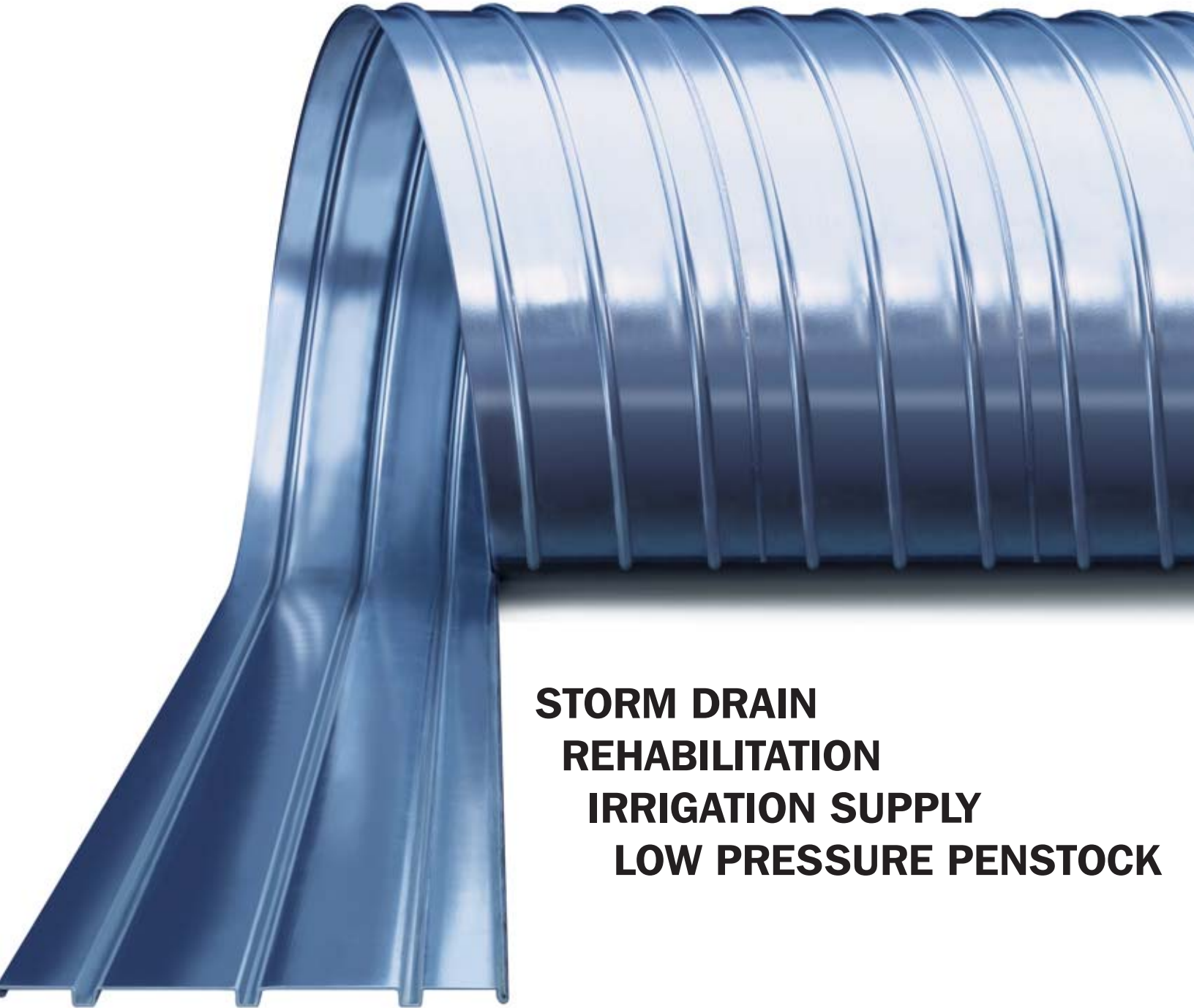




Introducing. . .
SPIRAL RIB PIPE

ECONOMICAL & HYDRAULICALLY EFFICIENT



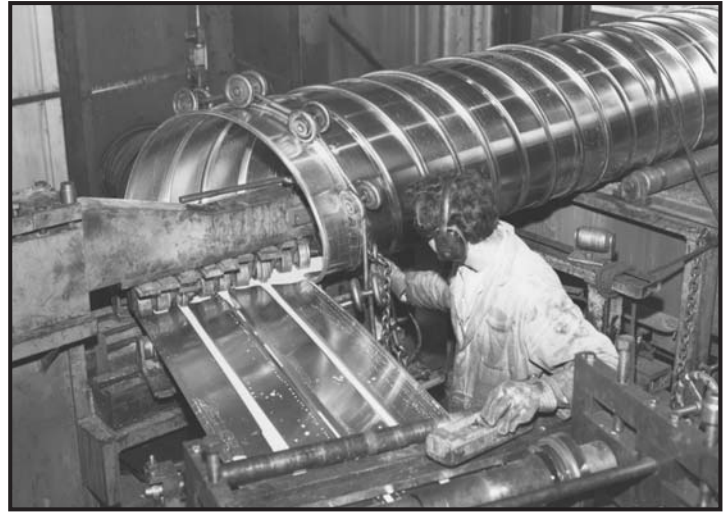
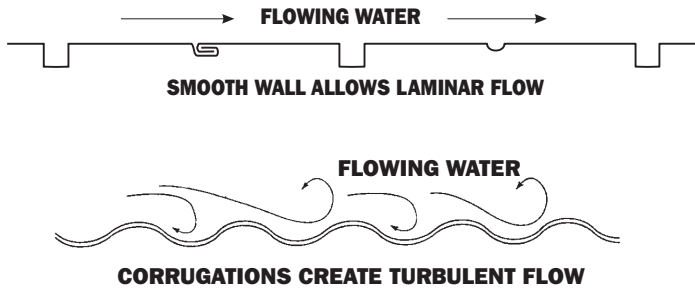
**STORM DRAIN
REHABILITATION
IRRIGATION SUPPLY
LOW PRESSURE PENSTOCK**

By. . .



PACIFIC CORRUGATED PIPE CO.

At last! Hydraulic efficiency in a single component metal pipe. Spiral Rib Pipe, with its rectangular box rib formed on the outside of the pipe barrel, offers minimal flow disruption and exhibits smooth pipe flow characteristics.



Full scale flow tests conducted at Utah State University established spiral rib pipes' hydraulic efficiency. In total, 27 separate tests were conducted on 24 inch and 36 inch pipe at velocities between 4.7 and 16.4 fps. For design purposes, the appropriate Mannings "n" is:

