



GENERAL

1. CHAMBERS MUST BE XERXES® HYDROCHAIN™ S-22. ONLY CHAMBERS APPROVED BY THE SITE DESIGN ENGINEER ARE PERMITTED.
2. CHAMBERS MUST BE MANUFACTURED BY COMPRESSION MOLDING OF FIBERGLASS REINFORCED COMPOSITE.
3. CHAMBERS MUST BE EVALUATED AND TESTED TO MEET OR EXCEED THE STANDARDS IN ASTM F2418, STANDARD SPECIFICATION FOR POLYPROPYLENE (PP) CORRUGATED WALL STORMWATER COLLECTION CHAMBERS.
4. CHAMBERS MUST BE ARCH-SHAPED AND HAVE AN OPEN BOTTOM. CHAMBER ROWS MUST BE CONTINUOUS, UNOBSSTRUCTED, AND WITHOUT INTERNAL SUPPORT THAT WOULD IMPEDE FLOW OR LIMIT ACCESS FOR INSPECTION AND MAINTENANCE.
5. THE INSTALLED CHAMBER SYSTEM MUST BE DESIGNED TO MEET THE LOAD REQUIREMENTS OF ASTM F2787 "STANDARD PRACTICE FOR STRUCTURAL DESIGN OF THERMOPLASTIC CORRUGATED WALL STORMWATER COLLECTION CHAMBERS" FOR:
 - A. INSTANTANEOUS LIVE LOAD FROM AASHTO DESIGN TRUCK AT MINIMUM COVER
 - B. MAXIMUM DEAD LOAD (100-YEAR)
 - C. 1-WEEK AASHTO DESIGN TRUCK LOAD AT MINIMUM COVER
6. THE INSTALLED CHAMBER SYSTEM MUST BE DESIGNED TO MEET THE LOAD REQUIREMENTS OF AASHTO LRFD BRIDGE DESIGN SPECIFICATIONS, SPECIFICATION 12.12 FOR:
 - A. LONG-DURATION DEAD LOADS
 - B. SHORT-DURATION LIVE LOADS WITH IMPACT AND MULTIPLE VEHICLE PRESENCE
7. CHAMBERS MUST HAVE AN ARCH STIFFNESS CONSTANT (ASC) ≥ 700 LBS/FT² PER ASTM F2418, SECTION 6.2.8 AND MAINTAIN STIFFNESS THROUGH TEMPERATURE RANGES OF -40 DEGREES FAHRENHEIT TO 180 DEGREES FAHRENHEIT.
8. THE CHAMBER MUST INTERCONNECT USING AN OVERLAPPING CORRUGATION JOINT.
9. THE STORMWATER CHAMBER SYSTEM SHALL INCORPORATE A MAIN HEADER ROW FOR STORMWATER TREATMENT AND SYSTEM MAINTENANCE WHICH HAS BEEN TESTED TO A MINIMUM OF 80% OF TSS REMOVAL FOLLOWING NJCAT TESTING PROTOCOLS.
10. CHAMBERS AND END CAPS MUST BE PRODUCED AT AN ISO 9001 CERTIFIED MANUFACTURING FACILITY.

