



CONTECH[®]
ENGINEERED SOLUTIONS

HEL-COR[®]
Pipe-Arch

CONTECH[®]
PIPE SOLUTIONS

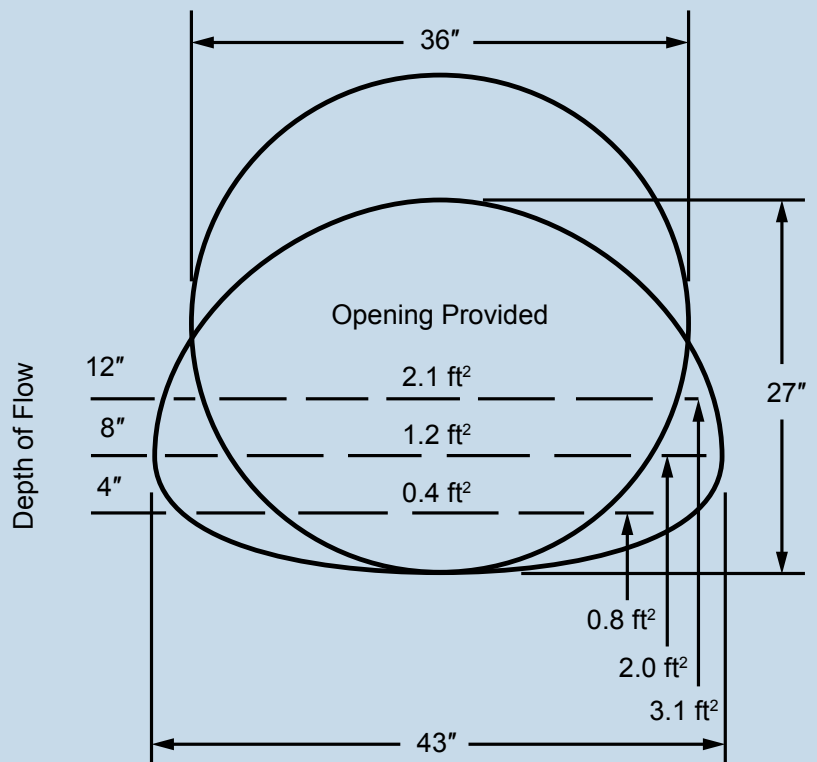
HEL-COR® Pipe-Arch



HEL-COR® Pipe-Arch is a corrugated steel pipe shaped to a span greater than the rise. Pipe-Arch allows for greater flows at lower elevations while providing for a lower profile culvert when soil cover is limited. Pipe-Arch design distributes the area horizontally to provide adequate capacity without raising the grade.

