

ITL Reinforced Concrete Roll®

ITL RCR® At Work

ITL RCR® FOR OHIO CULVERT PIPE REPAIR



QUICK EASY INSTALLATION – FAST RETURN TO SERVICE ITL RCR-7® EXTENDS LIFE OF PIPE WHILE REDUCING FUTURE MAINTENANCE COSTS

In July 2021, along SR 66 near Delphos, Ohio, Meredith Brothers and DOT workers scheduled this 60", 24' long culvert pipe for repair. Made of 8 gauge corrugated galvanized steel multi-plate pipe and installed approximately 30 years ago, it had thinned from years of water and sediment flow. ITL Reinforced Concrete Roll®, (ITL RCR®) was selected to repair, protect and extend the life of the pipe while minimizing disruption to traffic from the adjacent highway during installation.

The ITL RCR-7®, or 7mm thick material is ideal for culvert repairs. One roll of 16'4" x 65' 7" was pre-cut to 4' x 6' sheets and Hilti-fastened every 6" along the inside top edges and end of the pipe. Sheets down the length of the pipe were also overlapped by 6" and welded together with a hand-held propane torch. Further adding installation ease as well as pipe strength was ITL RCR's ability to mold well to the pipe corrugations during the hydration process. Tar was applied and sealed the top edges before ITL RCR® was hydrated to start the curing process. As ITL RCR® can be installed and subsequently cured in water, the pipe was returned to service immediately after completion of the installation.

STRONG & VERSATILE

ITL Reinforced Concrete Roll® is a dry powdered cement mix that is needle-punched between two sheets of non-woven polypropylene. When rolled out and hydrated, ITL RCR® takes shape into a durable structure suitable for reinforcement or protective lining.

WHAT OUR CUSTOMER HAD TO SAY:

"We pride ourselves on being solution providers and ITL RCR® was a great solution for the application and ease of installation. It took a half a day to line the 60" pipe. Our customer has indicated they will continue the use of ITL RCR® for future culvert linings."

> Jerry Frantz Technical Sales Manager Meredith Brothers Inc.