INSTALLATION

1. INSTALLATION MUST NOT START UNTIL A PRE-CONSTRUCTION MEETING HAS BEEN HELD WITH THE MANUFACTURER'S REPRESENTATIVE AND THE INSTALLERS.
2. INSTALLATION MUST BE IN ACCORDANCE WITH THE CONSTRUCTION PLANS AND HYDROCHAIN™ INSTALLATION MANUAL.
3. BACKFILLING OVER CHAMBERS MUST NOT BE DONE WITH A DOZER OR AN EXCAVATOR LOCATED OVER THE CHAMBERS. SEE THE INSTALLATION MANUAL FOR MAXIMUM EQUIPMENT LOADS BASED ON THE DEPTH OF COVER OVER THE CHAMBERS. RECOMMENDED BACKFILL METHODS INCLUDE:
 - A. USING A STONE SHOOTER LOCATED OFF THE CHAMBER BED.
 - B. BACKFILLING WHILE DRIVING AN EXCAVATOR ON THE FOUNDATION STONE OR SUBGRADE.
 - C. BACKFILLING FROM OUTSIDE THE EXCAVATION USING A LONG BOOM EXCAVATOR.
4. THE FOUNDATION STONE MUST BE LEVELED AND COMPACTED BEFORE PLACING CHAMBERS.
5. JOINTS BETWEEN CHAMBERS MUST BE PROPERLY SEATED BEFORE PLACING STONE.
6. A MINIMUM 6-INCH (150 MM) SPACING MUST BE MAINTAINED BETWEEN CHAMBER ROWS.
7. EMBEDMENT STONE SURROUNDING CHAMBERS MUST BE CLEAN, CRUSHED, ANGULAR STONE MEASURING 3/4-2 INCHES (20-50 MM).
8. ANY DISCREPANCIES WITH CHAMBER FOUNDATION BEARING CAPACITIES MUST BE REPORTED TO THE SITE ENGINEER.
9. IT IS RECOMMENDED TO INSTALL EROSION AND SEDIMENT CONTROL MEASURES TO PROTECT THE STORMWATER SYSTEM DURING ALL PHASES OF CONSTRUCTION.



Visit www.xerxes.com for the installation manual and additional resources.
Contact your sales representative or email the following Xerxes contacts for support.
North America: eng.support@matr.com
Outside North America: hydrochain.int@matr.com



