.92
9930-N07	**5.88**	149	**178**	149	**7.00**	178	**7.00**	178	0.0%	0.45	202	7.40	23.92
9930-008	**5.88**	149	**178**	155	**7.00**	178	**7.25**	184	0.6%	0.47	211	7.60	24.32
9930-N08	**6.12**	155	**184**	155	**7.25**	184	**7.25**	184	0.0%	0.47	211	7.60	24.32
9930-009	**6.12**	155	**184**	162	**7.25**	184	**7.50**	191	0.6%	0.49	220	7.60	24.32
9930-N09	**6.38**	162	**191**	162	**7.50**	191	**7.50**	191	0.0%	0.49	220	7.60	24.32
9930-010	**6.38**	162	**191**	168	**7.50**	191	**7.75**	197	0.6%	0.53	238	7.80	24.32
9930-N10	**6.62**	168	**197**	168	**7.75**	197	**7.75**	197	0.0%	0.53	238	7.80	24.32
9930-011	**6.62**	168	**197**	170	**7.75**	197	**8.00**	203	0.6%	0.56	251	8.00	24.52
9930-N11	**6.68**	170	**203**	170	**8.00**	203	**8.00**	203	0.0%	0.56	251	8.00	24.52
9930-012	**6.68**	170	**203**	181	**8.00**	203	**8.25**	210	0.6%	0.58	261	8.00	24.52
9930-N12	**7.12**	181	**210**	181	**8.25**	210	**8.25**	210	0.0%	0.58	261	8.00	24.52
9930-013	**7.12**	181	**210**	187	**8.25**	210	**8.50**	216	0.6%	0.62	274	8.40	24.92
9930-N13	**7.38**	187	**216**	187	**8.50**	216	**8.50**	216	0.0%	0.62	274	8.40	24.92
9930-014	**7.38**	187	**216**	194	**8.50**	216	**8.75**	222	0.6%	0.64	287	8.40	24.92
9930-N14	**7.62**	194	**222**	194	**8.75**	222	**8.75**	222	0.0%	0.64	287	8.40	24.92
9930-015	**7.62**	194	**222**	200	**8.75**	222	**9.00**	229	0.6%	0.67	301	8.60	25.12
9930-N15	**7.88**	200	**229**	200	**9.00**	229	**9.00**	229	0.0%	0.67	301	8.60	25.12
9930-016	**7.88**	200	**229**	206	**9.00**	229	**9.25**	235	0.6%	0.7	314	8.80	25.32
9930-N16	**8.12**	206	**235**	206	**9.25**	235	**9.25**	235	0.0%	0.7	314	8.80	25.32
9930-017	**8.12**	206	**235**	213	**9.25**	235	**9.50**	241	0.6%	0.73	328	8.80	25.32
9930-N17	**8.38**	213	**241**	213	**9.50**	241	**9.50**	241	0.0%	0.73	328	8.80	25.32
9930-018	**8.38**	213	**241**	219	**9.50**	241	**9.75**	248	0.6%	0.76	341	9.00	25.52
9930-N18	**8.62**	219	**248**	219	**9.75**	248	**9.75**	248	0.0%	0.76	341	9.00	25.52
9930-019	**8.62**	219	**248**	226	**9.75**	248	**10.00**	254	0.6%	0.79	355	9.20	25.72
9930-N19	**8.88**	226	**254**	226	**10.00**	254	**10.00**	254	0.0%	0.79	355	9.20	25.72
9930-020	**8.88**	226	**254**	232	**10.00**	254	**10.25**	260	0.6%	0.82	368	9.40	25.92
9930-N20	**9.12**	232	**260**	232	**10.25**	260	**10.25**	260	0.0%	0.82	368	9.40	25.92

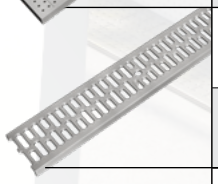
Note: Channel flow rates based on channels less grates and open ended

SMITH
TRENCH
DRAIN

Load Class A: Light Duty

EN1433 Class A - 3,500 lbs - 70 psi for pedestrian, wheelchair and bicycle traffic



