

The Storm Sewer System of Choice – Corrugated Steel Pipe (CSP) Spiral Rib CSP vs. RCP

Spiral Rib CSP provides significant time and money savings to the owner and taxpayers over reinforced concrete. This effective and economical system provides an ideal solution for your storm sewer needs.

- Hydraulically efficient - 0.012 Manning's "n"
- Longer lengths
- Lighter weights
- Efficient trench & installation savings
- Variety of coatings for durability & service life requirements



Design Challenge » 900M Length 1500MM Diameter Storm Sewer

PROJECT MATERIALS SUMMARY	SPIRAL RIB CSP (2.0mm)	RCP*
Pipe length (m)	9.0	2.44
Inside diameter (mm)	1500	1500
Outside diameter (mm)	1575	1828
Weight per meter (kg/m)	89	2034
Weight per piece (kg)	801	4964
Length (m)	900	900
Number of pieces	100	369

PROJECT REQUIREMENTS	SPIRAL RIB CSP	RCP	SPIRAL RIB ADVANTAGES
Total # of pieces	100	369	73% fewer pieces
Total weights, kg	80,100	1,832,000	4.3% of RCP weight
Total # of trucks	25	62	60% fewer truckloads
Excavation volume ¹	4,205 m ³	5,097 m ³	18% less volume
Bedding backfill material ²	3,301 m ³	3,969 m ³	17% less material
Installation cycle time ³	34 hours	123 hours	72% less time

* CSA-A257.2 Bell & Spigot joints, Class III

1. Assume 152mm below pipe O.D. and trench width is 1.8m out from each.

2. Assume backfill material extends to 300mm over top of pipe.

3. Assuming production time for line/grade preparation, handling, and setting pipe is 20 minutes per piece.

Product Comparison

**30-50% MATERIAL SAVINGS
IN LESS THAN HALF THE TIME!**

	900mm		1050mm		1200mm		1500mm		1800mm		2100mm		2400mm	
	S.R.	RCP	S.R.	RCP	S.R.	RCP	S.R.	RCP	S.R.	RCP	S.R.	RCP	S.R.	RCP
	1.6mm Wall C	1.6mm Wall C	1.6mm Wall C	1.6mm Wall C	2.0mm Wall C	2.0mm Wall C	2.0mm Wall C	2.0mm Wall C	2.8mm Wall C	2.8mm Wall C	2.8mm Wall C	2.8mm Wall C	2.8mm Wall C	2.8mm Wall C
Pipe Length, M	9	2.44	9	2.44	9	2.44	9	2.44	9	2.44	9	2.44	9	2.44
Approx. Wt. KG/M	43.8	973	51.1	1207	58.4	1504	89.4	2192	107.3	2998	170.2	3958	194.5	4993
O.D., MM	950	1156	1100	1334	1250	1511	1550	1828	1850	2185	2150	2540	2450	2895
Max. Allowable Fill, M	11.3	4.9	9.7	4.9	8.5	4.9	10.1	4.9	8.4	4.6	12.6	4.6	11	4.6
Truck Loads per 300M of Pipe	5	9	5	12	5	14	9	21	9	31	17	31	17	62
Number of Pieces per 300M of Pipe	34	123	34	123	34	123	34	123	34	123	34	123	34	123
Trench Width, MM	1500	1700	1700	1930	1900	2150	2300	2590	2700	3050	3000	3350	3400	3930

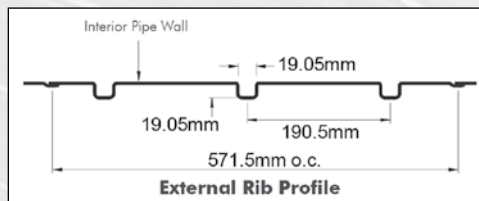
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Please consider this a formal request for your review and approval of Aluminized Type 2 (ALT2) and Polymer Laminated Spiral Rib Pipe for storm sewer application and inclusion into this project. CSPI proposes to furnish this pipe as an alternate to the project specified material.

Aluminized Type 2 & Polymer Laminated Spiral Rib Pipe:

1. Significant material cost savings
2. Fast lead times
3. Installation advantages offered by lightweight pipe in long lengths
 - a. 2.0mm, 1200mm spiral rib pipe is 71.5kg/m, coupled with 6m lengths means maximum production value (custom lengths also available)
 - b. Utilize lightweight equipment
 - c. All junctions, fittings, manholes, grate inlets, etc. can be handled “in-line” as a fabricated fitting – “Feels like another piece of pipe...”



Aluminized Type 2 & Polymer Laminated Spiral Rib Pipe for Storm Sewer

1.0 GENERAL

This specification covers the furnishing, installation, and design considerations for Aluminized Type 2 & Polymer Laminated, Spiral Rib Pipe and Pipe-Arch for culverts and storm sewers for the types, sizes, and designations as shown on the plans.

2.0 MATERIAL

The pipe shall be fabricated from an ALUMINIZED Type 2 coil, conforming to the requirements of AASHTO M-274 or ASTM A-929 or from Polymer Laminated coil to the requirements of ASTM A742.

3.0 PIPE

The pipe and pipe-arch shall be manufactured to conform to CSA G401. The pipe shall have a helical corrugation pattern, and shall have the sectional properties per Table 6 in CSA G401.

4.0 COUPLING BANDS

Coupling bands for the pipe and pipe-arch shall be made of the same base metal and coatings as the pipe and pipe-arch. Hugger bands and fully corrugated bands for round or pipe-arch shall be a minimum of 1.3mm gauge, 300mm wide bands with annular corrugations that are spaced to properly index with re-rolled corrugations of the pipe.

5.0 INSTALLATION

The pipe shall be installed in accordance with AASHTO Section 26, Division II or ASTM A-798.

6.0 HYDRAULICS

Values of Coefficient of Roughness (Manning’s “n”) will not exceed 0.012 or that recognized by other materials.

7.0 STRUCTURAL

Material thickness will be determined based on AASHTO Section 12 and specific loading conditions. For highway loading, minimum Height of Covers are 300mm for up to and including 1200mm diameter, 600mm for 2400mm diameter pipes, respectively. Further consideration can be made for pipes exceeding 2400mm diameter.

8.0 DURABILITY

Aluminized Type 2 and Polymer Laminated pipe provides a minimum service life of 75 years in the appropriate environment. ($3.0 \leq \text{pH} \leq 12.0$, $r > 750 \text{ ohm-cm}$) Considering the application for use is pavement surface runoff with select backfill, it is anticipated that a minimum service life of 75 years will be achieved. See CSPI Technical Bulletin #1.