
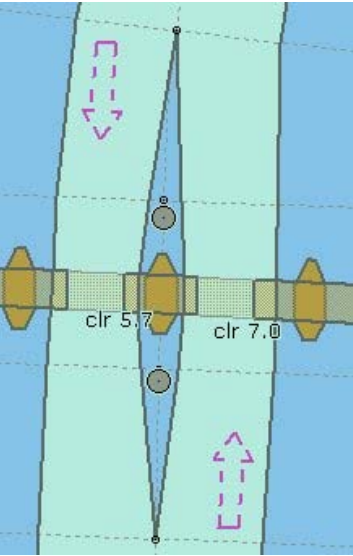


## G.1 Bridges, Tunnels, Overhead Obstructions

### G.1.2 Bridges with Bridge Arches (M)

A Bridge which has bridge arches rather than straight construction.

Graphics	Encoding Instructions	Object Encoding
<p><i>Real World</i></p>  <p><i>IENC Symbolization</i></p> 	<p>A) Pylons shall be encoded as PYLONS (refer to G.1.10 – Pylons, Piers and Bridge, Cable, Pipeline Support)</p> <p>B) The following instructions are only necessary if the available space according to the beam and air-draft of the vessel shall be indicated.</p> <p>This is only possible if arch of the bridge can be separated into different single pieces with known vertical clearances or if the arc is mathematically known.</p> <ul style="list-style-type: none"> <li>-Create several bridge objects for one bridge arch.</li> <li>-The number of the bridge objects depends on the resolution of the different vertical clearances which shall be provided.</li> <li>-The areas must not overlap.</li> </ul> <p>C) Create separate bridge objects for spans over navigable channel when attributes of navigable spans are different (e.g. vertical clearance, horizontal clearance).</p> <p>D) Bridge approaches (over the bankline) should be encoded.</p> <p>E) Use PICREP if available.</p> <p>F) Roads and railways on bridges shall not be encoded.</p> <p>G) Place LIGHTS on navigable span and piers bounding navigable span.</p> <p>H) All objects of a bridge which belong to one bridge must be combined to one aggregation area (C_AGGR), e.g.</p> <ul style="list-style-type: none"> <li>- pylons</li> <li>- notice marks</li> <li>- bridge lights</li> <li>- buoys at bridge pillar</li> <li>- two way route parts</li> </ul>	<p><b>Object Encoding</b></p> <p><b>Object Class = bridge(A)</b></p> <p>(M) CATBRG = [1 (fixed bridge)]</p> <p>(C) HORCLR = [xx.x] (metres), e.g., 34.2</p> <p>(C) VERCLR = [xx.xx] (metres), e.g., 13.27</p> <p>(C) verdat = [12 (Mean lower low water), 31 (Local low water reference level), 32 (Local high water reference level), 33 (Local mean water reference level), 34 (Equivalent height of water (German GIW)), 35 (Highest Shipping Height of Water (German HSW)), 36 (Reference low water level according to Danube Commission), 37 (Highest shipping height of water according to Danube Commission), 38 (Dutch river low water reference level (OLR)), 39 (Russian project water level), 40 (Russian normal backwater level), 41 (Ohio River Datum)]</p> <p>(C) PICREP = (Refer to Section B, General Guidance)</p> <p>(C) unlocd = [ISRS code]</p> <p>(M) wtwdis = [xxxx.xxx] (units defined in hunits), e.g., 2451.732</p> <p>(M) hunits = [3 (kilometres), 4 (hectometres), 5 (statute miles), 6 (nautical miles)]</p> <p>(C) OBJNAM = (Refer to letter I)</p> <p>(C) NOBJNM = (Refer to Section B, General Guidance)</p> <p>(O) CONDTN = [1 (under construction), 2 (ruined), 3 (under reclamation), 5 (planned construction)]</p> <p>(M) SCAMIN = [EU: 90000; US: 300000]</p> <p>(C) SORDAT = [YYYYMMDD]</p> <p>(C) SORIND = (Refer to Section B, General Guidance)</p> <p><b>Object Encoding</b></p> <p><b>Object Class = C_AGGR()</b></p> <p>(M) OBJNAM = [name and/or operator/owner]</p> <p>(O) NOBJNM = (Refer to Section B, General Guidance)</p>

	<ul style="list-style-type: none"> <li>- communication area</li> <li>- fenders</li> <li>- ice breakers</li> <li>- vertical clearance indicators</li> <li>- signal stations</li> <li>- radio call-in points</li> </ul> <p>I) For bridges that consist of only one feature the object name of the bridge is assigned to the bridge object. For bridges with a C_AGGR object the object name has to be assigned to the respective C_AGGR object and not to the bridge object.</p> <p>J) The ISRS code of a bridge is assigned to each single bridge object of the entire bridge (refer to General Guidance section H)</p> <p>K) Use 'verdat' only if vertical datum differs:</p> <ul style="list-style-type: none"> <li>- from DSPM VDAT subfield and</li> <li>- from Meta object 'm_vdat' attribute</li> </ul> <p>L) If a structured external XML-file with more detailed communication information is available, the reference to the file has to be entered in the TXTDSC attribute.</p> <p>M) For Notice marks on bridges see O.3.2</p> <p>N) HORCLR and VERCLR must be encoded for all navigable spans of bridges.</p> <p>O) If there is no vertical clearance indicator at a bridge, but there is a gauge which can be used to calculate the vertical clearance of the bridge depending on the water level, it should be encoded in accordance with I.3.4.</p>	<p>(O) TXTDSC = (Refer to letter L)</p> <p>(C) unlocd = [ISRS code]</p> <p>(C) SORDAT = [YYYYMMDD]</p> <p>(C) SORIND = (Refer to Section B, General Guidance)</p>
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# Bridge Encoding Diagram