n=0.011

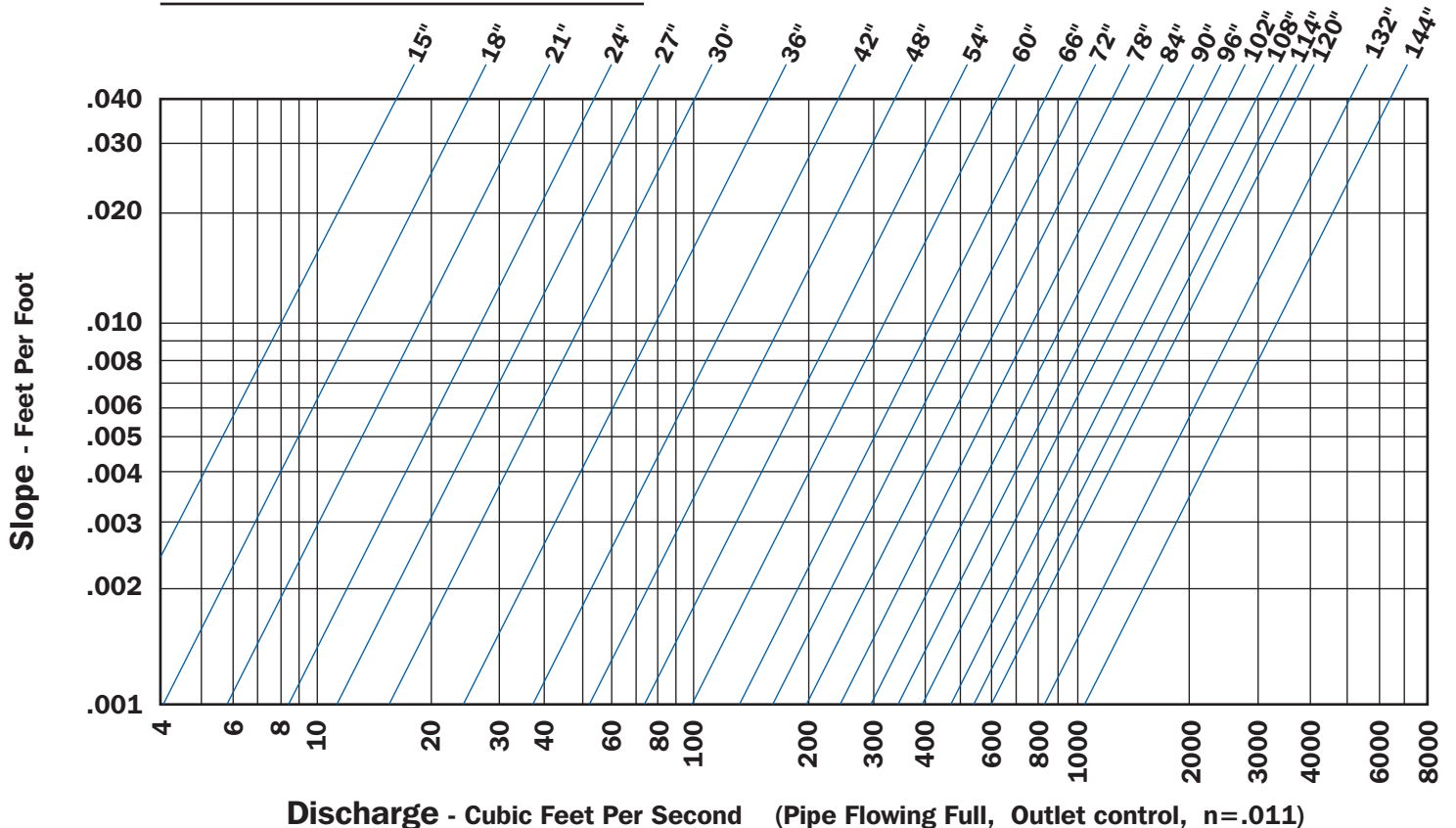
MANNINGS FORMULA

$$V = \frac{0.590}{n} D^{2/3} S^{1/2} \quad Q = \frac{0.463}{n} D^{8/3} S^{1/2}$$

Manning's "n" From flow Tests		
Diameter		
24"	.01020	.01060
36"	.01080
36" *	.00987

* Ribs filled flush

Spiral Rib Pipe Flow Rates





HEIGHT OF COVER TABLE

STEEL SPIRAL RIB PIPE (SRP) GALVANIZED OR ALUMINIZED TYPE II

3/4" x 1" RIBS @ 11 1/2" O.C.

HS20 OR HS25 LIVE LOAD

Notes:

1. Minimum cover is measured from top of pipe to bottom of flexible pavement or top of rigid pavement - minimum cover on unpaved roadways must be maintained. For temporary construction vehicle loads (100 kips/axle load) place at least 4' of compacted cover over top of pipe.
2. TYPE I installations are allowed unless otherwise shown.
3. () Requires a TYPE II or TYPE III installation.
4. [] Requires a TYPE III installation.
5. Although common sizes are shown, SRP is available in larger, smaller, and intermediate sizes, and in other configurations to meet specific project requirements. Please inquire.

* Based on ASTM A 796 design procedure.

DIAMETER ⁵ (inches)	MINIMUM ¹ COVER (inches)	MAXIMUM COVER (ft)* FOR SPECIFIED THICKNESS - inch (gauge)		
		0.064 (16)	0.079 (14)	0.109 (12)
24	12	51	72	121
30	12	41	58	97
36	12	34	48	81
42	12	29	41	69
48	12	26	36	61
54	18	23	32	54
60	18	(21)	29	49
66	18	[19]	26	44
72	18		(24)	40
78	24		[22]	37
84	24		[21]	(35)
90	24			(32)
96	24			[30]
102	30			[29]
108	30			[27]

BACKFILL AND INSTALLATION:

Correct backfill material, proper placement and compaction are key factors in obtaining satisfactory installation.

Minimum pipe metal thickness (gauge) is dependent upon minimum and maximum cover and installation conditions per TYPE I, TYPE II or TYPE III as noted herein. Backfill in the pipe envelope shall be granular materials with little or no plasticity; free from rocks, frozen lumps and foreign matter that could cause hard spots or that could decompose and create voids; compacted to a minimum 90% standard density per ASTM D698 (AASHTO T99).

INSTALLATION TYPES:

TYPE I: Installation can be in an embankment or fill condition. Installations shall meet ASTM A798 (steel) requirements. ML and CL materials are typically not recommended. Compaction equipment or methods that cause excessive deflection, distortion or damage shall not be used.

TYPE II: Installations require trench-like conditions where compaction is obtained by hand or walk-behind equipment, or by saturation and vibration. Backfill materials are the same as for TYPE I installations. Special attention should be paid to proper lift

thickness. Controlled moisture content and uniform gradation of backfill may be required to limit the compactive effort while maintaining pipe shape.

