

# Inversion & Pull-In-Place Liner

## LINER DESIGN

- Liner undersized <10% depending on application.
- Liner features a welded or stitched seam. Stitched liners only available up to 24in diameter.
- Liner can negotiate pipe bends up to 45°
- General sizing listed above; other custom sizes available.

## TEST SPECIFICATIONS

### Roll

- Density and density distribution at various applied pressures.
  - Test: Compression measured at increasing pressure.
  - Standard: ASTM D5199
- Load at break in machine and cross directions.
  - Test: Tensile testing - Maximum Resistive Force.
  - Standard: ASTM D5035
- Secant Modulus in machine and cross directions (resistance to stretch)
  - Test: Tensile testing - Maximum Resistive Force vs Extension %.
  - Standard: ASTM D5035
- Coating adhesion and ability to weld.
  - Test: Peel strength of welded tape.
  - Standard: ASTM D903

### Liner

- Density, Gauge of liner under various applied pressures.
  - Test: Compression test of sample of all layers.
  - Standard: ASTM D1777
- Felt weld strengths.
  - Test: Each weld is sampled and destructively tested.
  - Standard: ASTM D5035
- Sealing tape weld strengths.
  - Test: Each weld is sampled and destructively tested.
  - Standard: ASTM D5035

*Note: Liners are manufactured to internal standard or customer specifications. All liners are tested to the requirements declared above and adhere to the declared ASTM standards. Test data is available upon request.*

## Polyester Felt Liner for CIPP Pipe Rehabilitation

### DESCRIPTION

Coated polyester felt liner custom sized for pipe rehabilitation conforming to ASTM F1216 and ASTM F1743. To accommodate the requirement for liners of varying thicknesses, multiple layers of polyester felt are employed. United Felts is certified under the current ISO 9001 Quality Standard.

### DIAMETER RANGE

- Hot Cure Inversion: 6 to 120 inch
- Hot Cure Drag-In: 6 to 72 inch

### THICKNESS

- Hot Cure Inversion: 3mm to 80mm
- Hot Cure Drag-In: 4mm to 60mm

### LENGTH

- Hot Cure Inversion: Any
- Hot Cure Drag-In: Up to 300 ft

### COATING TYPE

Polyurethane or Polypropylene

### COATING WEIGHT

Variable 300GSM - 600GSM

### INSTALLATION METHODS

#### Epoxy — Hot Water

- Hot Cure Inversion — PU
- Hot Cure Inversion — PP
- Hot Cure Drag-In — PU
- Hot Cure Drag-In — PP

#### Epoxy — Steam

- Hot Cure Inversion — PP
- Hot Cure Drag-In — PP

#### Polyester — Hot Water

- Hot Cure Inversion — PU
- Hot Cure Inversion — PP
- Hot Cure Drag-In — PU
- Hot Cure Drag-In — PP

#### Polyester — Steam

- Hot Cure Inversion — PU
- Hot Cure Inversion — PP
- Hot Cure Drag-In — PU
- Hot Cure Drag-In — PP

#### VE — Hot Water

- Hot Cure Inversion — PU
- Hot Cure Inversion — PP
- Hot Cure Drag-In — PU
- Hot Cure Drag-In — PP

#### VE — Steam

- Hot Cure Inversion — PU
- Hot Cure Inversion — PP
- Hot Cure Drag-In — PU
- Hot Cure Drag-In — PP

