



GENERAL

1. CHAMBERS MUST BE XERXES® HYDROCHAIN™ C-10. 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, UNOBSTRUCTED, 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/FT³% 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 USING 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



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HYDROCHAIN
C-10 CHAMBER
SPECIFICATIONS

DATE 03/21/2024

SHEET 1 OF 1

CHAMBER STANDARD FILL MATERIALS				
	MATERIAL LOCATION	DESCRIPTION	AASHTO M43 DESIGNATION	COMPACT DENSITY REQUIREMENT
D	FILL MATERIAL FROM 1' (300mm) ABOVE CHAMBER TO TOP	ANY SOIL/ROCK MATERIALS, NATIVE SOILS OR PER ENGINEER'S PLAN, CHECK PLANS FOR ANY VARIATIONS	PER PLANS	PREPARE PER ENGINEER'S PLANS, PAVED INSTALLATIONS MAY HAVE STRINGENT MATERIAL AND PREPARATION REQUIREMENTS
C	FILL MATERIAL FOR 6" (150mm) TO 18" (450mm) FOR UNPAVED INSTALLATIONS (600mm) FOR UNPAVED INSTALLATIONS	GRAVEL OR WELL GRAINED SAND AGGREGATE MATERIALS - 40% FINEST AGOST PERMAMENT SUB-BASE MATERIALS CAN BE USED IN (IEU) OF THIS LAYER	3.357, 4.467, 5.56, 6.67, 7.78, 8.89, 9.90, 11.01, 12.12, 13.23, 14.34, 15.45, 16.56, 17.67, 18.78, 19.89, 21.00, 22.11, 23.22, 24.33, 25.44, 26.55, 27.66, 28.77, 29.88, 31.00, 32.11, 33.22, 34.33, 35.44, 36.55, 37.66, 38.77, 39.88, 41.00, 42.11, 43.22, 44.33, 45.44, 46.55, 47.66, 48.77, 49.88, 51.00, 52.11, 53.22, 54.33, 55.44, 56.55, 57.66, 58.77, 59.88, 61.00, 62.11, 63.22, 64.33, 65.44, 66.55, 67.66, 68.77, 69.88, 71.00, 72.11, 73.22, 74.33, 75.44, 76.55, 77.66, 78.77, 79.88, 81.00, 82.11, 83.22, 84.33, 85.44, 86.55, 87.66, 88.77, 89.88, 91.00, 92.11, 93.22, 94.33, 95.44, 96.55, 97.66, 98.77, 99.88, 101.00, 102.11, 103.22, 104.33, 105.44, 106.55, 107.66, 108.77, 109.88, 111.00, 112.11, 113.22, 114.33, 115.44, 116.55, 117.66, 118.77, 119.88, 121.00, 122.11, 123.22, 124.33, 125.44, 126.55, 127.66, 128.77, 129.88, 131.00, 132.11, 133.22, 134.33, 135.44, 136.55, 137.66, 138.77, 139.88, 141.00, 142.11, 143.22, 144.33, 145.44, 146.55, 147.66, 148.77, 149.88, 151.00, 152.11, 153.22, 154.33, 155.44, 156.55, 157.66, 158.77, 159.88, 161.00, 162.11, 163.22, 164.33, 165.44, 166.55, 167.66, 168.77, 169.88, 171.00, 172.11, 173.22, 174.33, 175.44, 176.55, 177.66, 178.77, 179.88, 181.00, 182.11, 183.22, 184.33, 185.44, 186.55, 187.66, 188.77, 189.88, 191.00, 192.11, 193.22, 194.33, 195.44, 196.55, 197.66, 198.77, 199.88, 201.00, 202.11, 203.22, 204.33, 205.44, 