



Tabulated Data  
**Hydraulic Shields**

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594 W. Highway M-60 • Union City, MI 49094  
(800) 248-2054 • (517) 741-7483



## **GME HYDRAULIC SHIELDS TABULATED DATA**

### **GENERAL**

1. This data has been prepared by a Registered Professional Engineer as required by the OSHA standard 29 CRF, Part 1926, Subpart P, Excavations.
2. This data is to be used by the "competent person" for the proper use and **placement** of GME Hydraulic Shields.
3. "Competent person" is one who is capable of identifying existing and predictable hazards in the surroundings or working conditions which are unsanitary, hazardous, or dangerous to employees, and who has authorization to take prompt corrective measures to eliminate them.
4. All personnel involved with the use of GME Hydraulic Shields shall be trained in the proper use and installation procedures and other applicable safety requirements.
5. When there is a discrepancy concerning the use of protective systems between this tabulated data and the OSHA standard, this data shall take precedence. Any topic not covered by this data shall be governed by the OSHA standard.
6. Hydraulic Shields shall only be used in the conditions and depths shown on the table. For other conditions, site specific designs are required.
7. GME shall not be liable for damage or injury resulting from improper use of the Hydraulic Shields. Improper use of or modifications to the Hydraulic Shield, or use of components not specifically authorized by GME without the written consent of GME shall void this data and all manufacture's warranty.

### **SPECIFICATIONS FOR USE OF GME HYDRAULIC SHIELDS**

1. "Hydraulic mode" refers to the use of the Hydraulic Shield with the hydraulic cylinders pressurized to at least 750 pounds per square inch.
2. "Static mode" refers to the use of the Hydraulic Shield without the hydraulic cylinders being pressurized and with the struts pinned in place.
3. When used in the static mode, Hydraulic Shields may not be stacked more than two deep. In this mode, Hydraulic Shields shall be connected with GME stacking brackets.
4. The maximum width of the Hydraulic Shield is seven feet eleven inches.

5. In OSHA Type C-80 soil, the bottom of the Hydraulic Shield shall be at the bottom of the excavation.
6. In Types A, B, and C-60 soil, the bottom of the Hydraulic Shield shall be within two feet of the bottom of the excavation.
7. The top of the Hydraulic Shield shall be at or above the top of the excavation.
8. If the top of the excavation is sloped, the top of the Hydraulic Shield must be at least twelve inches above the toe of the slope. If the Hydraulic Shield is being used in the hydraulic mode when the top part of the excavation is sloped, the top strut must be below the toe of the slope.
9. When used in the static mode, the gap between the Hydraulic Shield and the face of the excavation shall be no more than six inches.
10. The Hydraulic Shield will also support loads across one or both ends of the shield when the ends are sheeted. When the ends are sheeted, the maximum depth ratings are the same as for the static mode in the Depth Capacity table on page 6.
11. When the Hydraulic Shield is used hydraulically, the sides of the trench must be near vertical to allow proper installation of the Hydraulic Shield. The sides of the Hydraulic Shield must bear continuously and firmly against the soil to adequately distribute the loads to the cylinder struts.
12. As indicated in the installation instructions, the hydraulic cylinders shall be pumped to a minimum of 750 psi when the Hydraulic Shield is used hydraulically. This initial pressure must be maintained. If pressure drops below the initial pressure, check for leaks, repair any found, and re-pressurize the system. If initial pressure still can't be maintained, the soil may be too soft for using the Hydraulic Shield hydraulically. In this case, use the Hydraulic Shield in the static mode, or use another excavation protection method.



## **SOIL CLASSIFICATION**

1. See the OSHA regulations for descriptions of Type A, B, and C soils.
2. Type C-60 soil is a soft cohesive or moist granular soil that is not flowing or submerged. This soil can be cut vertically and will stand long enough to safely install the protective system.
3. Some OSHA Type C soils may not stand vertically long enough to allow the Hydraulic Shields to be installed hydraulically. Use the Hydraulic Shield statically, or use another excavation protection system.

## **DESIGN CRITERIA AND LIMITATIONS**

1. The tables include the effect of a three foot high spoil pile within a horizontal distance from the face of the excavation equal to the trench's depth. Hydraulic Shields are not designed to support heavier surcharge loads, such as those imposed by building foundations. If Hydraulic Shields are used near building foundations, those foundations may need to be underpinned to prevent excessive settlement.
2. The struts are not designed to support vertical loads. They shall not be used to provide ingress and egress to the excavation.
3. This data is valid for Hydraulic Shields in structurally sound conditions. Any significant damage will void this data and all manufacturers warranty, and the damaged Hydraulic Shield shall not be used.
4. The competent person shall daily monitor the excavation and adjacent areas, after every rainstorm, and after every event that might threaten the stability of the excavation.
5. The excavation must be kept free of water while using the Hydraulic Shields. Surface water must be diverted away from the trench, and water must be pumped out of the excavation bottom. The competent person must monitor the excavation in these conditions to prevent the water from generating excessive lateral pressure on the hydraulic shields and to check for decreased soil stability.