## RECOMMENDED INVERSION AND HEAD CURING CHART

### Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
6	4.5	23.4	10.2	18.0	7.8	26.2	11.4	30.0	13.0
6	5.5	28.6	12.4	21.9	9.5	32.0	13.9	36.7	15.9
6	6	31.2	13.6	23.9	10.4	34.9	15.2	40.0	17.4
8	4.5	16.8	7.3	12.8	5.6	19.7	8.5	22.5	9.8
8	5.5	20.5	8.9	15.7	6.8	24.0	10.4	27.5	11.9
8	6	22.3	9.7	17.1	7.4	26.2	11.4	30.0	13.0
8	7.5	27.9	12.1	21.4	9.3	32.8	14.2	37.5	16.3
10	4.5	13.0	5.7	10.0	4.3	15.7	6.8	18.0	7.8
10	5.5	15.9	6.9	12.2	5.3	19.2	8.3	22.0	9.6
10	6	17.4	7.5	13.3	5.8	21.0	9.1	24.0	10.4
10	7.5	21.7	9.4	16.6	7.2	26.2	11.4	30.0	13.0
10	9	26.1	11.3	20.0	8.7	31.5	13.7	36.0	15.6
12	6	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
12	6.5	14.1	6.1	10.8	4.7	18.9	8.2	21.7	9.4
12	7	15.2	6.6	11.7	5.1	20.4	8.9	23.3	10.1
12	7.5	16.3	7.1	12.5	5.4	21.8	9.5	25.0	10.9
12	9	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
12	10.5	22.8	9.9	17.5	7.6	30.6	13.3	35.0	15.2
15	6	10.4	4.5	8.0	3.5	14.0	6.1	16.0	7.0
15	7.5	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
15	9	15.7	6.8	12.0	5.2	21.0	9.1	24.0	10.4
15	10.5	18.3	7.9	14.0	6.1	24.5	10.6	28.0	12.2
15	12	20.9	9.1	16.0	7.0	28.0	12.1	32.0	13.9
15	13.5	23.5	10.2	18.0	7.8	31.5	13.7	36.0	15.6
18	6	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
18	7.5	10.9	4.7	8.3	3.6	14.6	6.3	16.7	7.2
18	9	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
18	10.5	15.2	6.6	11.7	5.1	20.4	8.9	23.3	10.1
18	12	17.4	7.6	13.3	5.8	23.3	10.1	26.7	11.6
18	13.5	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
18	15	21.8	9.4	16.7	7.2	29.1	12.6	33.3	14.5
21	6	7.5	3.2	5.7	2.5	10.0	4.3	11.4	5.0
21	7.5	9.3	4.0	7.1	3.1	12.5	5.4	14.3	6.2
21	9	11.2	4.9	8.6	3.7	15.0	6.5	17.1	7.4
21	10.5	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
21	12	14.9	6.5	11.4	5.0	20.0	8.7	22.9	9.9
21	13.5	16.8	7.3	12.9	5.6	22.5	9.8	25.7	11.2
21	15	18.7	8.1	14.3	6.2	25.0	10.8	28.6	12.4
21	16.5	20.5	8.9	15.7	6.8	27.5	11.9	31.4	13.6
21	18	22.4	9.7	17.1	7.4	30.0	13.0	34.3	14.9
21	19.5	24.2	10.5	18.6	8.1	32.5	14.1	37.2	16.1

Height of water column is measured from the spring line of the host pipe.