206.55, 207.66, 208.77, 209.88, 211.00, 212.11, 213.22, 214.33, 215.44, 216.55, 217.66, 218.77, 219.88, 221.00, 222.11, 223.22, 224.33, 225.44, 226.55, 227.66, 228.77, 229.88, 231.00, 232.11, 233.22, 234.33, 235.44, 236.55, 237.66, 238.77, 239.88, 241.00, 242.11, 243.22, 244.33, 245.44, 246.55, 247.66, 248.77, 249.88, 251.00, 252.11, 253.22, 254.33, 255.44, 256.55, 257.66, 258.77, 259.88, 261.00, 262.11, 263.22, 264.33, 265.44, 266.55, 267.66, 268.77, 269.88, 271.00, 272.11, 273.22, 274.33, 275.44, 276.55, 277.66, 278.77, 279.88, 281.00, 282.11, 283.22, 284.33, 285.44, 286.55, 287.66, 288.77, 289.88, 291.00, 292.11, 293.22, 294.33, 295.44, 296.55, 297.66, 298.77, 299.88, 301.00, 302.11, 303.22, 304.33, 305.44, 306.55, 307.66, 308.77, 309.88, 311.00, 312.11, 313.22, 314.33, 315.44, 316.55, 317.66, 318.77, 319.88, 321.00, 322.11, 323.22, 324.33, 325.44, 326.55, 327.66, 328.77, 329.88, 331.00, 332.11, 333.22, 334.33, 335.44, 336.55, 337.66, 338.77, 339.88, 341.00, 342.11, 343.22, 344.33, 345.44, 346.55, 347.66, 348.77, 349.88, 351.00, 352.11, 353.22, 354.33, 355.44, 356.55, 357.66, 358.77, 359.88, 361.00, 362.11, 363.22, 364.33, 365.44, 366.55, 367.66, 368.77, 369.88, 371.00, 372.11, 373.22, 374.33, 375.44, 376.55, 377.66, 378.77, 379.88, 381.00, 382.11, 383.22, 384.33, 385.44, 386.55, 387.66, 388.77, 389.88, 391.00, 392.11, 393.22, 394.33, 395.44, 396.55, 397.66, 398.77, 399.88, 401.00, 402.11, 403.22, 404.33, 405.44, 406.55, 407.66, 408.77, 409.88, 411.00, 412.11, 413.22, 414.33, 415.44, 416.55, 417.66, 418.77, 419.88, 421.00, 422.11, 423.22, 424.33, 425.44, 426.55, 427.66, 428.77, 429.88, 431.00, 432.11, 433.22, 434.33, 435.44, 436.55, 437.66, 438.77, 439.88, 441.00, 442.11, 443.22, 444.33, 445.44, 446.55, 447.66, 448.77, 449.88, 451.00, 452.11, 453.22, 454.33, 455.44, 456.55, 457.66, 458.77, 459.88, 461.00, 462.11, 463.22, 464.33, 465.44, 466.55, 467.66, 468.77, 469.88, 471.00, 472.11, 473.22, 474.33, 475.44, 476.55, 477.66, 478.77, 479.88, 481.00, 482.11, 483.22, 484.33, 485.44, 486.55, 487.66, 488.77, 489.88, 491.00, 492.11, 493.22, 494.33, 495.44, 496.55, 497.66, 498.77, 499.88, 501.00, 502.11, 503.22, 504.33, 505.44, 506.55, 507.66, 508.77, 509.88, 511.00, 512.11, 513.22, 514.33, 515.44, 516.55, 517.66, 518.77, 519.88, 521.00, 522.11, 523.22, 524.33, 525.44, 526.55, 527.66, 528.77, 529.88, 531.00, 532.11, 533.22, 534.33, 535.44, 536.55, 537.66, 538.77, 539.88, 541.0	