**LIST OF APPROVED SHEETING  
FOR  
END LOADING HYDRAULIC SHIELD**

1. GME End panel assembly
2. Two sheets of 3/4" thick plywood, placed back to back
3. 1-1/8" thick CDX plywood
4. 3/4" thick 14-ply Artic White Birch (Finland Form)
5. 3/4" thick HDO – American Plywood Association, high density overlay exterior
6. 3/4" thick Plywood – American Plywood Association Plywood B-B Class one exterior
7. 3/4" thick comb exterior plywood
8. 3/4" Omniform
9. 1/2" thick steel plate
10. 2x6, 2x8, 2x10, 2x12 Hardwood sheeting or equivalent

**GENERAL NOTES**

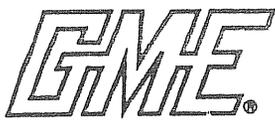
When any of the above listed sheeting is used in conjunction with our end panel brackets, there may be a six inch gap between the sheeting and the dirt. When the sheeting is used without the bracket assembly, the user must backfill behind the sheeting at least two thirds of the way up to prevent the sheeting from moving.



## HYDRAULIC SHIELD DEPTH TABLE

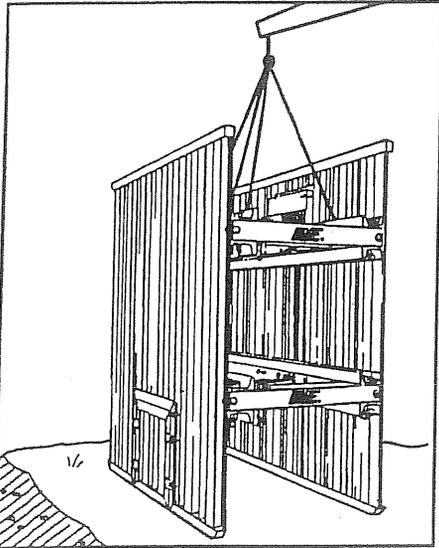
MODEL NUMBER	SIZE (FEET)		WT. (LBS)	OPERATING RANGE (MIN-MAX)	CLEARANCE (INCHES)		SHIELD CAPACITY		MAXIMUM TRENCH DEPTH							
	H	L			A	B	Hyd PSF	Static PSF	A (25)		B (45)		C(60)		C (80)	
									HYD	STAT	HYD	STAT	HYD	STAT	HYD	STAT
HS-5X5-2640	5	5	720	29-43"	22	45	3000	1100	25	25	25	25	25	21	16	16
HS-5X5-3250			777	35-53"												
HS-5X5-3859			848	41-62"												
HS-5X5-4468			932	47-71"												
HS-5X5-5692			1020	59-95"												
HS-6X6-2640	6	6	850	29-43"	22	57	2300	1100	25	25	25	25	25	21	16	16
HS-6X6-3250			905	35-53"												
HS-6X6-3859			976	41-62"												
HS-6X6-4468			1060	47-71"												
HS-6X6-5692			1167	59-95"												
HS-6X8-2640	6	8	1053	29-43"	22	81	1700	1100	25	25	25	25	25	21	16	16
HS-6X8-3250			1101	35-53"												
HS-6X8-3859			1164	41-62"												
HS-6X8-4468			1253	47-71"												
HS-6X8-5692			1341	59-95"												
HS-6X10-2640	6	10	1216	29-43"	22	105	1400	1100	25	25	25	25	25	21	16	16
HS-6X10-3250			1272	35-53"												
HS-6X10-3859			1348	41-62"												
HS-6X10-4468			1428	47-71"												
HS-6X10-5692			1525	59-95"												
HS-6X12-2640	6	12	1392	29-43"	22	129	1100	850	25	25	25	21	21	16	12	12
HS-6X12-3250			1448	35-53"												
HS-6X12-3859			1524	41-62"												
HS-6X12-4468			1604	47-71"												
HS-6X12-5692			1692	59-95"												
HS-8X8-2640	8	8	1162	29-43"	22	81	1400	1100	25	25	25	25	25	21	16	16
HS-8X8-3250			1221	35-53"												
HS-8X8-3859			1275	41-62"												
HS-8X8-4468			1388	47-71"												
HS-8X8-5692			1457	59-95"												
HS-8X10-2640	8	10	1364	29-43"	22	105	1100	1000	25	25	25	25	21	19	15	15
HS-8X10-3250			1418	35-53"												
HS-8X10-3859			1489	41-62"												
HS-8X10-4468			1573	47-71"												
HS-8X10-5692			1660	59-95"												
HS-8X12-2640	8	12	1578	29-43"	22	129	900	670	25	25	23	16	17	12	9	9
HS-8X12-3250			1658	35-53"												
HS-8X12-3859			1714	41-62"												
HS-8X12-4468			1810	47-71"												
HS-8X12-5692			1903	59-95"												





