CONCAST

CONCAST. CONSTRUCT. CONNECT.

PRECAST CULVERTS & BRIDGE STRUCTURES

DYNAMIC SOLUTIONS: Design to Destination

CONCAST's precast concrete culvert products include: Box Culverts, the CON/SPAN System, and the new Tri Span Culvert. They all provide the quality and durability that precast concrete is known for. Design flexibility, ease of installation and long term cost savings make precast concrete the material of choice for engineers, designers and contractors who value quality. All of CONCAST's culverts are designed and manufactured to the Ontario Provincial Standard Specifications (OPSS) and/or the Canadian Highway Bridge Design Code (CHBDC CAN/CSA S6 06); The Canadian Precast Concrete Quality Assurance Certification (CPCQA) provides the quality assurance for testing and performance. Whatever the application - from wildlife crossings to railway bridges - there is a CONCAST culvert to suit the job.

OPSS 1821 BOX UNITS

Available in (9) nine standard sizes, the OPSS 1821 Box Units can be designed to many applications of varying loading conditions. CONCAST was the first to use a pre-lubricated gasket for the installation of box units, increasing water tightness and reducing installation time.

Custom features available with the OPSS 1821 Box Units include:

- Flush end units
- Beveled end units
- Radius units
- Bends manufactured to various degrees of deflection
- Maintenance hole tees
- Plugs and caps
- Units complete with holes to accomodate branch connections
- Shorter lay lenghts
- Reducers and Increasers
- Cast-in dowels and inserts

IDEAL APPLICATIONS:

- Culverts
- Pedestrian walkways
- Sewers including trunk sewers
- Retention tanks
- Conveyor tunnels
- Storage bins and more...

BOX CULVERT GEOMETRY							DESIGN EARTH COVER (m)	
SPAN	RISE	WALL	TOP/BTM SLAB	HAUNCH	LAY LENGTH	APPROX. MASS (kg)	OPSS 1821	CAN/CSA S6-06*
1800	900	200	200	200	2,438	8,240	0.6 - 5.5	Less than 0.6
1829	1219	203	203	203	2,438	8,996	0.6 - 5.5	Less than 0.6
2438	1219	203	203	203	2,438	11,118	0.6 - 3.6	Less than 0.6
2438	1524	203	203	203	2,438	11,873	0.6 - 3.6	Less than 0.6
2438	1829	203	203	203	2,438	12,604	0.6 - 3.6	Less than 0.6
3048	1524	254	254	254	2,438	16,724	0.6 - 3.6	Less than 0.6
3048	1829	254	254	254	2,438	17,675	0.6 - 3.6	Less than 0.6
3048	2134	254	254	254	2,438	18,602	0.6 - 3.6	Less than 0.6
3048	2438	254	254	254	2,438	19,553	0.6 - 3.6	Less than 0.6

* Canada Highway Bridge Design Code




Non-standard sizes

Does your job require specifications other than our standard OPSS 1821 sizes? If so, custom solutions for box units are available. Contact one of our Sales Representatives or Project Engineers to discover the possibilities.

Concrete box units are available in various combinations of span, rise & wall thickness to suit any application. Modular formwork permites infinite combinations of size. The standard lay length for all box sizes is 2.44m, but short lengths are available to meet the project requirements, or weight restrictions.

Each precast section can be supplied with a shiplap joint to be filled with a mastic or mortar.

IDEAL APPLICATIONS:

- Single or multi-cell culverts
- Storm and sanitary gravity sewer systems
- Underground storage tanks
- Utility corridors
- Conveyor tunnels
- Pedestrian or wildlife crossings

CON/SPAN

This pre engineered precast arch system provides efficient set in place construction of small bridges, culverts, underground containment, and a wide range of other applications. This versatile, precast modular system has a unique arch geometry that is aesthetically attractive. CON/SPAN offers a product span ranging from 3.66 metres to 14.63 metres, with various vertical rises. The precast arch units can be adapted for curved alignments to compliment the natural waterway, or designed in multi span configurations for the larger crossings.