## RECOMMENDED INVERSION AND HEAD CURING CHART

### Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
24	7.5	8.2	3.5	6.3	2.7	10.9	4.7	12.5	5.4
24	9	9.8	4.3	7.5	3.3	13.1	5.7	15.0	6.5
24	10.5	11.4	5.0	8.8	3.8	15.3	6.6	17.5	7.6
24	12	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
24	13.5	14.7	6.4	11.3	4.9	19.7	8.5	22.5	9.8
24	15	16.3	7.1	12.5	5.4	21.8	9.5	25.0	10.9
24	16.5	18.0	7.8	13.8	6.0	24.0	10.4	27.5	11.9
24	18	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
24	19.5	21.2	9.2	16.3	7.1	28.4	12.3	32.5	14.1
24	21	22.8	9.9	17.5	7.6	30.6	13.3	35.0	15.2
24	22.5	24.5	10.6	18.8	8.1	32.8	14.2	37.5	16.3
27	7.5	7.3	3.1	5.6	2.4	9.7	4.2	11.1	4.8
27	9	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
27	10.5	10.2	4.4	7.8	3.4	13.6	5.9	15.6	6.8
27	12	11.6	5.0	8.9	3.9	15.5	6.7	17.8	7.7
27	13.5	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
27	15	14.5	6.3	11.1	4.8	19.4	8.4	22.2	9.6
27	16.5	16.0	6.9	12.2	5.3	21.4	9.3	24.5	10.6
27	19	18.4	8.0	14.1	6.1	24.6	10.7	28.2	12.2
27	19.5	18.9	8.2	14.5	6.3	25.2	11.0	28.9	12.5
27	21	20.3	8.8	15.6	6.8	27.2	11.8	31.1	13.5
27	22.5	21.8	9.4	16.7	7.2	29.1	12.6	33.3	14.5
27	24	23.2	10.1	17.8	7.7	31.1	13.5	35.6	15.4
30	7.5	6.5	2.8	5.0	2.2	8.7	3.8	10.0	4.3
30	9	7.8	3.4	6.0	2.6	10.5	4.6	12.0	5.2
30	10.5	9.1	4.0	7.0	3.0	12.2	5.3	14.0	6.1
30	12	10.4	4.5	8.0	3.5	14.0	6.1	16.0	6.9
30	13.5	11.8	5.1	9.0	3.9	15.7	6.8	18.0	7.8
30	15	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
30	16.5	14.4	6.2	11.0	4.8	19.2	8.3	22.0	9.6
30	18	15.7	6.8	12.0	5.2	21.0	9.1	24.0	10.4
30	19.5	17.0	7.4	13.0	5.6	22.7	9.9	26.0	11.3
30	21	18.3	7.9	14.0	6.1	24.5	10.6	28.0	12.2
30	22.5	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
30	24	20.9	9.1	16.0	6.9	28.0	12.1	32.0	13.9
30	27	23.5	10.2	18.0	7.8	31.5	13.7	36.0	15.6

Height of water column is measured from the spring line of the host pipe.



## RECOMMENDED INVERSION AND HEAD CURING CHART

### Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
36	10.5	7.6	3.3	5.8	2.5	10.2	4.4	11.7	5.1
36	12	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
36	13.5	9.8	4.3	7.5	3.3	13.1	5.7	15.0	6.5
36	15	10.9	4.7	8.3	3.6	14.6	6.3	16.7	7.2
36	16.5	12.0	5.2	9.2	4.0	16.0	7.0	18.3	8.0
36	18	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
36	19.5	14.1	6.1	10.8	4.7	18.9	8.2	21.7	9.4
36	21	15.2	6.6	11.7	5.1	20.4	8.8	23.3	10.1
36	22.5	16.3	7.1	12.5	5.4	21.8	9.5	25.0	10.9
36	24	17.4	7.6	13.3	5.8	23.3	10.1	26.7	11.6
36	27	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
42	13.5	8.4	3.6	6.4	2.8	11.2	4.9	12.9	5.6
42	15	9.3	4.0	7.1	3.1	12.5	5.4	14.3	6.2
42	16.5	10.3	4.5	7.9	3.4	13.7	6.0	15.7	6.8
42	18	11.2	4.9	8.6	3.7	15.0	6.5	17.1	7.4
42	19.5	12.1	5.3	9.3	4.0	16.2	7.0	18.6	8.1
42	21	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
42	22.5	14.0	6.1	10.7	4.7	18.7	8.1	21.4	9.3
42	24	14.9	6.5	11.4	5.0	20.0	8.7	22.9	9.9
42	27	16.8	7.3	12.9	5.6	22.5	9.8	25.7	11.2
42	28.5	17.7	7.7	13.6	5.9	23.7	10.3	27.2	11.8
48	13.5	7.3	3.2	5.6	2.4	9.8	4.3	11.3	4.9
48	15	8.2	3.5	6.3	2.7	10.9	4.7	12.5	5.4
48	16.5	9.0	3.9	6.9	3.0	12.0	5.2	13.8	6.0
48	18	9.8	4.3	7.5	3.3	13.1	5.7	15.0	6.5
48	19.5	10.6	4.6	8.1	3.5	14.2	6.2	16.3	7.1
48	21	11.4	5.0	8.8	3.8	15.3	6.6	17.5	7.6
48	22.5	12.2	5.3	9.4	4.1	16.4	7.1	18.8	8.1
48	24	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
48	27	14.7	6.4	11.3	4.9	19.7	8.5	22.5	9.8
48	28.5	15.5	6.7	11.9	5.2	20.8	9.0	23.8	10.3
48	30	16.3	7.1	12.5	5.4	21.8	9.5	25.0	10.9
48	33	18.0	7.8	13.8	6.0	24.0	10.4	27.5	11.9
48	36	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
48	42	22.8	9.9	17.5	7.6	30.6	13.3	35.0	15.2

Height of water column is measured from the spring line of the host pipe.