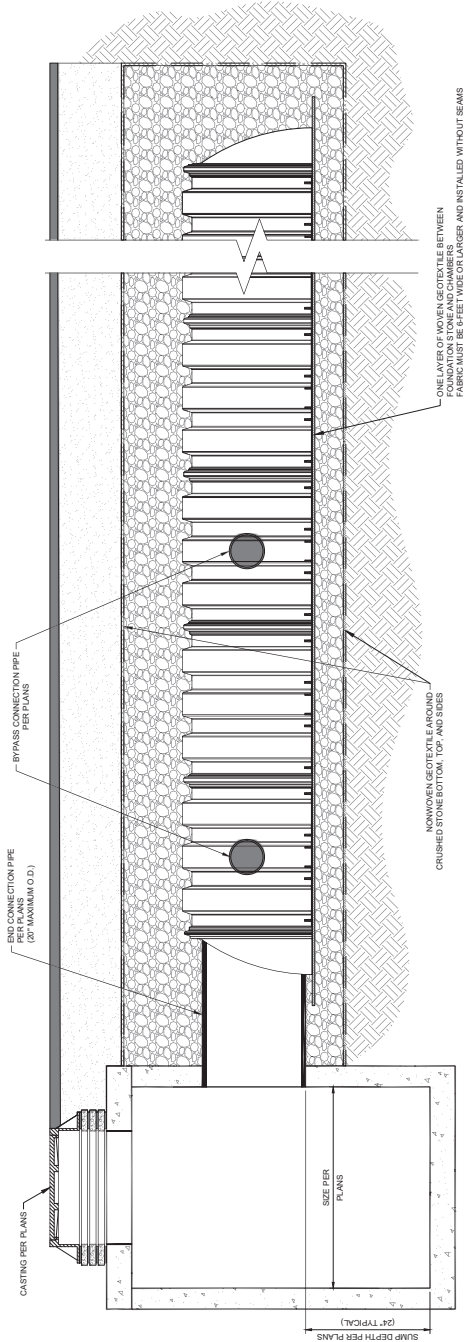
TYPICAL CHAMBER WITH END CAP CROSS SECTION
SCALE: NTS



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NOTES:

1. INSTALL THE MINI-HEADER ROW, CHAMBERS, AND END CAPS IN ACCORDANCE WITH THE SITE-SPECIFIC PLANS, HYDROCHAIN INSTALLATION MANUAL, AND THE HYDROCHAIN C-10 CHAMBER AND END CAPS INSTALLATION AND MAINTENANCE MANUAL.
2. CONDUCT INSPECTION AND MAINTENANCE IN ACCORDANCE WITH HYDROCHAIN CHAMBER MAIN HEADER ROW OPERATION AND MAINTENANCE MANUAL.