To add to CON/SPAN's versatility, optional components, such as precast footings, headwalls or wingwalls can all be used to complete the entire CON/SPAN System.

IDEAL APPLICATIONS:

- Small bridge construction and replacement
- Roadway, railway, and airport underpasses/ overpasses
- Stream enclosures
- Golf course and pedestrian walkways
- Stormwater retention systems
- Underground vaults
- Wine cellars
- Utility tunnels and portals
- Boat passages

OPTIONAL COMPONENTS:

- Precast wingwalls
- Precast headwalls
- Precast footings

PUT THE ADVANTAGES IN PLACE

- Increased quality control through plant manufacture
- Great aesthetics with a unique arch design
- Long life cycle and virtually no maintenance
- Reduced construction schedules with set in place units
- Architectural facing options available to compliment the landscape

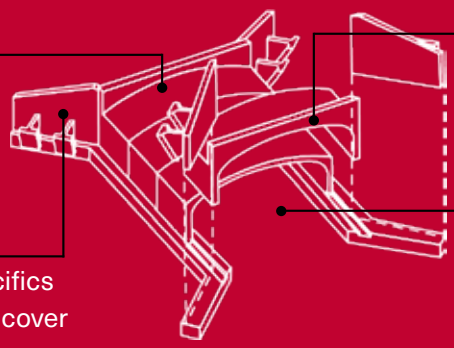
CONNECT WITH THE STRENGTHS

PRECAST ARCH UNITS

- Carries heavy loads at low stress levels
- Reduced initial cost due to economy of materials

PRECAST WINGWALLS

- Geometric flexibilty to fit site specifics
- Allows for immediate backfill and cover



PRECAST HEADWALLS

- Accomodates traffic barriers or pedestrian railings
- Integral or detached units

FULLY ENGINEERED SYSTEM

- Designed in accordance with CHBDC and local design specifications
- Optional precast footingsd/ base slab designs

CON/SPAN SIZES

CON/SPAN SHORT SPAN SERIES

	WATERWAY AREA (m²)		WETTED PERIMETER (m)		CENTRE OF MASS y (mm)	
	SPAN (mm)		SPAN (mm)		SPAN (mm)	
RISE (m)	3660	4270	3660	4270	3660	4270
1.22	3.90	4.35	5.15	5.80	1040	1068
1.83	6.15	6.95	6.40	7.00	1390	1432
2.44	8.35	9.55	7.60	8.20	1742	1796
3.05	10.60	12.15	8.80	9.40	2098	2160

*Note: Wetted Perimeter does not include channel bottom

INTERMEDIATE SPAN SERIES

	WATERWAY AREA (m²)			WETTED PERIMETER (m)			CENTRE OF MASS y (mm)		
	SPAN (mm)			SPAN (mm)			SPAN (mm)		
RISE (m)	4880	6100	7315	4880	6100	7315	4880	6100	7315
1.22	5.11	N/A	N/A	6220	N/A	N/A	N/A	N/A	N/A
1.83	8.10	9.75	11.05	7435	8350	9175	1432	1404	1369
2.44	11.05	13.50	15.50	8655	9570	10395	1843	1816	1804
3.05	14.05	17.20	20.00	N/A	10790	11615	N/A	2217	2217

*Note: Wetted Perimeter does not include channel bottom

CON/SPAN LONG SPAN SERIES

	WATERWAY AREA (m²)			WETTED PERIMETER (m)			CENTRE OF MASS y (mm)		
	SPAN (mm)			SPAN (mm)			SPAN (mm)		
RISE (m)	8535	9755	10975	8535	9755	10975	8535	9755	10975
2.44	18.10	20.05	21.55	15615	16705	18890	1830	1795	1760
3.05	23.30	26.00	28.25	1835	17925	20200	2255	2230	2200
3.66	N/A	31.95	34.95	N/A	19145	21420	N/A	2645	2620