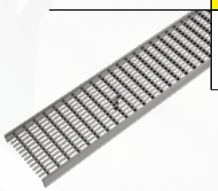




Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
Perforated Galvanized Steel	9870-410-GP1G	1m	6.3	28.30	A	✓	✓	✓	22.6	X	X
Perforated Stainless Steel	9870-451-SSPA1G	1m	6.3	28.30	A	X	✓	✓	29.6	X	X
Slotted Galvanized Steel	9870-420-G1G	1m	5.9	35.20	A	X	X	X	27.4	X	X
Slotted Stainless Steel	9870-450-SS1G	1m	5.9	35.20	A	X	X	X	29.9	X	X
ADA Black Polypropylene	9870-494-PADAB	.5m	1.8	27.40	A	✓	✓	✓	52.5	X	X
ADA Grey Polypropylene	9870-494-PADAG	.5m	1.8	27.40	A	✓	✓	✓	52.5	X	X

Load Class B: Light Duty

EN1433 Class B - 28,000 lbs - 580 psi for pedestrian, wheelchair and bicycle traffic



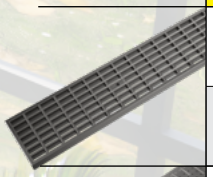
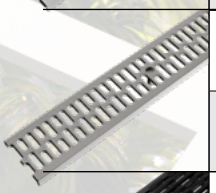
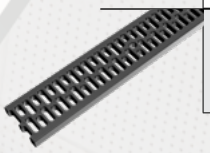
Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
Mesh Stainless Steel	9870-447-SSADA1G	1m	8	93.70	B	✓	✓	✓	51.3	X	X

ALL 1 METER LENGTH GRATES ARE ALSO AVAILABLE IN 1/2 METER LENGTHS

Note: This trench drain system is designed for "on grade applications only" as there are no provisions for a flashing flange or flashing clamp. Please contact Jay R. Smith Trench Drain team at 800-467-6484 for assistance when flashing flange or flashing are required.

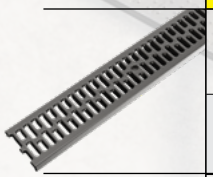
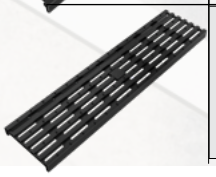
Load Class C: Heavy Duty

EN1433 Class C - 56,000 lbs. 1,162 psi for commercial pneumatic tire traffic patterns, forklifts, and tractor trailers

	Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
	Mesh Galvanized Steel	9870-405-GM1G	1m	7.8	121.00	C	X	X	✓	52.1	✓	X
	Mesh Stainless Steel	9870-430-SSM1G	1m	7.8	121.00	C	X	X	✓	52.1	✓	X
	Perforated Galvanized Steel	9870-411-GPHD1G	1m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
	Perforated Stainless Steel	9870-465-SSP1G	1m	8.8	35.20	C	X	X	X	27.4	✓	X
	Slotted Stainless Steel	9870-455-SSHD1G	1m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
	Slotted Galvanized Steel	9870-425-GHD1G	1m	8.8	35.20	C	X	X	X	27.4	✓	X
	ADA Ductile Iron	9870-487-MADAC.5G	.5m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
	Mosaic Ductile Iron	9870-479-MD.5G	.5m	8.8	35.20	C	X	X	X	27.4	✓	X
	Decorative Ductile Iron	9870-481-ID.5G	.5m	11.3	28.30	C	✓	✓	✓	22.6	✓	X
	Slotted Resin Composite	9870-492-RC	.5m	8.8	35.20	C	X	X	X	27.4	✓	X

Load Class E: Heavy Duty

EN1433 Class E - 135,000 lbs. - 2,788 psi for commercial solid tire traffic patterns, forklifts and impacts from steel struts or metal wheels

	Material	Grate Fig. Number	Length	Weight lbs.	Open Area per Sq. In.	Load Class	ADA	Heel-Proof	Bicycle	Slip Resistance	HS20	FAA
	Slotted Galvanized Steel	9870-435-GHDE1G	1m	13.7	35.20	E	X	X	X	27.4	✓	✓
	Slotted Stainless Steel	9870-490-SSHDE1G	1m	13.7	35.20	E	X	X	X	29.9	✓	✓
	Slotted Ductile Iron	9870-461-M.5G	.5m	10.2	34.10	*C	X	X	X	31.1	✓	✓
	ADA Ductile Iron	9870-478-MADA.5G	.5m	12.8	22.50	*C	✓	✓	✓	25.8	✓	✓