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HYDROCHAIN™
C-10 CHAMBER
MAIN HEADER ROW (MHR) DETAIL

DATE: 04/09/2024 SHEET: 1 OF 1

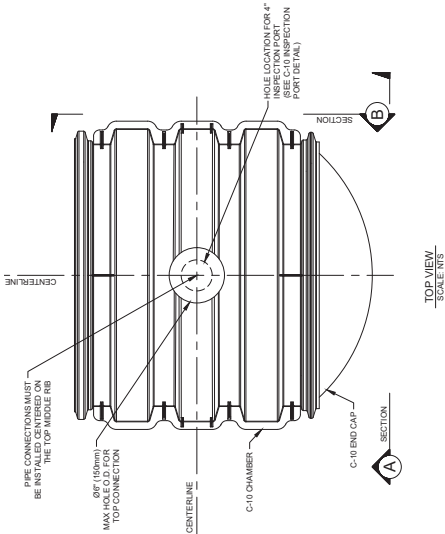
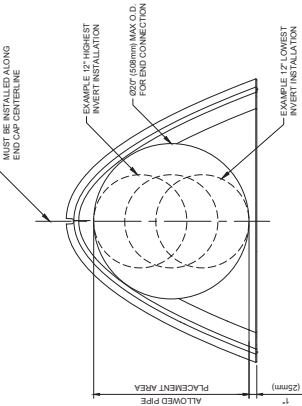
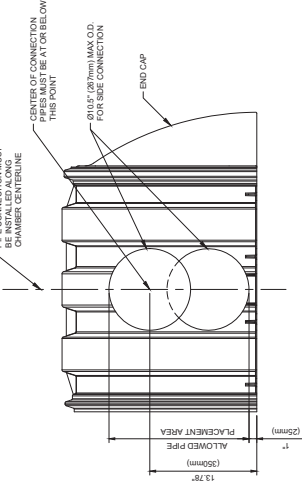
CONNECTION PIPE COMPATIBILITY TABLE				
PIPE SIZE	PIPE MATERIAL	HOLE CUT SIZE ¹ MIN-MAX	SIDE CONNECTION	TOP CONNECTION
4"	PVC	4.5"-5.3" (114mm-140mm)	X	X
	HDPE/PP	4.9"-5.9" (124-150mm)	X	X
6"	PVC	6.0"-7.0" (152-178mm)	X	X
	HDPE/PP	6.9"-7.9" (175-201mm)	X	X
8"	PVC	8.0"-9.0" (203-229mm)	X	X
	HDPE/PP	8.9"-9.9" (226-252mm)	X	X
10"	PVC	11.0"-12.0" (280-305mm)	X	X
	HDPE/PP	11.9"-12.9" (302-328mm)	X	X
12"	PVC	12.7"-13.7" (323-349mm)	X	X
	HDPE/PP	13.6"-14.6" (346-372mm)	X	X
15"	PVC	15.7"-16.7" (399-425mm)	X	X
	HDPE/PP	16.6"-17.6" (422-448mm)	X	X
18"	PVC	17.7"-18.7" (450-476mm)	X	X
	HDPE/PP	18.6"-19.6" (473-500mm)	X	X
24"	PVC	21.7"-22.7" (551-577mm)	X	X
	HDPE/PP	22.6"-23.6" (574-600mm)	X	X
30"	PVC	25.7"-26.7" (653-679mm)	X	X
	HDPE/PP	26.6"-27.6" (676-702mm)	X	X

1. PVC HOLE CUT SIZE BASED ON SCH40, SCH40S, AND SDR35 PIPES. HDPE/PP HOLE CUT SIZES BASED ON INDUSTRY STANDARD PIPES CONFORMING TO ASTM F2818/2307248. RCP HOLE CUT SIZES BASED ON INDUSTRY STANDARD PIPES CONFORMING TO ASTM F2818/2307248. RCP HOLE CUT SIZES BASED ON INDUSTRY STANDARD PIPES.

2. CUT THE HOLE TO MINIMIZE GAPS BETWEEN THE CONNECTING PIPE O.D. AND CHAMBER HOLE I.D.



SCAN FOR STEP-BY-STEP VIDEO INSTRUCTIONS AND DEMONSTRATION OF CUTTING HOLES FOR PIPES.
<https://www.youtube.com/watch?v=H3V6Uk0kY>