*Note: Wetted Perimeter does not include channel bottom

CON/SPAN EXTENDED SPAN SERIES 14640mm

RISE (m)	WATERWAY AREA (m²)	AREA OF CONCRETE SECTION (m²)	CENTRE OF GRAVITY Y BAR (m)
3.05	35.95	6.54	2.16
3.35	40.41	6.78	2.38
3.66	44.84	7.03	2.59
3.96	49.33	7.28	2.80

TRI-SPAN

These three-sided culverts are the ideal solution for applications that involve streams, creeks or other narrow waterways. Tri-Span geometry incorporates two attractive features for culvert design. First, Tri-Span has no bottom slab. It is specifically designed not to disturb the streambed, thus protecting the aquatic habitat. Second, Tri-Span's flat top design is ideal for low cover applications, where the depth of the road structure is limited. These environmentally friendly culverts are a cost-effective alternative to full bridge construction. Speedy installation and durability over the long run make Tri-Span the ideal option for many projects.

IDEAL APPLICATIONS:

- Small bridge construction and replacement
- Roadway, railway, and airport underpasses/ overpasses
- Stream enclosures
- Golf course and pedestrian walkways
- Stormwater retention systems
- Underground vaults
- Wine cellars
- Utility tunnels and portals
- Boat passages

OPTIONAL COMPONENTS:

- Precast wingwalls
- Precast headwalls
- Precast footings

TRI-SPAN SIZES - SMALL SPAN

S 1829 (6 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	254	254	2.438	2855	6960
1219	254	254	2.438	3239	7896
1524	254	254	2.438	3623	8832
1829	254	254	2.438	4007	9768
2134	254	254	2.438	4391	10705
2438	254	254	2.438	4775	11641

S 3048 (10 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	254	254	2.438	3623	8832
1219	254	254	2.438	4007	9768
1524	254	254	2.438	4391	10705
1829	254	254	2.438	4775	11641
2134	254	254	2.438	5159	12577
2438	254	254	2.438	5543	13513

S 2438 (8 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	254	254	2.438	3239	7896
1067	254	254	2.438	3431	8364
1219	254	254	2.438	3623	8832
1372	254	254	2.438	3815	9300
1524	254	254	2.438	4007	9768
1676	254	254	2.438	4199	10236
1829	254	254	2.438	4391	10705
1981	254	254	2.438	4583	11173
2134	254	254	2.438	4775	11641
2286	254	254	2.438	4967	12109
2438	254	254	2.438	5159	12577

S 3658 (12 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	254	254	2.438	4007	9768
1067	254	254	2.438	4199	10236
1219	254	254	2.438	4391	10705
1372	254	254	2.438	4583	11173
1524	254	254	2.438	4775	11641
1676	254	254	2.438	4967	12109
1829	254	254	2.438	5159	12577
1981	254	254	2.438	5351	13045
2134	254	254	2.438	5543	13513
2286	254	254	2.438	5735	13981
2438	254	254	2.438	5927	14449

TRI-SPAN SIZES - SMALL SPAN CONTINUED

S = 3048 (10 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	4381	10681
1219	305	305	2.438	4842	11805
1524	305	305	2.438	5303	12929
1829	305	305	2.438	5764	14053
2134	305	305	2.438	6225	15177
2438	305	305	2.438	6686	16302

S = 4267 (14 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	5303	12929
1219	305	305	2.438	5764	14053
1524	305	305	2.438	6225	15177
1829	305	305	2.438	6686	16302
2134	305	305	2.438	7148	17426
2438	305	305	2.438	7609	18550

S = 5486 (18 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	6225	15177
1219	305	305	2.438	6686	16302
1524	305	305	2.438	7148	17426
1829	305	305	2.438	7609	18550
2134	305	305	2.438	8070	19674
2438	305	305	2.438	8531	20798

S = 3658 (12 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	4842	11805
1067	305	305	2.438	5073	12367
1219	305	305	2.438	5303	12929
1372	305	305	2.438	5534	13491
1524	305	305	2.438	5764	14053
1676	305	305	2.438	5995	14615
1829	305	305	2.438	6225	15177
1981	305	305	2.438	6456	15739
2134	305	305	2.438	6686	16302
2286	305	305	2.438	6917	16864
2438	305	305	2.438	7148	17426