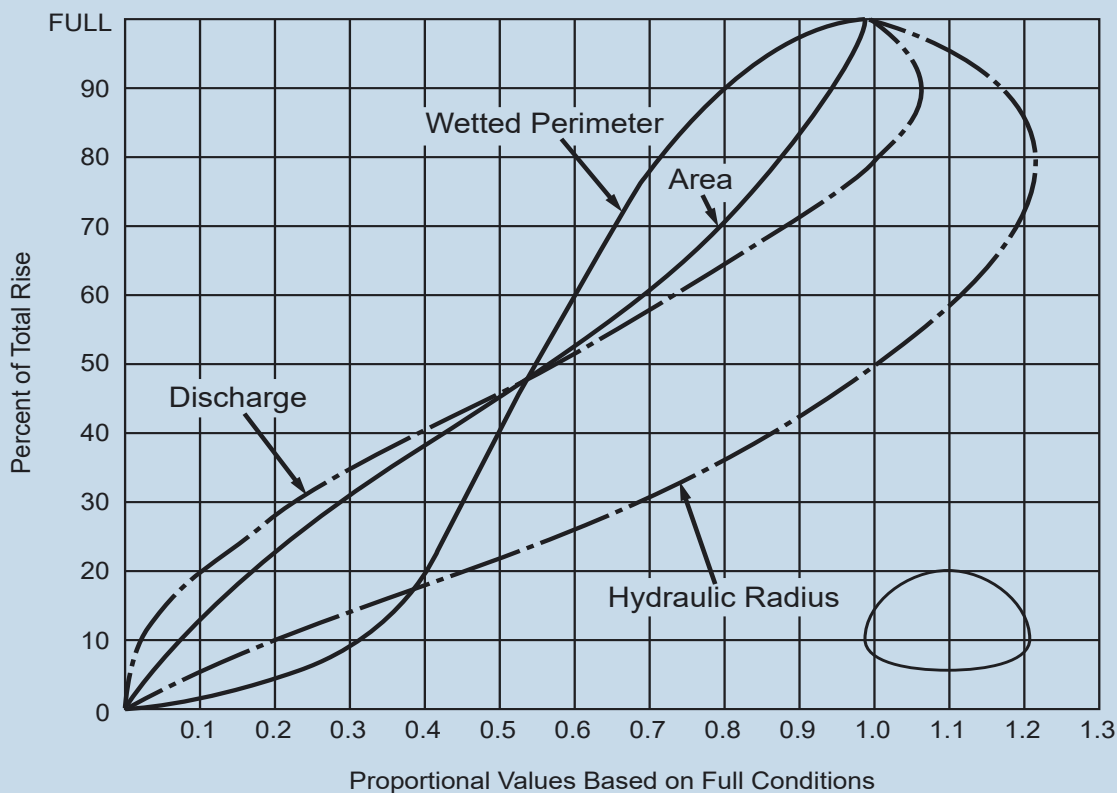
Hydraulic Considerations

At the 12" elevation, a 36-inch diameter corrugated steel pipe-arch equivalent will provide **nearly 1.5 times the water flow** as a 36-inch diameter round pipe.



Full-Flow Data for HEL-COR® Pipe-Arch

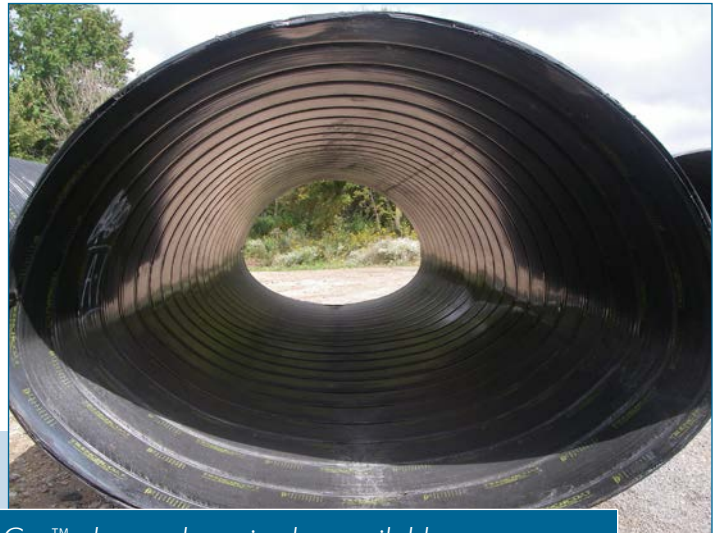
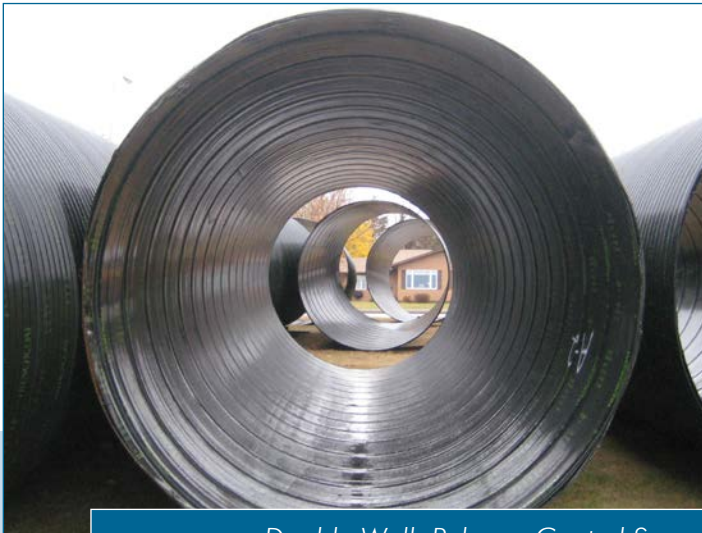
| CORRUGATIONS 2 2/3" X 1/2" | | | | CORRUGATIONS 3" x 1" and 5" x 1" | | | |
|----------------------------|----------------------------|----------------------------------|-----------------------------|----------------------------------|----------------------------|----------------------------------|-----------------------------|
| Diameter (in) | Pipe-Arch Equiv. Size (in) | Waterway Area (ft ²) | Hydraulic Radius, A/πD (ft) | Diameter (in) | Pipe-Arch Equiv. Size (in) | Waterway Area (ft ²) | Hydraulic Radius, A/πD (ft) |
| 15 | 17 x 13 | 1.1 | 0.280 | 54 | 60 x 46 | 15.6 | 1.104 |
| 18 | 21 x 15 | 1.6 | 0.340 | 60 | 66 x 51 | 19.3 | 1.230 |
| 21 | 24 x 18 | 2.2 | 0.400 | 66 | 73 x 55 | 23.2 | 1.343 |
| 24 | 28 x 20 | 2.9 | 0.462 | 72 | 81 x 59 | 27.4 | 1.454 |
| 30 | 35 x 24 | 4.5 | 0.573 | 78 | 87 x 63 | 32.1 | 1.573 |
| 36 | 42 x 29 | 6.5 | 0.690 | 84 | 95 x 67 | 37.0 | 1.683 |
| 42 | 49 x 33 | 8.9 | 0.810 | 90 | 103 x 71 | 42.4 | 1.800 |
| 48 | 57 x 38 | 11.6 | 0.924 | 96 | 112 x 75 | 48.0 | 1.911 |
| 54 | 64 x 43 | 14.7 | 1.040 | 102 | 117 x 79 | 54.2 | 2.031 |
| 60 | 71 x 47 | 18.1 | 1.153 | 108 | 128 x 83 | 60.5 | 2.141 |
| 66 | 77 x 52 | 21.9 | 1.268 | 114 | 137 x 87 | 67.4 | 2.259 |
| 72 | 83 x 57 | 26.0 | 1.380 | 120 | 142 x 91 | 74.5 | 2.373 |



