

## The modernisation of the Albert Canal and its bridges

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### Abstract

The 130 km long Albert canal linking Liège with Antwerp in Belgium was built in the years 1930. The growing size of the inland vessels led to the start of a modernisation of the canal. The widening began in the years 1970. Since the years 1980, most of the bridges are being jacked up, or replaced. In the beginning, each new bridge was separately designed, which led to a variety of bridge types and forms. To accelerate the replacement of the bridges, a generic tied-arch bridge has been designed, good for one third of the total number of bridges. This article presents the general overview of the works on the bridges due to the widening of the canal, and the focusses specific on the design of tied-arch bridges, with a special attention of this generic bridge.

**Keywords:** Canal widening, tied arch bridges, stay cable bridges, generic bridges, construction method.

### 1 Introduction

The Albert canal is the main water inland transportation route in Belgium. Due to increase of the traffic, its widening is ongoing. This paper presents the modernisation works (mostly replacement) on some of the more than 70 bridges.

### 2 The Albert canal and its evolutions

The Albert canal makes the connection between the river Meuse in Liège with the port of Antwerp and the river Scheldt over a total length of 129,5 km (Figure 1) [1],[2], [3]. The difference in elevation of 56 metres is overcome with six sets of canal locks (five of them with a lift of 10 metres). The canal is fed with the water of the Meuse.

The canal was built between 1930 and 1939 with as main goal, a shorter and quicker waterway connection between the industrial area of Liège, the coal mines in the province of Limburg and the seaport of Antwerp. The other objectives are the feeding of other connected canals, the supply of

water for industrial use and drinkable water (Antwerp).



Figure 1. Location of the Albert canal

Formerly there were two additional objectives: a canal entirely located in Belgium to avoid passing through the Netherlands and creating a strategic military obstacle alongside the Eastern border of the country.

It was originally built with a standard width of 50 m, for inland ships of 2000 tons (Figure 2).