S = 4877 (16 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	5764	14053
1067	305	305	2.438	5995	14615
1219	305	305	2.438	6225	15177
1372	305	305	2.438	6456	15739
1524	305	305	2.438	6686	16302
1676	305	305	2.438	6917	16864
1829	305	305	2.438	7148	17426
1981	305	305	2.438	7378	17988
2134	305	305	2.438	7609	18550
2286	305	305	2.438	7839	19112
2438	305	305	2.438	8070	19674

S = 6096 (20 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/PC)
914	305	305	2.438	6686	16302
1067	305	305	2.438	6917	16864
1219	305	305	2.438	7148	17426
1372	305	305	2.438	7378	17988
1524	305	305	2.438	7609	18550
1676	305	305	2.438	7839	19112
1829	305	305	2.438	8070	19674
1981	305	305	2.438	8300	20236
2134	305	305	2.438	8531	20798
2286	305	305	2.438	8761	21360
2438	305	305	2.438	8992	21922

TRI-SPAN SIZES - SMALL SPAN CONTINUED

S = 4877 (16 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	6780	16529
1219	356	356	2.438	7318	17841
1524	356	356	2.438	7856	19153
1829	356	356	2.438	8394	20465
2134	356	356	2.438	8932	21777
2438	356	356	2.438	9471	23089

S = 6096 (20 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	7856	19153
1219	356	356	2.438	8394	20465
1524	356	356	2.438	8932	21777
1829	356	356	2.438	9471	23089
2134	356	356	2.438	10009	24401
2438	356	356	2.438	10547	25714

S = 7315 (24 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	8932	21777
1219	356	356	2.438	9471	23089
1524	356	356	2.438	10009	24401
1829	356	356	2.438	10547	25714
2134	356	356	2.438	11085	27026
2438	356	356	2.438	11623	28338

S = 5486 (18 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	7318	17841
1067	356	356	2.438	7587	18497
1219	356	356	2.438	7856	19153
1372	356	356	2.438	8125	19809
1524	356	356	2.438	8394	20465
1676	356	356	2.438	8663	21121
1829	356	356	2.438	8932	21777
1981	356	356	2.438	9201	22433
2134	356	356	2.438	9471	23089
2286	356	356	2.438	9740	23745
2438	356	356	2.438	10009	24401

S = 6706 (22 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	8394	20465
1067	356	356	2.438	8663	21121
1219	356	356	2.438	8932	21777
1372	356	356	2.438	9201	22433
1524	356	356	2.438	9471	23089
1676	356	356	2.438	9740	23745
1829	356	356	2.438	10009	24401
1981	356	356	2.438	10278	25057
2134	356	356	2.438	10547	25714
2286	356	356	2.438	10816	26370
2438	356	356	2.438	11085	27026

S = 7925 (26 feet)

R	ST	WT	L (Max)	MASS (kg/m)	MASS (kg/ PC)
914	356	356	2.438	9471	23089
1067	356	356	2.438	9740	23745
1219	356	356	2.438	10009	24401
1372	356	356	2.438	10278	25057
1524	356	356	2.438	10547	25714
1676	356	356	2.438	10816	26370
1829	356	356	2.438	11085	27026
1981	356	356	2.438	11354	27682
2134	356	356	2.438	11623	28338
2286	356	356	2.438	11892	28994
2438	356	356	2.438	12162	29650

TRI-SPAN SIZES - LARGE SPAN

S 8534 (28 feet)

				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	406	406	2.438	13212	32211
1219	406	406	2.438	13826	33707
1524	406	406	2.438	14440	35204
1829	406	406	2.438	15053	36700
2134	406	406	2.438	15667	38196
2438	406	406	2.286	16281	37218

S 9754 (32 feet)

				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	406	406	2.438	14440	35204
1219	406	406	2.438	15053	36700
1524	406	406	2.438	15667	38196
1829	406	406	2.438	16281	39693
2134	406	406	2.286	16895	38621
2438	406	406	2.286	17508	40024

