



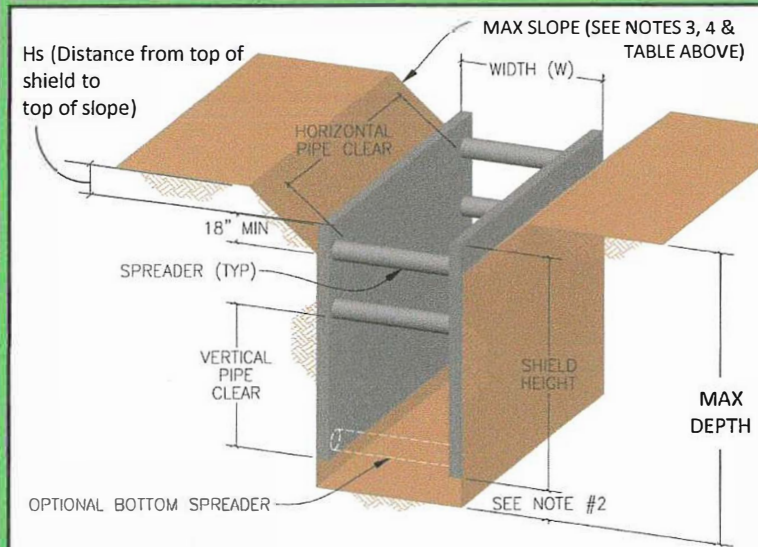
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Houston, TX - 713-242-7700

TRENCH SHIELD TABULATED DATA



Model Number	TSR4-424DN4	Spreader Size	8" SCHED 80 PIPE	Pressure Rating	818 PSF
Serial Number	C240530	Spreader Yield Strength	35 KSI	Weight	6,250 LBS
Height	4 FT	Max Spreader Length	24 FT	Vert. Pipe Clear	17 IN
Length	24 FT	Spreader Pin Diameter	2 INCH	Horiz. Pipe Clear	22 FT
Wall Thickness	4 IN	Pin Yield Strength	75 KSI		

SOIL TYPE	Max Depth	Hs	Max Slope	Sloping & Shoring
A-25	33 FT	10.5'	3/4(Horiz.): 1(Vert.)	1) "Max Depth" shall not exceed limits outlined in table for corresponding soil types. 2) If "Max Depth" is 20' or less, slope and shore per OSHA guidelines. 3) If "Max Depth" exceeds 20', slope angle shall not exceed "Max Slope", and distance from top of shield to top of slope shall not exceed "Hs", as outlined in table for corresponding soil types.
B-45	18 FT	8.5'	1(Horiz.): 1(Vert.)	
C-60	14 FT	6.5'	1.5(Horiz.): 1(Vert.)	
C-80	10 FT	0'	Flat	



33% Shoring Use Factor Included in Max Depth Ratings	Yes
Surcharge Pressure Included in Max Depth Ratings*	0 psf
*All equipment and materials shall be kept a sufficient distance clear of the shoring, as directed by a licensed Professional Engineer, to ensure this surcharge limit is not exceeded.	

Soil shall be classified by a Competent Person as type A, B or C, as defined by OSHA regulations, except as noted below:

- 1) A type C-60 soil is defined as a clay or moist granular soil that is not flowing or submerged. This soil can be cut vertically and will stand long enough to safely install protective system.
- 2) If the soil is submerged or has freely seeping water, it shall be classified as a C-80 soil.
- 3) Shielding shall never be used in soft clays, organic peat or other flowing materials.

NOTES & LIMITATIONS:

- 1) Refer to page 2 for manufacturer's assembly instructions.
- 2) Excavation 2' below bottom of shield is only permitted when there is no indication of possible loss of soil from behind or below the bottom of the shield.
- 3) Sloped soils must extend to no less than 18" below the top of the shield, as shown in diagram above. Shield need not extend above soil when soils are flat and level with top of shield.
- 4) Except as approved in table above (Hs), any excavations over 20'-deep with sloping require site specific approval by a Licensed Professional Engineer (P.E.).
- 5) User is responsible for safe support of shield to ensure it cannot shift vertically or horizontally at any time
- 6) Shield may be stacked, provided that appropriate connections are made between the stacked shields to prevent lateral movement.
- 7) Shield must be used in strict compliance with all applicable OSHA guidelines and limitations outlined in this document
- 8) This document has been prepared by a P.E., as required by OSHA 29 CFR, Part 1926, Subpart P.
- 9) Shield shall be used under the supervision and direction of a Competent Person as defined by CRF, Part 1926, Subpart P. Among other qualifications, the Competent Person shall be trained in the use of trench shields and have practical field experience with the use of shields, soil classification, and recognizing hazardous conditions.
- 10) All spreaders shall be secured to sockets with pins or other mechanical connections approved by the manufacturer, prior to shield use. Do not apply side load or vertical load to the spreaders at any time (such as leaning plates/sheeting for soil support), unless approved in writing by a P.E. or the Manufacturer.
- 11) Shield shall be installed in a manner to restrict lateral or other hazardous movement of the shield in the event of the application of sudden lateral loads.
- 12) Shield shall be inspected prior to each use, to ensure they are in good condition and free of any damage or visual defects.
- 13) Any repairs or modifications to the shield, such as extending height or length with plates, are strictly prohibited, unless approved in writing by a P.E.
- 14) Pressure rating of shield is a uniform rectangular pressure over full height of shield.



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North American
Excavation Shoring Association

STEEL TRENCH SHIELD ASSEMBLY & USAGE

A guide to key steps for steel trench shield assembly and usage.