ENG.SUPPORT@MATR.COM



HYDROCHAIN
S-22 CHAMBER
SPECIFICATIONS

DATE

03/19/2024

SHEET

1

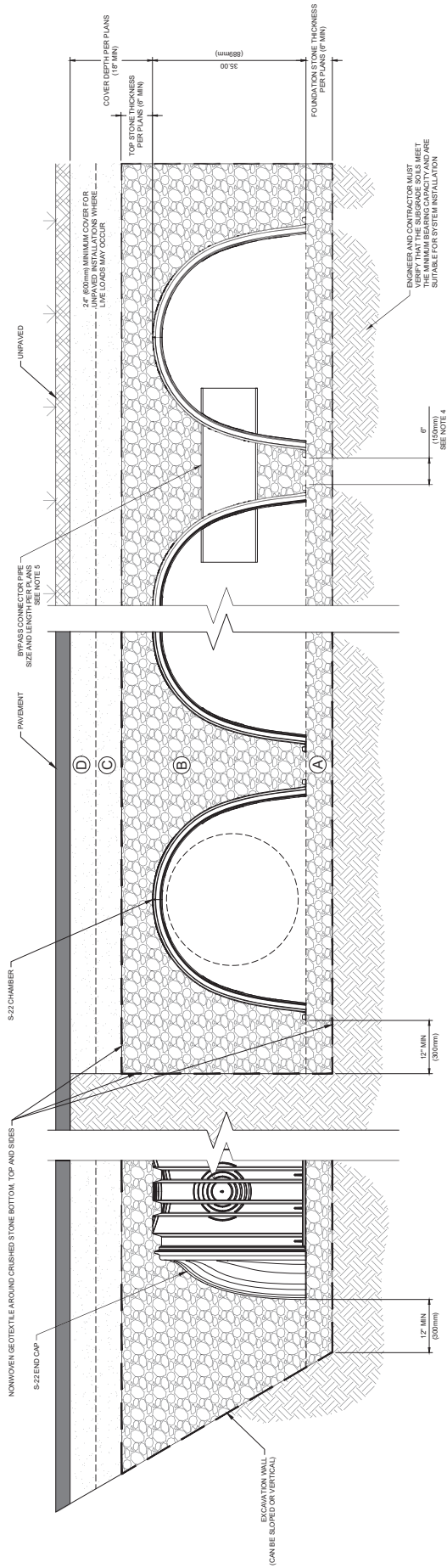
OF

1

CHAMBER STANDARD FILL MATERIALS

CHAMBER STANDARD FILL MATERIALS				
	MATERIAL LOCATION	DESCRIPTION	ASTM M33 DESIGNATION	COMPACT/DENSITY REQUIREMENT
D	FILL MATERIAL FROM 18" (450mm) ABOVE CHAMBER TO GRADE	ANY SOIL/ROCK MATERIALS. NATIVE SOILS OR PER ENGINEERS PLANS. CHECK PLANS FOR PAVEMENT SUBGRADE REQUIREMENTS.	PER PLANS	PREPARE PER ENGINEERS PLANS. PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS.
C	FILL MATERIAL FOR 6" (150mm) TO 18" (450mm) ABOVE THE CHAMBER AND 34" (900mm) FOR UNPAVED INSTALLATIONS	GRANULAR WELLS-GRADED SOIL/AGGREGATE MIXTURES. 100% FINES. MOST MANAGEMENT SUB BASES MAY BE USED IN LIFT OF THIS LAYER.	3, 397, 4, 467, 5, 56, 57, 6, 69, 7, 74, 8, 9, 10, 11, 12, 13, 14, 15, 16, 17, 18, 19, 20, 21, 22, 23, 24, 25, 26, 27, 28, 29, 30, 31, 32, 33, 34, 35, 36, 37, 38, 39, 40, 41, 42, 43, 44, 45, 46, 47, 48, 49, 50, 51, 52, 53, 54, 55, 56, 57, 58, 59, 60, 61, 62, 63, 64, 65, 66, 67, 68, 69, 70, 71, 72, 73, 74, 75, 76, 77, 78, 79, 80, 81, 82, 83, 84, 85, 86, 87, 88, 89, 90, 91, 92, 93, 94, 95, 96, 97, 98, 99, 100 M45, A-1, A-2, A-3	COMPACT IN MAXIMUM 6" (150mm) LIFTS. SEE NOTES.
B	EMBLEMENT AND TOP STONE	3/8" - 2" (8-50mm) CLEAN, CRUSHED, ANGULAR STONE	3, 397, 4, 467, 5, 56, 57	NO COMPACTION REQUIRED.
A	FOUNDATION STONE	3/8" - 2" (8-50mm) CLEAN, CRUSHED, ANGULAR STONE	3, 397, 4, 467, 5, 56, 57	PLATE COMPACT OR ROLL. SEE NOTES.

- NOTES:
- INSTALL CHAMBERS AND END CAPS IN ACCORDANCE WITH SITE SPECIFIC PLANS, HYDROCHAIN INSTALLATION MANUAL, AND SUPPLEMENTAL DOCUMENTS. REFERENCE THE OR CODE BELOW FOR PRODUCT DOCUMENTS.
 - THE STONE MUST ALSO BE CLEAN, CRUSHED, AND ANGULAR.
 - AS AN ALTERNATE TO PROCTOR TESTING AND FIELD DENSITY MEASUREMENTS ON OPEN GRADED STONE, COMPACTION REQUIREMENTS ARE MET WHEN STONE IS PLACED AND COMPACTED IN 6" (150mm) LIFTS USING TWO 100 LB WEIGHTS WITH A VIBRATORY COMPACTOR.
 - FOR CHAMBERS WITH A BYPASS CONNECTOR PIPE, THE BYPASS CONNECTOR PIPE MUST BE INSTALLED IN ACCORDANCE WITH THE HYDROCHAIN INSTALLATION MANUAL AND SUPPLEMENTAL DOCUMENTS.
 - EXTEND CROSS CONNECTION PIPES INTO THE CHAMBER BY A LENGTH EQUAL OR GREATER THAN 1/2 THE PIPE O.D.