S 9144 (30 feet)

				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	406	406	2.438	13826	33707
1067	406	406	2.438	14133	34455
1219	406	406	2.438	14440	35204
1372	406	406	2.438	14746	35952
1524	406	406	2.438	15053	36700
1676	406	406	2.438	15360	37448
1829	406	406	2.438	15667	38196
1981	406	406	2.438	15974	38945
2134	406	406	2.438	16281	39693
2286	406	406	2.438	16588	40441
2438	406	406	2.286	16895	38621

S 10363 (34 feet)

				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	406	406	2.438	15053	36700
1067	406	406	2.438	15360	37448
1219	406	406	2.438	15667	38196
1372	406	406	2.438	15974	38945
1524	406	406	2.438	16281	39693
1676	406	406	2.438	16588	40441
1829	406	406	2.286	16895	38621
1981	406	406	2.286	17202	39323
2134	406	406	2.286	17508	40024
2286	406	406	2.286	17815	40726
2438	406	406	2.134	18122	38673

S 10973 (36 feet)

				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	406	406	2.438	15667	38196
1067	406	406	2.438	15974	38945
1219	406	406	2.438	16281	39693
1372	406	406	2.438	16588	40441
1524	406	406	2.286	16895	38621
1676	406	406	2.286	17202	39323
1829	406	406	2.286	17508	40024
1981	406	406	2.286	17815	40726
2134	406	406	2.134	18122	38673
2286	406	406	2.134	18429	39328
2438	406	406	2.134	18736	39983

TRI-SPAN SIZES - LARGE SPAN CONTINUED

S = 11582 (38 feet)					
				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	457	457	2.134	18195	38829
1067	457	457	2.134	18541	39566
1219	457	457	2.134	18886	40303
1372	457	457	1.981	19232	41041
1524	457	457	1.981	19577	38782
1676	457	457	1.981	19923	39467
1829	457	457	1.981	20268	40151
1981	457	457	1.981	20614	40835
2134	457	457	1.829	20959	38334
2286	457	457	1.829	21304	38966
2438	457	457	1.829	21650	39598

S = 12192 (40 feet)					
				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	457	457	2.134	18886	40303
1067	457	457	1.981	19232	41041
1219	457	457	1.981	19577	38782
1372	457	457	1.981	19923	39467
1524	457	457	1.981	20268	40151
1676	457	457	1.981	20614	40835
1829	457	457	1.829	20959	38334
1981	457	457	1.829	21304	38966
2134	457	457	1.829	21650	39598
2286	457	457	1.829	21995	40230
2438	457	457	1.829	22341	40861

TRI-SPAN SIZES - LARGE SPAN CONTINUED

S = 12802 (42 feet)					
				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	508	508	1.829	21672	39638
1067	508	508	1.829	22056	40340
1219	508	508	1.676	22440	37609
1372	508	508	1.676	22824	38253
1524	508	508	1.676	23208	38896
1676	508	508	1.676	23592	39540
1829	508	508	1.676	23976	40183
1981	508	508	1.524	34360	37124
2134	508	508	1.524	24744	37710
2286	508	508	1.524	25128	38295
2438	508	508	1.524	25512	38880

S = 13411 (44 feet)					
				MASS	
R	ST	WT	L (Max)	(kg/m)	(kg/ PC)
914	508	508	1.829	22440	41042
1067	508	508	1.676	22824	38253
1219	508	508	1.676	23208	38896
1372	508	508	1.676	23592	39540
1524	508	508	1.676	23976	40183
1676	508	508	1.676	34360	40827
1829	508	508	1.524	24744	37710
1981	508	508	1.524	25128	38295
2134	508	508	1.524	25512	38880
2286	508	508	1.524	25896	39465
2438	508	508	1.524	26280	40050

Contact us today to find out which solution is best suited for your job.

July 2024

CONCAST

299 BROCK ROAD SOUTH
PUSLINCH, ON N0B 2J0
P: +1 800 668 7473
E: SALES@CONCASTPIPE.COM

CONCASTPIPE.COM