**RECOMMENDED INVERSION AND HEAD CURING CHART**  
**Heat-Welded Seams**

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
54	15	7.3	3.1	5.6	2.4	9.7	4.2	11.1	4.8
54	16.5	8.0	3.5	6.1	2.7	10.7	4.6	12.2	5.3
54	18	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
54	19.5	9.4	4.1	7.2	3.1	12.6	5.5	14.5	6.3
54	21	10.2	4.4	7.8	3.4	13.6	5.9	15.6	6.8
54	22.5	10.9	4.7	8.3	3.6	14.6	6.3	16.7	7.2
54	24	11.6	5.0	8.9	3.9	15.5	6.7	17.8	7.7
54	27	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
54	28.5	13.8	6.0	10.6	4.6	18.4	8.0	21.1	9.2
54	30	14.5	6.3	11.1	4.8	19.4	8.4	22.2	9.6
54	33	16.0	6.9	12.2	5.3	21.4	9.3	24.5	10.6
54	36	17.4	7.6	13.3	5.8	23.3	10.1	26.7	11.6
54	42	20.3	8.8	15.6	6.8	27.2	11.8	31.1	13.5
54	48	23.2	10.1	17.8	7.7	31.1	13.5	35.6	15.4
54	54	26.1	11.3	20.0	8.7	34.9	15.2	40.0	17.4
54	60	29.0	12.6	22.2	9.6	38.8	16.9	44.5	19.3
60	18	7.8	3.4	6.0	2.6	10.5	4.6	12.0	5.2
60	19.5	8.5	3.7	6.5	2.8	11.4	4.9	13.0	5.6
60	21	9.1	4.0	7.0	3.0	12.2	5.3	14.0	6.1
60	22.5	9.8	4.3	7.5	3.3	13.1	5.7	15.0	6.5
60	24	10.4	4.5	8.0	3.5	14.0	6.1	16.0	6.9
60	27	11.8	5.1	9.0	3.9	15.7	6.8	18.0	7.8
60	28.5	12.4	5.4	9.5	4.1	16.6	7.2	19.0	8.2
60	30	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
60	33	14.4	6.2	11.0	4.8	19.2	8.3	22.0	9.6
60	36	15.7	6.8	12.0	5.2	21.0	9.1	24.0	10.4
60	42	18.3	7.9	14.0	6.1	24.5	10.6	28.0	12.2
60	48	20.9	9.1	16.0	6.9	28.0	12.1	32.0	13.9
60	54	23.5	10.2	18.0	7.8	31.5	13.7	36.0	15.6
60	60	26.1	11.3	20.0	8.7	34.9	15.2	40.0	17.4

Height of water column is measured from the spring line of the host pipe.