U.S. Distribution Centers

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Properties of ITL RCR® - Before Hydra Thickness Mass / Unit Area Tensile Strength Machine Directi Transverse Direction	Roll Width/Length Total Coverage	Imperial 16' 4" x 65' 7" 1,076 ft ²	Metric 5m x 20m 100m	Imperial 16' 4" x 65' 7"	Metric	
Data Properties of ITL RCR® - Before Hydra Thickness	Roll Width/Length Total Coverage	16' 4" x 65' 7" 1,076 ft ²	<u>5m x 20m</u> 100m	16' 4" x 65' 7"	5m v 20m	
Data Properties of ITL RCR® - Before Hydra Thickness - Before Hydra Mass / Unit Area - Machine Direction Tensile Strength Machine Direction Densite - Machine Direction	Total Coverage	1,076 ft ²	100m			
Properties of ITL RCR [®] - Before Hydra Thickness Mass / Unit Area Tensile Strength Machine Directi Transverse Direction	\\/_:	1 700 lbc/roll		1,076 ft ²	100m	
Properties of ITL RCR [®] - Before Hydra Thickness Mass / Unit Area Tensile Strength <u>Machine Directi</u> Transverse Direction	vveignt	1,700 IDS/101	770 kg/roll	2,850 lbs/roll	1,290 kg/roll	
Thickness Mass / Unit Area Tensile Strength Denoite	ation Test Method	Imperial	Metric	Imperial	Metric	
Mass / Unit Area Tensile Strength Machine Directi Transverse Dire	ASTM D5199	0.33 inches	8.45 mm	0.51 inches	13.1 mm	
Tensile Strength <u>Machine Direct</u> Transverse Dire	ASTM D5993	1.5 lb/ft ²	7.31 kg/m²	2.76 lb/ft ²	13.47 kg/m²	
Transverse Dire		217 lbs/inch	38.1 N/m	136 lbs/inch	23.9 N/m	
Densite	ection	102 lbs/inch	17.9 N/m	191 lbs/inch	TD = 33.5 N/m	
Density	ASTM D5993/ ASTM D5199	54 lb/ft ³	865 kg/m³	64.4 lb/ft ³	1031 kg/m³	
Properties of ITL RCR [®] - After Hydratic Specimen Preparation per ASTM D803	on Test Method 30	Imperial	Metric	Imperial	Metric	
24 hour cure		5,303 psi	36 MPa	5,303 psi	36 MPa	
Compressive Strength 7 day cure	ASTM C109	6,823 psi	47 MPa	6,823 psi	47 MPa	
28 day cure		7,222 psi	50 MPa	7,222 psi	50 MPa	
Thickness	ASTM D5199	0.37 inches	9.3 mm	0.54 inches	13.6 mm	
Flexural Strength Machine Direct		5.31 lb/in	930 N/m	13.6 lb/in	2373 N/m	
Initial Breaking Load Transverse Dire	ection	3.6 lb/in	630 N/m	14.3 lb/in	2497 N/m	
Puncture Resistance	ASTM D5494	2,366 lbs	10.5 kN	3,782 lbs	16,8 kN	
Freeze-Thaw Machine Direct	ion ASTM C1195	4.1 lb/in	717 N/m	13.3 lb/in	2323 N/m	
Initial Breaking Load Transverse Dire	ection	5.4lb/in	936 N/m	13.7 lb/in	2400 N/m	
Tensile Strength - Final	ASTM D4885	258 lbs/in	36,539.6 kN/m	264 lbs/in	38,332.3 kN/m	
Permeability	A STM D5887	5.25E-09 ft3/ft2/sec	1.60E-09 m ³ /m ² /sec	m ² /sed Testing only performed on PCP 7		
Fernieability	A31M D5667	3.20E-11 ft/sec	9.74E-12 m/sec	resuring only performed off (CR-7		
Abrasion Resistance - per 1,000 cycles	ASTM C8329	Refer to RCR-	12 testing values	0.014 in	0.36 mm	
Large-Scale Channel Testing	ASTM D6460	Refer to RCR-12 testing values		0.022 Manning's <i>n</i>		
Reaction to Fire	PN EN 12/67·5 6	PN EN 12/67:5.6 Refer to RCR-12 testing values		B s1 d0		
ITL RCR® Certifications		Test Method		Accentance Number		
	Acceptance of Ela	Accentance of Elame-Resistant Solid Products Taken into			Acceptance Number	
IMine Satety and Health Administration	/ tooptarioe of fild	Mines			MSHA IC-375/02	
Compressive Strength 7 day cure 7 day cure 28 day cure Thickness 7 Flexural Strength Machine Directi Initial Breaking Load Transverse Direction Puncture Resistance Freeze-Thaw Machine Direction Machine Direction Initial Breaking Load Transverse Direction Initial Breaking Load Transverse Direction Permeability Machine Direction Abrasion Resistance - per 1,000 cycles Large-Scale Channel Testing Determination by Trapezoidal Channel Reaction to Fire ITL RCR® Certifications Machine Direction	ASTM C109 ASTM D5199 ASTM D8058 ASTM D5494 ASTM D5494 ASTM C1185 ASTM D4885 ASTM D4885 ASTM D5887 ASTM C8329 ASTM C8329 ASTM D6460 PN EN 12467:5.6 Acceptance of Fla	6,823 psi 6,823 psi 7,222 psi 0.37 inches 5.31 lb/in 3.6 lb/in 2,366 lbs 4.1 lb/in 5.4lb/in 5.25E-09 ft³/ft²/sec 3.20E-11 ft/sec Refer to RCR- Mines	47 MPa 50 MPa 9.3 mm 930 N/m 630 N/m 10.5 kN 717 N/m 936 N/m 36,539.6 kN/m 1.60E-09 m ³ /m ² /sec 9.74E-12 m/sec 12 testing values 12 testing values 12 testing values Products Taken into	6,823 psi 6,823 psi 7,222 psi 0.54 inches 13.6 lb/in 14.3 lb/in 3,782 lbs 13.3 lb/in 13.7 lb/in 264 lbs/in Testing only pro- 0.014 in 0.022 l E Accepta MSHA	47 MPa 50 MPa 13.6 mm 2373 N/m 2497 N/m 16,8 kN 2323 N/m 2400 N/m 38,332.3 kN/m 2400 N/m 38,332.3 kN/m erformed on RCR-7 0.36 mm Manning's <i>n</i> 4,s1,d0 mce Number A IC-375/02	

Contact us for a free product sample!

Leo Cortez Product Manager Phone: (509) 770-0602 Email: leoc@inlandtarp.com Learn more at itlRCR.com

PREMIUM QUALITY. BUILT TO LAST.

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