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HYDROCHAIN™
C-10 CHAMBER AND END CAP
HOLE CUTTING DETAIL

DATE 04/09/2024

SHEET 1 OF 1

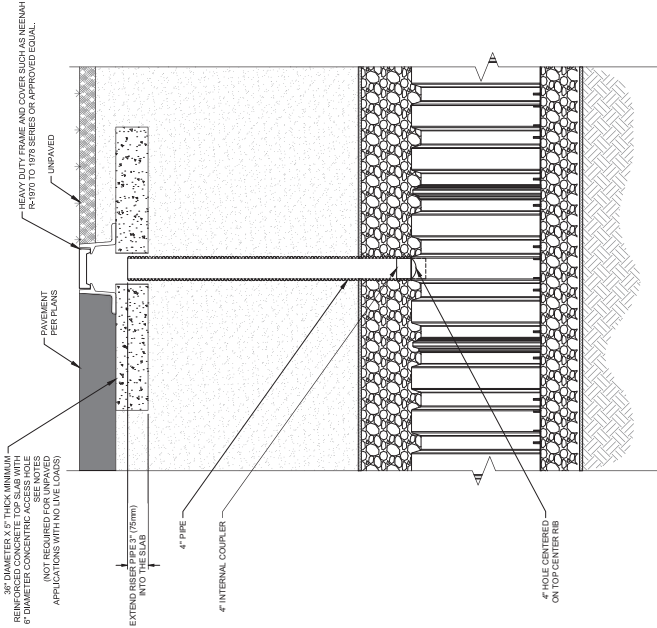
PARTS LIST			
ITEM	QTY	PROVIDER	
HEAVY DUTY FWD COUPLER SUCH AS NEENAH 1870 TO 193 SERIES OR APPROVED EQUAL	1	CONTRACTOR/OTHERS	
3" REINFORCED CONCRETE TOP SLAB	1	CONTRACTOR/OTHERS	
4" PIPE		PER PLANS	
4" INTERNAL COUPLER	1	XERXES	

NOTES:

- INSTALL INSPECTION PORTS IN ACCORDANCE WITH THE SITE SPECIFIC PLANS, HYDROCHAIN INSTALLATION MANUAL AND SUPPLEMENTAL DOCUMENTS. REFERENCE THE OR CODE BELOW FOR PRODUCT DOCUMENTS:
1. HYDROCHAIN C-10 CHAMBER: HYDROCHAIN C-10 CHAMBER
2. RISER PIPE: RISER PIPE MUST NOT BE SUBJECT TO SURFACE LOADS.
3. 3" REINFORCED CONCRETE TOP SLAB: 3" REINFORCED CONCRETE TOP SLAB AND MINIMUM BACK FILL DIMENSIONS.

OPERATION AND MAINTENANCE:

- REMOVE CASTING.
- USE A LIGHT AND STADIUM ROD TO MEASURE THE SEDIMENT DEPTH IN THE BOTTOM OF THE CHAMBER.
- OPTIONALLY, A BORESCOPE CAMERA MAY BE USED TO INSPECT THE INSIDE OF THE CHAMBER.
- IF SEDIMENT DEPTH IS ABOVE ACCEPTABLE LEVELS, THEN PERFORM MAINTENANCE IN ACCORDANCE WITH LOCAL REQUIREMENTS AND HYDROCHAIN CHAMBER OPERATION AND MAINTENANCE MANUAL.



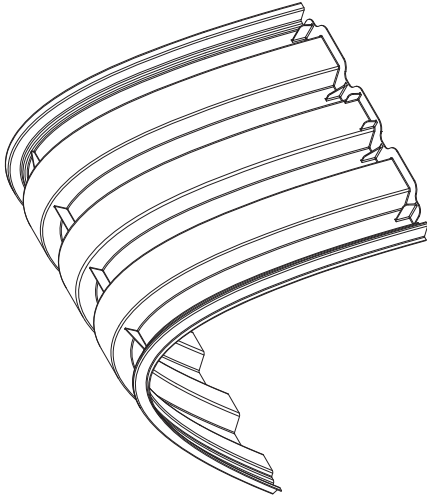
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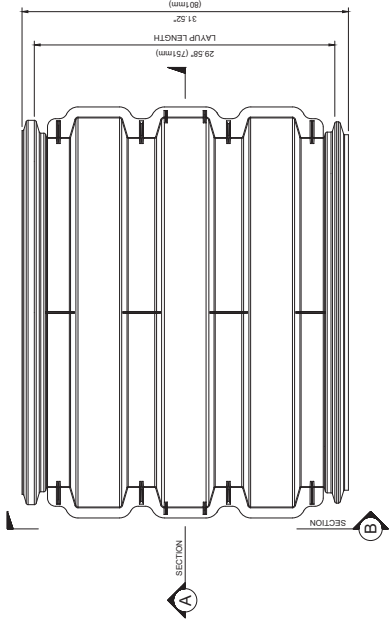
HYDROCHAIN™
C-10 CHAMBER
4-INCH INSPECTION PORT