## RECOMMENDED INVERSION AND HEAD CURING CHART Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
63	18	7.5	3.2	5.7	2.5	10.0	4.3	11.4	5.0
63	19.5	8.1	3.5	6.2	2.7	10.8	4.7	12.4	5.4
63	21	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
63	22.5	9.3	4.0	7.1	3.1	12.5	5.4	14.3	6.2
63	24	9.9	4.3	7.6	3.3	13.3	5.8	15.2	6.6
63	27	11.2	4.9	8.6	3.7	15.0	6.5	17.1	7.4
63	28.5	11.8	5.1	9.1	3.9	15.8	6.9	18.1	7.9
63	30	12.4	5.4	9.5	4.1	16.6	7.2	19.1	8.3
63	33	13.7	5.9	10.5	4.5	18.3	7.9	21.0	9.1
63	36	14.9	6.5	11.4	5.0	20.0	8.7	22.9	9.9
63	42	17.4	7.6	13.3	5.8	23.3	10.1	26.7	11.6
63	48	19.9	8.6	15.2	6.6	26.6	11.6	30.5	13.2
63	54	22.4	9.7	17.1	7.4	30.0	13.0	34.3	14.9
63	60	24.9	10.8	19.1	8.3	33.3	14.4	38.1	16.5
69	18	6.8	3.0	5.2	2.3	9.1	4.0	10.4	4.5
69	19.5	7.4	3.2	5.7	2.5	9.9	4.3	11.3	4.9
69	21	7.9	3.4	6.1	2.6	10.6	4.6	12.2	5.3
69	22.5	8.5	3.7	6.5	2.8	11.4	4.9	13.0	5.7
69	24	9.1	3.9	7.0	3.0	12.2	5.3	13.9	6.0
69	27	10.2	4.4	7.8	3.4	13.7	5.9	15.7	6.8
69	30	11.4	4.9	8.7	3.8	15.2	6.6	17.4	7.6
69	33	12.5	5.4	9.6	4.2	16.7	7.3	19.1	8.3
69	36	13.6	5.9	10.4	4.5	18.2	7.9	20.9	9.1
69	42	15.9	6.9	12.2	5.3	21.3	9.2	24.4	10.6
69	48	18.2	7.9	13.9	6.0	24.3	10.6	27.8	12.1
69	54	20.4	8.9	15.7	6.8	27.4	11.9	31.3	13.6
69	57	21.6	9.4	16.5	7.2	28.9	12.5	33.1	14.3
69	61	23.1	10.0	17.7	7.7	30.9	13.4	35.4	15.4
69	63	23.8	10.3	18.3	7.9	31.9	13.8	36.5	15.9

*Height of water column is measured from the spring line of the host pipe.*



## RECOMMENDED INVERSION AND HEAD CURING CHART

### Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
72	19.5	7.1	3.1	5.4	2.4	9.5	4.1	10.8	4.7
72	21	7.6	3.3	5.8	2.5	10.2	4.4	11.7	5.1
72	22.5	8.2	3.5	6.3	2.7	10.9	4.7	12.5	5.4
72	24	8.7	3.8	6.7	2.9	11.6	5.1	13.3	5.8
72	27	9.8	4.3	7.5	3.3	13.1	5.7	15.0	6.5
72	28.5	10.3	4.5	7.9	3.4	13.8	6.0	15.8	6.9
72	30	10.9	4.7	8.3	3.6	14.6	6.3	16.7	7.2
72	33	12.0	5.2	9.2	4.0	16.0	7.0	18.3	8.0
72	36	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
72	42	15.2	6.6	11.7	5.1	20.4	8.8	23.3	10.1
72	48	17.4	7.6	13.3	5.8	23.3	10.1	26.7	11.6
72	54	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
72	57	20.7	9.0	15.8	6.9	27.7	12.0	31.7	13.7
72	61	22.1	9.6	17.0	7.4	29.6	12.9	33.9	14.7
72	63	22.8	9.9	17.5	7.6	30.6	13.3	35.0	15.2
78	21	7.0	3.1	5.4	2.3	9.4	4.1	10.8	4.7
78	22.5	7.5	3.3	5.8	2.5	10.1	4.4	11.5	5.0
78	24	8.0	3.5	6.2	2.7	10.8	4.7	12.3	5.3
78	27	9.0	3.9	6.9	3.0	12.1	5.3	13.9	6.0
78	28.5	9.5	4.1	7.3	3.2	12.8	5.5	14.6	6.3
78	30	10.0	4.4	7.7	3.3	13.4	5.8	15.4	6.7
78	33	11.0	4.8	8.5	3.7	14.8	6.4	16.9	7.3
78	36	12.1	5.2	9.2	4.0	16.1	7.0	18.5	8.0
78	42	14.1	6.1	10.8	4.7	18.8	8.2	21.5	9.4
78	48	16.1	7.0	12.3	5.3	21.5	9.3	24.6	10.7
78	54	18.1	7.8	13.9	6.0	24.2	10.5	27.7	12.0
78	57	19.1	8.3	14.6	6.3	25.5	11.1	29.2	12.7
78	61	20.4	8.9	15.6	6.8	27.3	11.9	31.3	13.6
78	63	21.1	9.2	16.2	7.0	28.2	12.3	32.3	14.0