TYPICAL CHAMBER WITH END CAP CROSS SECTION
SCALE: NTS

TYPICAL CHAMBER CROSS SECTION
SCALE: NTS

TYPICAL CHAMBER CROSS SECTION WITH CONNECTOR PIPE
SCALE: NTS



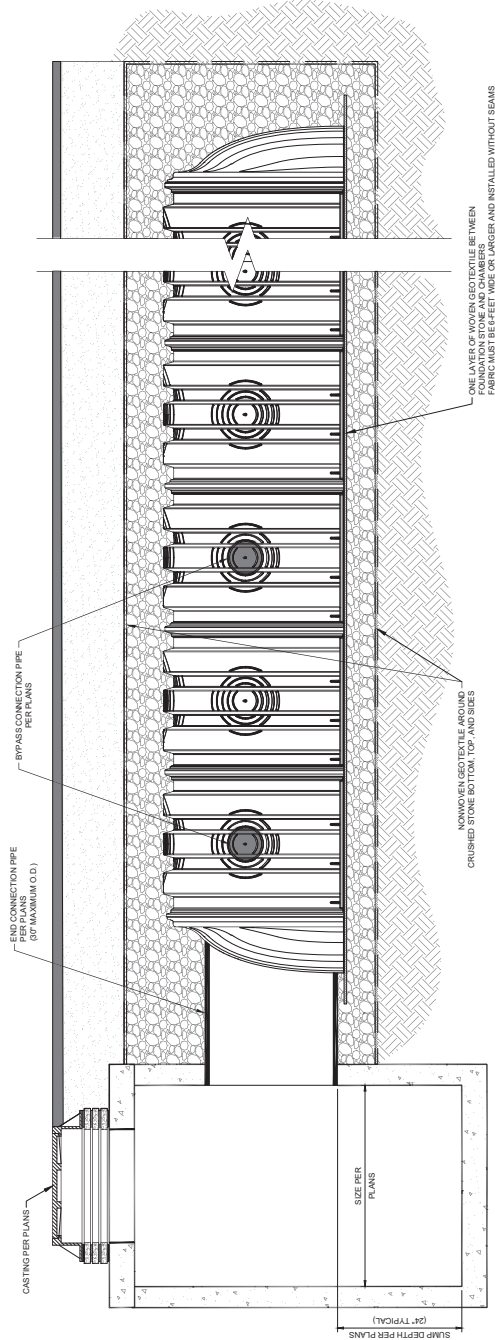
ENG.SUPPORT@MATTR.COM



HYDROCHAIN™
S-22 CHAMBER
CROSS SECTION DETAIL

NOTES:

1. INSTALL THE MAIN HEADER ROW, CHAMBERS, AND END CAPS IN ACCORDANCE WITH THE SITE SPECIFIC PLANS, HYDROCHAIN INSTALLATION MANUAL AND SUPPLEMENTAL DOCUMENTS. REFERENCE THE QR CODE FOR THE LATEST VERSION OF THE HYDROCHAIN INSTALLATION MANUAL.
2. CONDUCT INSPECTION AND MAINTENANCE IN ACCORDANCE WITH HYDROCHAIN CHAMBER MAIN HEADER ROW OPERATION AND MAINTENANCE MANUAL.