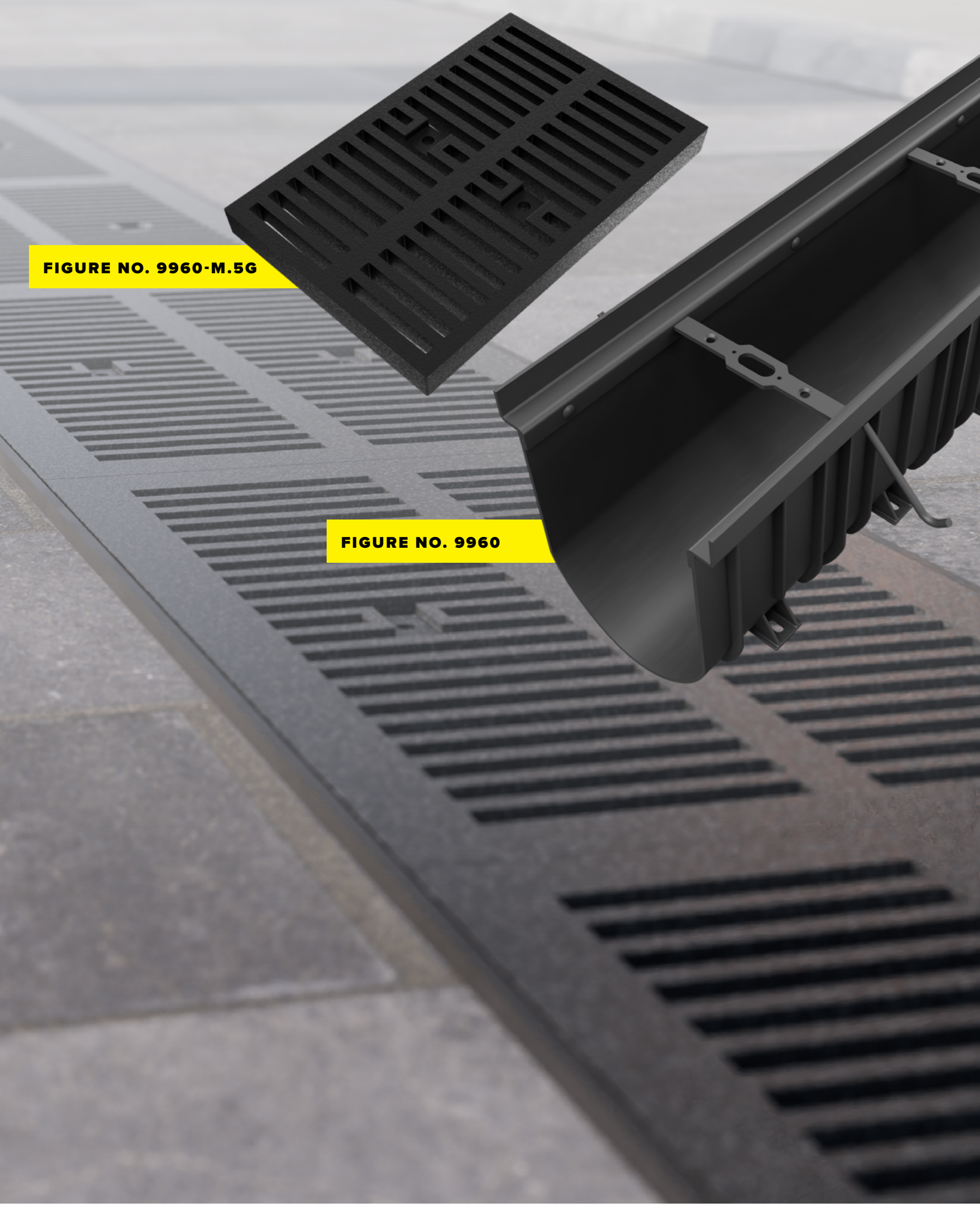

FIGURE NO. 9960-M.5G
FIGURE NO. 9960


FIGURE NO. 9870-461-M
FIGURE NO. 9940


FIGURE NO. 9870-465-SSP
FIGURE NO. 9930

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