*Height of water column is measured from the spring line of the host pipe.*



## RECOMMENDED INVERSION AND HEAD CURING CHART Heat-Welded Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
84	21	6.5	2.8	5.0	2.2	8.7	3.8	10.0	4.3
84	22.5	7.0	3.0	5.4	2.3	9.4	4.1	10.7	4.7
84	24	7.5	3.2	5.7	2.5	10.0	4.3	11.4	5.0
84	27	8.4	3.6	6.4	2.8	11.2	4.9	12.9	5.6
84	28.5	8.9	3.8	6.8	2.9	11.9	5.1	13.6	5.9
84	30	9.3	4.0	7.1	3.1	12.5	5.4	14.3	6.2
84	33	10.3	4.5	7.9	3.4	13.7	6.0	15.7	6.8
84	36	11.2	4.9	8.6	3.7	15.0	6.5	17.1	7.4
84	42	13.1	5.7	10.0	4.3	17.5	7.6	20.0	8.7
84	48	14.9	6.5	11.4	5.0	20.0	8.7	22.9	9.9
84	54	16.8	7.3	12.9	5.6	22.5	9.8	25.7	11.2
84	57	17.7	7.7	13.6	5.9	23.7	10.3	27.2	11.8
84	61	19.0	8.2	14.5	6.3	25.4	11.0	29.1	12.6
84	63	19.6	8.5	15.0	6.5	26.2	11.4	30.0	13.0
84	65	20.2	8.8	15.5	6.7	27.0	11.7	31.0	13.4

*Warranty Disclaimer: The above chart provides the estimated installation and curing pressures of polyester felt inversion liners. Many factors can affect the outcome of a cured-in-place pipe installation. This table assumes proper installation techniques, type of equipment, and resin impregnation of the tube diameter. It is important to note that these and other factors associated with the installation of cured-in-place pipe will vary greatly between installations; each installation is unique. There is no warranty of merchantability or fitness for any particular purpose. Under no circumstances shall Applied Felts Inc., be liable for incidental, punitive special, indirect or consequential damages or for lost profits or labor costs, and in no event shall damages exceed the purchase price paid for the products.*