HEL-COR® Pipe-Arch

Product Availability

From a 17" span X 13" rise to 142" span X 91" rise, HEL-COR® Pipe-Arch is available in galvanized steel, aluminized steel, polymer-coated steel, bituminous-coated steel and aluminum alloy.



Double Wall, Polymer-Coated Smooth Cor™ shown above is also available in both round and pipe-arch shapes.

Applications

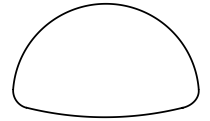
- Drainage culverts, canals, and ditch enclosures
- Storm sewers and drainage pipe
- Stormwater detention and infiltration
- Rehabilitating storm sewers, irrigation pipe and small culverts
- Small span bridges



Large diameter Pipe-Arch manufactured in a chain arch press.

Heights of Cover for HEL-COR® Pipe-Arch

| H 20 and H 25 Live Loads for 2 2/3" x 1/2" Pipe-Arch | | | | | |
|------------------------------------------------------|------------------|--|-------------------|--------------------|----------------------------------------------------------------------|
| Diameter (in) | Size | | Minimum Gage (in) | Minimum Cover (in) | Maximum Cover (ft) 2 Tons/ft ² Corner Bearing Pressure |
| | Span x Rise (in) | | | | |
| 15 | 17 x 13 | | 0.064 | 12 | 16 |
| 18 | 21 x 15 | | 0.064 | 12 | 15 |
| 21 | 24 x 18 | | 0.064 | 12 | 15 |
| 24 | 28 x 20 | | 0.064 | 12 | 15 |
| 30 | 35 x 24 | | 0.064 | 12 | 15 |
| 36 | 42 x 29 | | 0.064 | 12 | 15 |
| 42 | 49 x 33 | | 0.064* | 12 | 15 |
| 48 | 57 x 38 | | 0.064* | 12 | 15 |
| 54 | 64 x 43 | | 0.079* | 12 | 15 |
| 60 | 71 x 47 | | 0.109* | 12 | 15 |
| 66 | 77 x 52 | | 0.109* | 12 | 15 |
| 72 | 83 x 57 | | 0.138* | 12 | 15 |



* These values are based on the AISI Flexibility Factor limit (0.0433 x 1.5) for pipe-arch.

| H 20 and H 25 Live Loads for 3" x 1" Pipe-Arch | | | | | |
|------------------------------------------------|----------------|----------------|-------------------|--------------------|----------------------------------------------------------------------|
| Diameter (in) | Size | | Minimum Gage (in) | Minimum Cover (in) | Maximum Cover (ft) 2 Tons/ft ² Corner Bearing Pressure |
| | Min. Span (in) | Max. Rise (in) | | | |
| 48 | 53 (-2.4) | 41 (+2.4) | 0.079 | 12 | 25 |
| 54 | 60 (-2.7) | 46 (+2.7) | 0.079 | 15 | 25 |
| 60 | 66 (-3.0) | 51 (+3.0) | 0.079 | 15 | 25 |
| 66 | 73 (-3.3) | 55 (+3.3) | 0.079 | 18 | 24 |
| 72 | 81 (-3.6) | 59 (+3.6) | 0.079 | 18 | 21 |
| 78 | 87 (-4.4) | 63 (+4.4) | 0.079 | 18 | 20 |
| 84 | 95 (-4.8) | 67 (+4.8) | 0.079 | 18 | 20 |
| 90 | 103 (-5.2) | 71 (+5.2) | 0.079 | 18 | 20 |
| 96 | 112 (-5.6) | 75 (+5.6) | 0.079 | 21 | 20 |
| 102 | 117 (-5.9) | 79 (+5.9) | 0.109 | 21 | 19 |
| 108 | 128 (-6.4) | 83 (+6.4) | 0.109 | 24 | 19 |
| 114 | 137 (-6.9) | 87 (+6.9) | 0.109 | 24 | 19 |