DATE: 03/14/2024 SHEET: 1 OF 1

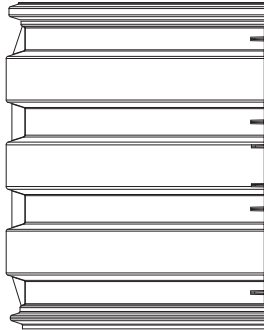
C-10 CHAMBER PROPERTIES	
NORMAL DIMENSIONS (LAYOUT LENGTH • WIDTH • HEIGHT)	29.58" • 39.70" • 25.00" (751mm • 1006mm • 635mm)
BAKE CHAMBER STORAGE	0.27 CUBIC METERS
MIN INSTALLED STORAGE	17.6 CUBIC FEET (500 CUBIC METERS)
CHAMBER WEIGHT	81 LBS (36.7 KG)
STORAGE PER LINEAR UNIT WITHOUT STONE	0.20 MM
STORAGE PER LINEAR UNIT WITH STONE	7.88 FT ³ /FT (0.22 M ³ /M)
*ASSUMING A MINIMUM 100mm STONE ABOVE AND BELOW AND 100mm BETWEEN ROWS WITH 40% STONE POROSITY (DOES NOT INCLUDE 12" (300mm) PERIMETER 3 STONE VOLUME)	



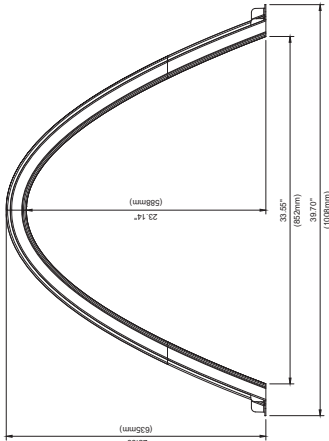
ISOMETRIC
SCALE NTS



PLAN VIEW
SCALE NTS



SECTION
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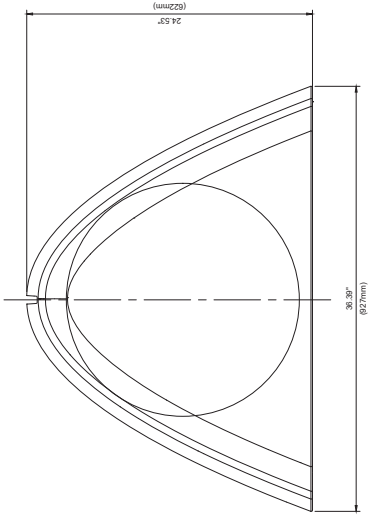


HYDROCHAIN™
C-10 CHAMBER

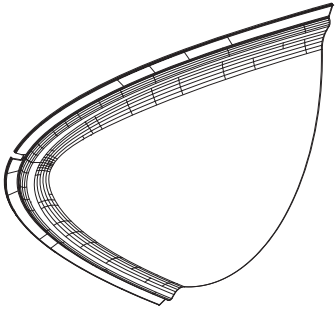
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SHEET 1 OF 1

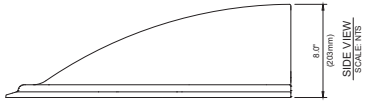
C-10 END CAP PROPERTIES	
NOMINAL DIMENSIONS	80" X 36.49" X 24.52"
(PLAN LENGTH X WIDTH X HEIGHT)	(800mm X 922mm X 622mm)
BAKE END CAP STORAGE	1.21 CUBIC FEET
	(0.034 CUBIC METERS)
*MIN INSTALLED STORAGE	0.10 CUBIC FEET
	(0.003 CUBIC METERS)
*ASSUMING A MIN OF 6" (150mm) STONE ABOVE AND BELOW AND 6" (150mm) 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



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HYDROCHAIN™
C-10 END CAP

DATE

03/14/2024

SHEET

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