TYPE III: Installations have the same requirements as TYPE II installations except that backfill materials are limited to clean, non-plastic materials that require little or no compactive effort (GP,SP), or to well graded granular materials classified as GW, SW, GM, SM, GC, or SC with a maximum plastic index (PI) of 10. Maximum loose lift thickness shall be 8". Special attention to moisture content to limit compactive effort may be required. Soil cement or cement slurries may be used in lieu of the selected granular materials.

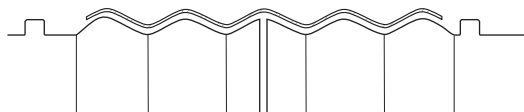
INSTALLATION MONITORING:

Simple shape monitoring (measuring the rise and span at several points along the installation) is recommended as good practice with all types of installation. It provides a good check on proper backfill placement and compaction methods. Use soil placement and compaction methods that will ensure that the vertical pipe dimension (rise) does not decrease in excess of 5% of nominal diameter. Use methods that will ensure that the horizontal pipe dimension (span) does not increase in excess of 3% of nominal diameter. These guidelines will help ensure that the final deflections are within normal limits.

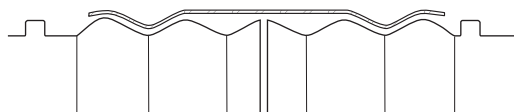
JOINT CONNECTIONS



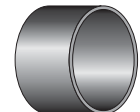
STANDARD COUPLING BANDS - FOR RE-CORRUGATED PIPE ENDS



**FULLY CORRUGATED
ANNULAR BAND**



**PARTIALLY CORRUGATED
ANNULAR BAND**



**NEOPRENE
SLEEVE GASKET**
(When required)

NOTE: Gaskets for these couplers are available in a wide variety of thicknesses, widths, and material compositions.

IMPORTANT FEATURES & ECONOMIES



HYDRAULICALLY EFFICIENT: With a proven Mannings "n" of **0.011**, Spiral Rib Pipe (SRP) can be specified on an equal or smaller diameter basis than reinforced concrete or other smooth wall pipe products.

LIGHT WEIGHT: SRP is ten to twenty times lighter than concrete pipe. This translates to lower installation cost since SRP can be handled and installed with smaller, less expensive equipment.

AVAILABLE SIZES: SRP can be manufactured to the nearest diameter inch of design requirement. This means that upsizing to the next standard size is not required.

JOINT CONNECTIONS: SRP is available in a variety of joint connections to meet specific project requirements. Hat, fully corrugated, partially corrugated, and internal band couplers, with or without gaskets, are available for gravity systems. For low head penstocks and siphons, bolted angle flange joints with rubber gaskets are recommended.

REDUCED EXCAVATION: SRP wall thickness does not increase with diameter as with other pipe products. Trenches for SRP can be as much as 24" less in width and 12" less in depth than those required for concrete pipe. Less excavation means less installation cost and less capital investment. SRP offers more flow than most other pipe products with the same outside diameter.

FAST INSTALLATION: SRP typically installs faster than alternative materials, minimizing public inconvenience and construction hazards.

LONG LAY LENGTHS: SRP is typically furnished in 20' or 30' lengths. In special situations, even longer lengths are available. Long lengths mean lower installation cost since there are fewer joints to assemble and fewer pieces to handle and install.

FLEXIBILITY: SRP can often be installed in existing canals without re-excavation or re-alignment. Its flexibility allows for curved alignment and often reduces or eliminates the need for fabricated bends. Factory pre-bending is also available.

STRUCTURES: A wide variety of factory fabricated structures including tees, wyes, elbows, and manhole risers, are readily available. Factory fittings eliminate the need for more costly and time consuming concrete structures. Factory fittings also allow backfill completion as pipe is laid.

SUMMARY: *Hydraulically efficient, lightweight, easy to handle and install, specific diameters, long laying lengths, AND low pipe costs...are all features that make it easy to understand why SRP is so popular with engineers and developers on storm drain and flood control projects.*

SAVE WITH SPIRAL RIB PIPE ON YOUR NEXT PROJECT!



*The information in this brochure should be checked in detail by the professional engineer responsible for the design to verify its accuracy. Also, the assumptions and methods used to obtain the information should be reviewed to make certain that they are applicable and suitable for the design. U.S. Patent No.'s 4,838,317 and 5,316,606. Other U.S. and Foreign Patents Pending.



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