1. ANY USE OF A TRENCH SHIELD WITHOUT MANUFACTURER'S SPREADERS AND PINS OR EQUAL WILL VOID THE TABULATED DATA AND WARRANTY.
2. TRENCH SHIELDS ARE DESIGNED TO BE USED WITHOUT PLATES EXTENDING BELOW, ABOVE, OR NEXT TO IT. ANY USE OF SUCH PLATES OR PANELS MAY VOID THE TABULATED DATA AND MAY REQUIRE SITE SPECIFIC ENGINEERING.
3. TRENCH SHIELDS ARE DESIGNED TO BE PUSHED TO GRADE IF NECESSARY. AS NOTED BELOW, ANY UNNECESSARY ABUSE BY THE EXCAVATOR AND OR OPERATOR (SUCH AS POUNDING WITH THE BUCKET) WILL VOID THE TABULATED DATA AS WELL AS THE WARRANTY.
4. CONDITION OF SHIELD, SPREADER PIPES, AND SPREADER PINS MUST BE CHECKED/ INSPECTED FOR SERVICEABILITY BY THE COMPETENT PERSON PRIOR TO EACH USE. PSF RATING IS NOT VALID IF THERE IS ANY VISIBLE DAMAGE TO, OR REPAIRS MADE TO THE SHIELD THAT HAS NOT BEEN DOCUMENTED AND CERTIFIED BY A REGISTERED PROFESSIONAL ENGINEER.
5. A MINIMUM OF 4 SPREADERS OR A MANUFACTURER-APPROVED ALTERNATIVE, MUST BE INSTALLED ON THE TRENCH SHIELD PRIOR TO USE.
6. WARNING: LIFTING EYES ARE DESIGNED AND INTENDED FOR ASSEMBLY/DISASSEMBLY AND LIFTING ONLY. DO NOT PULL OR LIFT BY EYES WHEN SHIELD IS STUCK OR HAS PRESSURE AGAINST IT. LOOSEN SHIELD BY PULLING ON PULLING EYES OR DIGGING ALONG SIDES.

ASSEMBLY



1) REMOVE FROM TRUCK BY LIFTING PANELS WITH 4 POINT LIFT LUGS. ALWAYS USE OSHA APPROVED SLINGS. PLACE ONE SIDEWALL FLAT ON THE GROUND WITH COLLARS FACING UP.



2) PLACE SPREADER PIPE ON TO COLLARS OR BRACKETS AND PIN IN PLACE. SECURE PINS WITH KEEPERS.



3A) LOWER SECOND SIDEWALL ONTO SPREADERS AND PIN IN PLACE.
3B) FOR SPREADERS LONGER THAN 72" LIFT SIDEWALL WITH SPREADERS OVER MATCHING SIDEWALL PRIOR TO PINNING IN PLACE.



4) PLACE SLING IN TOP 4 LIFT LUGS. STAND SHIELD IN UPRIGHT POSITION AND PREPARE FOR INSTALLATION.

DISASSEMBLY



1) PLACE OSHA APPROVED SLING IN TOP 4 LIFT LUGS. STAND SHIELD IN UPRIGHT POSITION AND LIFT BOX FROM EXCAVATION. WARNING: LIFT LUGS ARE INTENDED FOR LIFTING ONLY.



2) PLACE SHIELD ON EITHER SIDEWALL.



3) CONNECT SLING TO 4 LIFTING EYES OF TOP SIDEWALL. REMOVE SPREADER PINS FROM THE UPPER PORTION OF THE SPREADERS. LIFT THE TOP SIDEWALL FROM THE SPREADERS.



4) UNPIN SPREADERS FROM THE LOWER SIDEWALL AND REMOVE SPREADERS.

USING A TRENCH SHIELD IN STABLE SOIL



1) EXCAVATED TO GRADE JUST SLIGHTLY WIDER THAN THE TRENCH SHIELD. DIG WALLS VERTICAL TO MINIMUM OF 18" BELOW THE TOP OF THE SHIELD. SLOPE SOILS ABOVE SHIELD ACCORDING TO MANUFACTURER'S TABULATED DATA. INSTALL SHIELD IN TRENCH.



2) PERFORM DESIRED WORK, THEN EXCAVATE IN FRONT OF THE TRENCH SHIELD.



3) PULL SHIELD FORWARD BY FRONT TOP SPREADER PIPE OR PULLING EYES. PULLING EYES SHALL BE USED WITH SPREADERS WIDER THAN 72" OR WHEN SOIL PRESSURE IS SEVERE ENOUGH TO CAUSE SPREADER TO DEFLECT. CONTINUE EXCAVATING AND PULL SHIELD FORWARD, BACKFILL AS WORK PROGRESSES.

USING A TRENCH SHIELD IN UNSTABLE SOIL



1) EXCAVATE UNTIL SOIL BEGINS TO CRUMBLE BEYOND DESIRED TRENCH WIDTH. PLACE SHIELD IN LINE OF EXCAVATION AND EXCAVATE FROM WITHIN.



2) CONTINUE EXCAVATING WITHIN SHIELD WHILE ALTERNATELY PUSHING DOWN ON SHIELD CORNERS UNTIL PROPER GRADE IS REACHED.



3) PERFORM DESIRED WORK, THEN PULL SHIELD FORWARD AND UP AT APPROPRIATE ANGLE AND REPEAT PREVIOUS STEPS AS NECESSARY.

WARNING: ANY USE OF THIS PRODUCT NOT SPECIFICALLY DESCRIBED ON THIS CERTIFICATE COULD CAUSE CAVE-IN, COLLAPSE, OR STRUCTURAL FAILURE, AND MAY RESULT IN INJURY OR DEATH