ENG.SUPPORT@SMATR.COM

XERXES

HYDROCHAIN™
S-22 CHAMBER
MAIN HEADER ROW (MHR) DETAIL

DATE

03/12/2024

SHEET

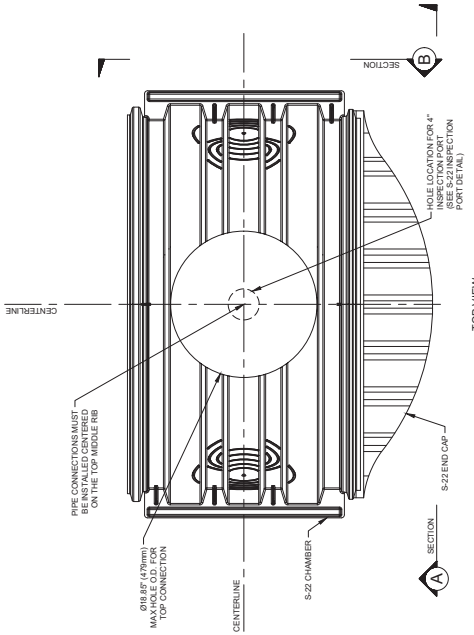
1

OF

1

CONNECTION PIPE COMPATIBILITY TABLE				
PIPE SIZE	PIPE MATERIAL	HOLE CUT SIZE ¹ MIN-MAX	SIDE CONNECTION	TOP CONNECTION
4"	PVC	4.5"-5.3" (114mm-140mm)	X	X
	HDPE/PP	4.9"-5.9" (124-150mm)	X	X
6"	PVC	6.0"-7.0" (152-178mm)	X	X
	HDPE/PP	6.9"-7.9" (175-201mm)	X	X
8"	PVC	8.0"-9.0" (203-229mm)	X	X
	HDPE/PP	8.9"-9.9" (226-252mm)	X	X
12"	PVC	12.0"-13.0" (305-330mm)	X	X
	HDPE/PP	13.4"-14.4" (340-366mm)	X	X
16"	PVC	16.0"-17.0" (406-432mm)	X	X
	HDPE/PP	17.4"-18.4" (441-467mm)	X	X
18"	PVC	18.0"-19.0" (457-483mm)	X	X
	HDPE/PP	19.4"-20.4" (491-517mm)	X	X
24"	PVC	24.0"-25.0" (609-635mm)	X	X
	HDPE/PP	25.4"-26.4" (645-671mm)	X	X

1. PVC HOLE CUT SIZE BASED ON SCH-40, SCH-80, STD-36, AND STD-36 PIPES. HDPE/PP HOLE CUT SIZES BASED ON INDUSTRY STANDARD PIPES CONFORMING TO ASTM F2819/F2848. RCP HOLE CUT SIZES BASED ON INDUSTRY STANDARD PIPES CONFORMING TO ASTM F1217/F1248.
2. CUT THE HOLE TO MINIMIZE GAPS BETWEEN THE CONNECTING PIPE O.D. AND CHAMBER HOLE I.D.

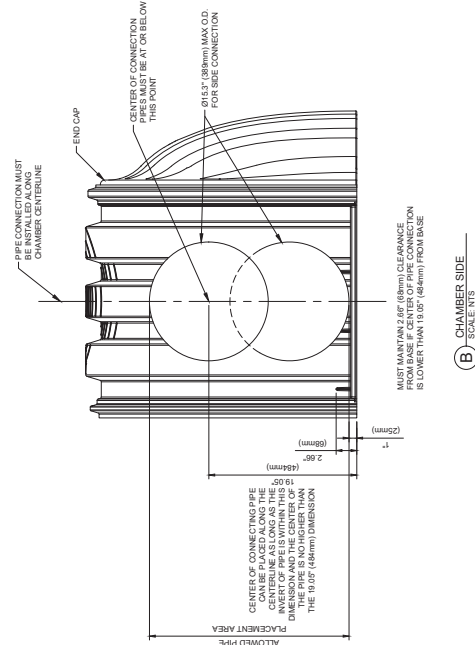


ISOMETRIC VIEW
SCALE: NTS

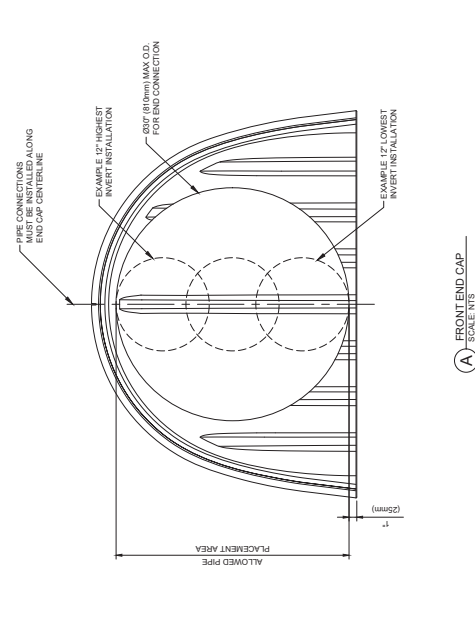


SCAN TO WATCH INSTRUCTIONS FOR CUTTING OF CHAMBER AND END CAPS FOR CORRECT PIPING INSTALLATION.
<https://www.youtube.com/watch?v=H3v5Uu0kky>