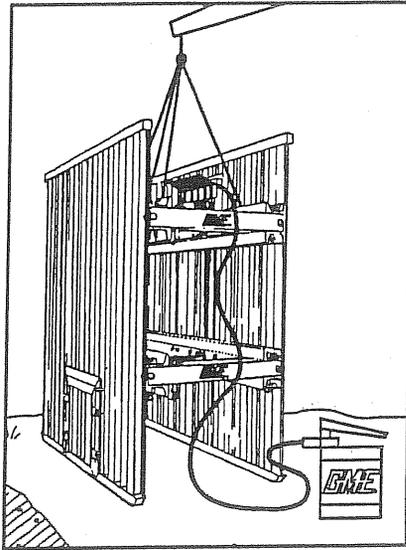
# HYDRAULIC SHIELD INSTALLATION AND REMOVAL INSTRUCTIONS (To be used with Manufacturer's Tabulated Data)

Attach the appropriate sling to the four lifting eyes on the hydraulic shield.



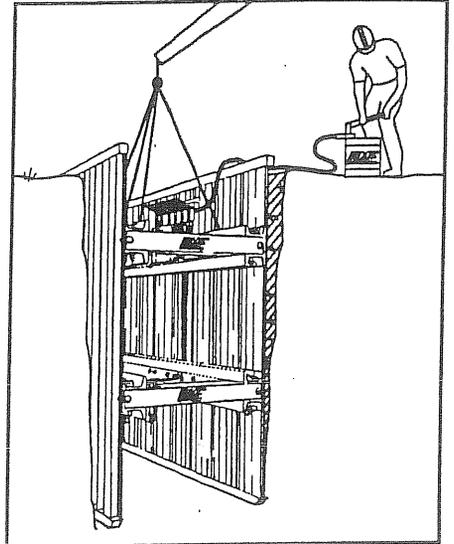
2. Position shield in area next to the excavation and inspect shield for any damage that may hinder its operation. A visual inspection would include the following items:
- Check valves to make sure they are intact.
  - Manifold cover assembly is in good repair.
  - All sheeting is attached and in good repair.
  - All hoses are in good shape and are attached to their correct hydraulic strut.

3. Attach pump bucket to the inlet valve on the hydraulic shield.



Now is the time to do an operational check of the hydraulic system. With the locking pins in their correct holes in the strut, apply pressure to the system (approximately 1000 psi). If pressure holds, the system is fine. If the system will not hold pressure, the unit cannot be used in the hydraulic mode and must be serviced. The shield may still be used in the static mode. If pressure holds, release the pressure and remove the locking pins. The shield is now ready for use in the trench.

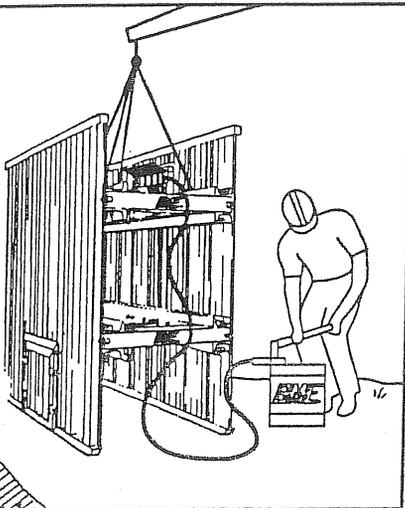
4. Position the shield in the trench where it is to be used and apply pressure to approximately



750 psi. Make sure that the needle on the gauge stays in the green zone on the gauge face. If there is no pressure loss, close inlet valve on the manifold and disconnect the pump bucket hose from the shield. (Note: It may be necessary to open the valve on the pump bucket after closing the inlet valve to disconnect the hose.)

5. Remove lifting sling from the shield.

## STATIC SHIELD INSTALLATION



- Complete steps 1-3 of hydraulic shield installation procedure.
- With shield on top of excavation, use pump bucket to open shield to a width that will allow it to be placed in the trench, so that you have no more than a 6-inch gap between the sidewall of the shield and the dirt wall of the trench. Place locking pins in their proper holes.
- Place the shield into the trench.
- Remove the lifting sling.

## REMOVAL

- Attach sling to lifting eyes.
- Open center bleed valve on manifold to allow pressure to bleed off. Care should be taken so that the ground does not start to move and collapse around shield.
- Remove shield and store until next time it is needed.