| H 20 and H 25 Live Loads for 5" x 1" Pipe-Arch | | | | | |
|------------------------------------------------|----------------|----------------|-------------------|--------------------|----------------------------------------------------------------------|
| Diameter (in) | Size | | Minimum Gage (in) | Minimum Cover (in) | Maximum Cover (ft) 2 Tons/ft ² Corner Bearing Pressure |
| | Min. Span (in) | Max. Rise (in) | | | |
| 54 | 60 (-2.7) | 46 (+2.7) | 0.109 | 18 | 21 |
| 60 | 66 (-3.0) | 51 (+3.0) | 0.109 | 18 | 21 |
| 66 | 73 (-3.3) | 55 (+3.3) | 0.109 | 18 | 21 |
| 72 | 81 (-3.6) | 59 (+3.6) | 0.109 | 18 | 21 |
| 78 | 87 (-4.4) | 63 (+4.4) | 0.109 | 18 | 20 |
| 84 | 95 (-4.8) | 67 (+4.8) | 0.109 | 18 | 20 |
| 90 | 103 (-5.2) | 71 (+5.2) | 0.109 | 18 | 20 |
| 96 | 112 (-5.6) | 75 (+5.6) | 0.109 | 21 | 20 |
| 102 | 117 (-5.9) | 79 (+5.9) | 0.109 | 21 | 19 |
| 108 | 128 (-6.4) | 83 (+6.4) | 0.109 | 24 | 19 |
| 114 | 137 (-6.9) | 87 (+6.9) | 0.109 | 24 | 19 |
| 120 | 142 (-7.1) | 91 (+7.1) | 0.138 | 24 | 19 |

Larger sizes are available in some areas of the United States. Check with your local Contech representative. Negative and positive numbers listed with span and rise dimensions are negative and positive tolerances, no tolerance in opposite direction.

HEL-COR® Pipe-Arch

End Treatments Available



A 64' long piece of HEL-COR® Pipe-Arch with beveled ends ready to ship to the project site. Check your local Contech representative for availability of special lengths.

Steel headwalls can improve the hydraulic capacity of Pipe-Arch culverts.



THE CONTECH ADVANTAGE

For more than a century, Contech has provided innovative, cost-effective site solutions to engineers, contractors, and developers on projects across North America. With a portfolio that includes bridges, drainage, erosion control, retaining wall, sanitary sewer and stormwater management products, our team is ready to help you to design, build, and support your next project.

Supporting every aspect of your project, from concept to installation, Contech is here to help! Our extensive network of local experts offers you comprehensive project management, technical support, and customer service.



AGENCY/REGULATORY GUIDANCE

Our team is ready to provide you with expert advice and assistance on local regulatory requirements, resulting in faster approvals.



SOLUTION DEVELOPMENT

Our engineers can review your requirements, weigh all options, and recommend the optimal solution to integrate with your site designs.



TECHNICAL EXPERTISE

Our engineers assist by providing product-specific engineering calculations such as hydraulics, buoyancy, foundation reactions, and unit sizing.



COST ESTIMATES

We can quickly provide engineer's cost estimates to assist with your solution selection process.



SITE SPECIFIC DRAWINGS

Our engineers can provide site-specific drawings for proposals, project meetings, and submittals, helping you be more efficient with your time.



ON-SITE ASSISTANCE

Contractors know time is money, so we provide preconstruction meetings, delivery coordination, and on-site installation support to ensure a timely, smooth installation.



Contech® Engineered Solutions provides innovative, cost-effective site solutions to engineers, contractors and developers on projects across North America. Our portfolio includes bridges, drainage, erosion control, retaining wall, sanitary sewer and stormwater management products.



STORMWATER SOLUTIONS



PIPE SOLUTIONS



STRUCTURE SOLUTIONS

FOR MORE INFORMATION CALL:

| | |
|--------------------------------------|--------------|
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