- NOTES:**
- CHAMBERS AND END CAPS IN ACCORDANCE WITH THE HYDROCHAIN CHAMBER SUPPLEMENTAL INSTRUCTIONS AND INSTALLATION MANUAL. REFERENCE THE QR CODE BELOW FOR PRODUCT DOCUMENTS.
 - RECOMMENDED EQUIPMENT:
 - PERSONAL PROTECTION EQUIPMENT: GLOVES, SAFETY GLASSES, FACE SHIELD, LONG-SLEEVE SHIRT, RESPIRATOR
 - TAPE MEASURE
 - HAND TOOL: MARKER, RECIPROCATING SAW WITH BIDENTAL TAPERED BLADES, DRILL WITH 0.5" BITS, ANGLE GRINDER.
 - EXTENSIBLES: SPRAY FOAM GAP SEALER TO FILL GAPS BETWEEN PIPE O.D. AND HOLE.



(A) FRONT END CAP
SCALE: NTS



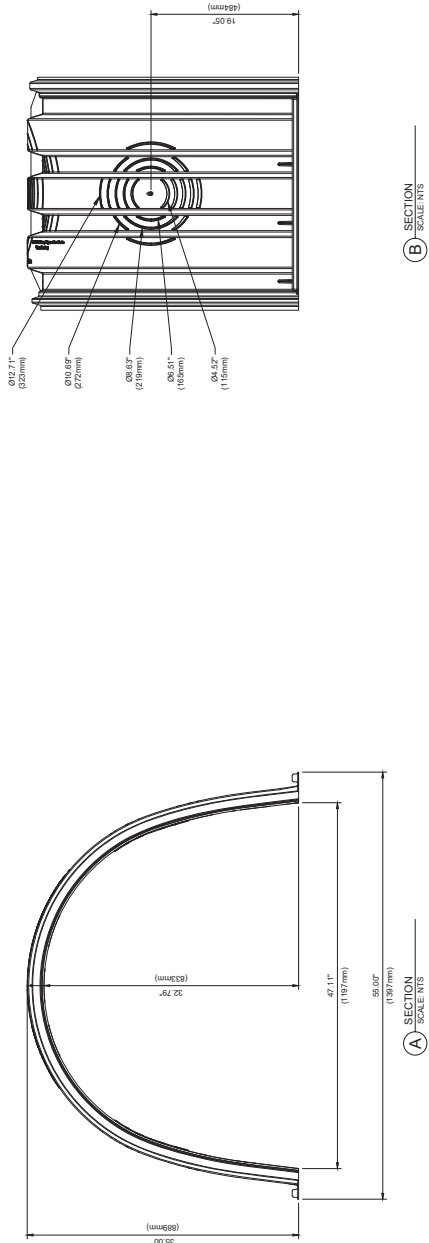
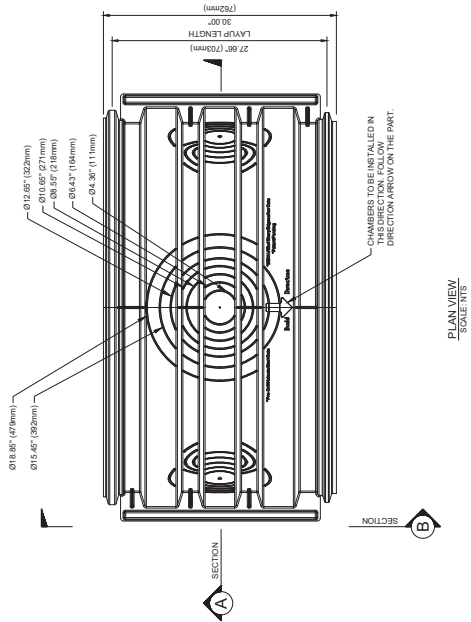
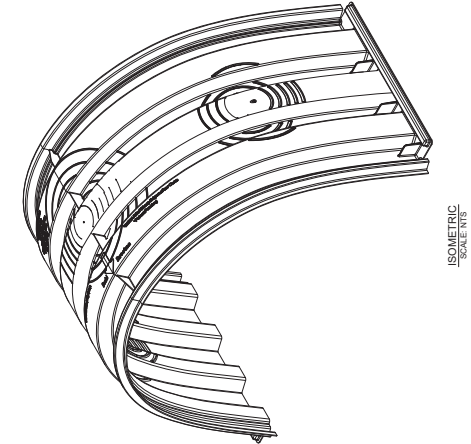
(B) CHAMBER SIDE
SCALE: NTS