*Height of water column is measured from the spring line of the host pipe.*



## RECOMMENDED INVERSION AND HEAD CURING CHART

### Stitched Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
6	4.5	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
6	5.5	23.8	10.3	18.9	8.2	41.4	18.0	79.9	34.7
6	6	26.0	11.3	20.7	9.0	45.2	19.6	87.2	37.8
8	4.5	14.6	6.3	11.6	5.0	25.4	11.0	49.0	21.3
8	5.5	17.8	7.7	14.2	6.2	31.1	13.5	59.9	26.0
8	6	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
8	7.5	24.3	10.6	19.4	8.4	42.4	18.4	81.7	35.5
10	4.5	11.7	5.1	9.3	4.0	20.3	8.8	39.2	17.0
10	5.5	14.3	6.2	11.4	4.9	24.9	10.8	47.9	20.8
10	6	15.6	6.8	12.4	5.4	27.1	11.8	52.3	22.7
10	7.5	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
10	9	23.4	10.1	18.6	8.1	40.7	17.7	78.4	34.0
12	6	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
12	6.5	14.1	6.1	11.2	4.9	24.5	10.6	47.2	20.5
12	7	15.1	6.6	12.1	5.2	26.4	11.4	50.8	22.1
12	7.5	16.2	7.0	12.9	5.6	28.2	12.3	54.5	23.6
12	9	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
12	10.5	22.7	9.9	18.1	7.8	39.5	17.2	76.3	33.1
15	6	10.4	4.5	8.3	3.6	18.1	7.8	34.9	15.1
15	7.5	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
15	9	15.6	6.8	12.4	5.4	27.1	11.8	52.3	22.7
15	10.5	18.2	7.9	14.5	6.3	31.6	13.7	61.0	26.5
15	12	20.8	9.0	16.5	7.2	36.2	15.7	69.7	30.3
15	13.5	23.4	10.1	18.6	8.1	40.7	17.7	78.4	34.0
18	6	8.7	3.8	6.9	3.0	15.1	6.5	29.1	12.6
18	7.5	10.8	4.7	8.6	3.7	18.8	8.2	36.3	15.8
18	9	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
18	10.5	15.1	6.6	12.1	5.2	26.4	11.4	50.8	22.1
18	12	17.3	7.5	13.8	6.0	30.1	13.1	58.1	25.2
18	13.5	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
18	15	21.6	9.4	17.2	7.5	37.7	16.3	72.6	31.5
21	6	7.4	3.2	5.9	2.6	12.9	5.6	24.9	10.8
21	7.5	9.3	4.0	7.4	3.2	16.1	7.0	31.1	13.5
21	9	11.1	4.8	8.9	3.8	19.4	8.4	37.4	16.2
21	10.5	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
21	12	14.8	6.4	11.8	5.1	25.8	11.2	49.8	21.6
21	13.5	16.7	7.2	13.3	5.8	29.1	12.6	56.0	24.3

Height of water column is measured from the spring line of the host pipe.



## RECOMMENDED INVERSION AND HEAD CURING CHART

### Stitched Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
21	15	18.5	8.0	14.8	6.4	32.3	14.0	62.3	27.0
21	16.5	20.4	8.9	16.2	7.0	35.5	15.4	68.5	29.7
21	18	22.2	9.7	17.7	7.7	38.7	16.8	74.7	32.4
21	19.5	24.1	10.5	19.2	8.3	42.0	18.2	80.9	35.1
24	7.5	8.1	3.5	6.5	2.8	14.1	6.1	27.2	11.8
24	9	9.7	4.2	7.7	3.4	16.9	7.4	32.7	14.2
24	10.5	11.4	4.9	9.0	3.9	19.8	8.6	38.1	16.6
24	12	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
24	13.5	14.6	6.3	11.6	5.0	25.4	11.0	49.0	21.3
24	15	16.2	7.0	12.9	5.6	28.2	12.3	54.5	23.6
24	16.5	17.8	7.7	14.2	6.2	31.1	13.5	59.9	26.0
24	18	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
24	19.5	21.1	9.2	16.8	7.3	36.7	15.9	70.8	30.7
27	7.5	7.2	3.1	5.7	2.5	12.6	5.4	24.2	10.5
27	9	8.7	3.8	6.9	3.0	15.1	6.5	29.1	12.6
27	10.5	10.1	4.4	8.0	3.5	17.6	7.6	33.9	14.7
27	12	11.5	5.0	9.2	4.0	20.1	8.7	38.7	16.8
27	13.5	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
27	15	14.4	6.3	11.5	5.0	25.1	10.9	48.4	21.0
27	16.5	15.9	6.9	12.6	5.5	27.6	12.0	53.3	23.1
27	19	18.3	7.9	14.5	6.3	31.8	13.8	61.3	26.6
27	19.5	18.7	8.1	14.9	6.5	32.6	14.2	63.0	27.3
27	21	20.2	8.8	16.1	7.0	35.2	15.3	67.8	29.4
27	22.5	21.6	9.4	17.2	7.5	37.7	16.3	72.6	31.5
27	24	23.1	10.0	18.4	8.0	40.2	17.4	77.5	33.6
30	7.5	6.5	2.8	5.2	2.2	11.3	4.9	21.8	9.5
30	9	7.8	3.4	6.2	2.7	13.6	5.9	26.1	11.3
30	10.5	9.1	3.9	7.2	3.1	15.8	6.9	30.5	13.2
30	12	10.4	4.5	8.3	3.6	18.1	7.8	34.9	15.1
30	13.5	11.7	5.1	9.3	4.0	20.3	8.8	39.2	17.0
30	15	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
30	16.5	14.3	6.2	11.4	4.9	24.9	10.8	47.9	20.8
30	18	15.6	6.8	12.4	5.4	27.1	11.8	52.3	22.7
30	19.5	16.9	7.3	13.4	5.8	29.4	12.8	56.7	24.6
30	21	18.2	7.9	14.5	6.3	31.6	13.7	61.0	26.5
30	22.5	19.5	8.4	15.5	6.7	33.9	14.7	65.4	28.4
30	24	20.8	9.0	16.5	7.2	36.2	15.7	69.7	30.3