ENG.SUPPORT@MATTR.COM

HYDROCHAIN™
S-22 CHAMBER AND END CAP
HOLE CUTTING DETAIL

S-22 CHAMBER PROPERTIES	
NORMAL DIMENSIONS (LAYOUT LENGTH + WIDTH + HEIGHT)	27.86" x 33.00" x 36.00" (703mm x 839mm x 893mm)
BAKE CHAMBER STORAGE	6.6 FT ³ CUBIC FEET (0.19 CUBIC METERS)
*MIN INSTALLED STORAGE	31.30 CUBIC FEET (0.88 CUBIC METERS)
CHAMBER WEIGHT	28 LBS (12.70 KG)
STORAGE PER LINEAR UNIT WITHOUT STONE	0.89 MPM (13.84 FT/FT)
STORAGE PER LINEAR UNIT WITH STONE	0.89 MPM (13.84 FT/FT)
*ASSUMING A MINIMUM STONE THICKNESS OF 1" (25.4mm) BETWEEN ROWS WITH 40% STONE POROSITY (DOES NOT INCLUDE 1/2" (30mm) PERIMETER 3 STONE VOLUME)	



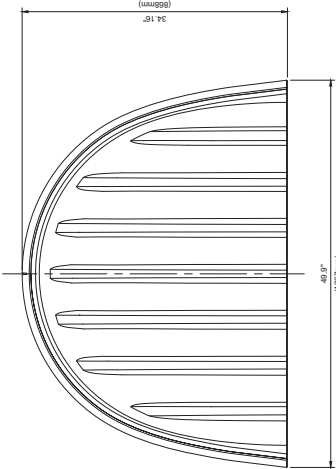
ENG.SUPPORT@MATR.COM



HYDROCHAIN™
S-22 CHAMBER

DATE 03/19/2024 SHEET 1 OF 1

S-22 END CAP PROPERTIES	
NOMINAL DIMENSIONS (PLAN LENGTH • WIDTH • HEIGHT)	10.8" • 49.9" • 34.16" (274mm • 1267mm • 868mm)
BAKE END CAP STORAGE	3.88 CUBIC FEET (0.113 CUBIC METERS)
*MIN INSTALLED STORAGE	0.77 CUBIC FEET (0.022 CUBIC METERS)
*ASSUMING A MIN OF 6" (150mm) STONE ABOVE AND BELOW AND 6" (150mm) BETWEEN ROWS WITH 40% STONE POROSITY (DOES NOT INCLUDE 12" (300mm) PERIMETER STONE VOLUME)	



END VIEW
SCALE: NTS



ISOMETRIC
SCALE: NTS



SIDE VIEW
SCALE: NTS



ENG.SUPPORT@MATTR.COM



HYDROCHAIN™
S-22 CHAMBER END CAP

DATE 03/19/2024

SHEET 1 OF 1