Height of water column is measured from the spring line of the host pipe.



## RECOMMENDED INVERSION AND HEAD CURING CHART

### Stitched Seams

PIPE DIAMETER (IN)	CIPP TUBE THICKNESS (MM)	IDEAL CURING HEAD		MINIMUM INSTALLATION HEAD		MAXIMUM HOT HEAD		MAXIMUM COLD HEAD	
		(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)	(FT)	(PSI)
36	10.5	7.6	3.3	6.0	2.6	13.2	5.7	25.4	11.0
36	12	8.7	3.8	6.9	3.0	15.1	6.5	29.1	12.6
36	13.5	9.7	4.2	7.7	3.4	16.9	7.4	32.7	14.2
36	15	10.8	4.7	8.6	3.7	18.8	8.2	36.3	15.8
36	16.5	11.9	5.2	9.5	4.1	20.7	9.0	40.0	17.3
36	18	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
36	19.5	14.1	6.1	11.2	4.9	24.5	10.6	47.2	20.5
36	21	15.1	6.6	12.1	5.2	26.4	11.4	50.8	22.1
36	22.5	16.2	7.0	12.9	5.6	28.2	12.3	54.5	23.6
36	24	17.3	7.5	13.8	6.0	30.1	13.1	58.1	25.2
42	13.5	8.3	3.6	6.6	2.9	14.5	6.3	28.0	12.2
42	15	9.3	4.0	7.4	3.2	16.1	7.0	31.1	13.5
42	16.5	10.2	4.4	8.1	3.5	17.8	7.7	34.2	14.9
42	18	11.1	4.8	8.9	3.8	19.4	8.4	37.4	16.2
42	19.5	12.1	5.2	9.6	4.2	21.0	9.1	40.5	17.6
42	21	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9
42	22.5	13.9	6.0	11.1	4.8	24.2	10.5	46.7	20.3
42	24	14.8	6.4	11.8	5.1	25.8	11.2	49.8	21.6
48	13.5	7.3	3.2	5.8	2.5	12.7	5.5	24.5	10.6
48	15	8.1	3.5	6.5	2.8	14.1	6.1	27.2	11.8
48	16.5	8.9	3.9	7.1	3.1	15.5	6.7	30.0	13.0
48	18	9.7	4.2	7.7	3.4	16.9	7.4	32.7	14.2
48	19.5	10.5	4.6	8.4	3.6	18.4	8.0	35.4	15.4
48	21	11.4	4.9	9.0	3.9	19.8	8.6	38.1	16.6
48	22.5	12.2	5.3	9.7	4.2	21.2	9.2	40.9	17.7
48	24	13.0	5.6	10.3	4.5	22.6	9.8	43.6	18.9

*Warranty Disclaimer: The above chart provides the estimated installation and curing pressures of polyester felt inversion liners. Many factors can affect the outcome of a cured-in-place pipe installation. This table assumes proper installation techniques, type of equipment, and resin impregnation of the tube diameter. It is important to note that these and other factors associated with the installation of cured-in-place pipe will vary greatly between installations; each installation is unique. There is no warranty of merchantability or fitness for any particular purpose. Under no circumstances shall United Felts be liable for incidental, punitive special, indirect or consequential damages or for lost profits or labor costs, and in no event shall damages exceed the purchase price paid for the products.*

*Height of water column is measured from the spring line of the host pipe.*

