



Jarama basin  
El Vado reservoir

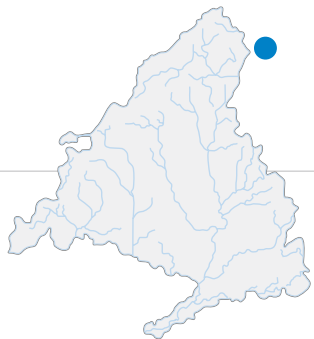
## El Vado reservoir

The El Vado reservoir is located in the upper course of the Jarama river, in the north-western part of the Guadalajara province. This reservoir, together with the La Aceña reservoir, in Ávila, are the only ones outside Madrid province. The Jarama channel starts at its intake tower. The waters of the Sorbe river can then add to it by means of a tunnel channel from the Pozo de los Ramos mill dam.

Construction of the El Vado dam started in 1920 and took forty years for a number of reasons. Although the works were completed in 1954, it did not enter operation until 1960.

The reservoir has two closing elements: the main dam and a saddle dam. The main dam is of gravity type, straight and of triangular profile. After the heightening it has a height of 69 metres, a crest of 178 m and a width of 6.5 m.

The smaller capacity of the reservoir in relation with the river flow means its waters are normally withdrawn during the summer so as to make way for those that will be brought by the rain at the start of the hydrological year, during the autumn months.



Capacity  
**55.7 hm<sup>3</sup>**

Surface  
**260 ha**

Type  
**Straight  
gravity dam**



 [See table of reservoirs](#)

## Reservoir

Capacity:	55.7 hm <sup>3</sup>
Average flow:	188 hm <sup>3</sup> /year
Basin surface:	382 km <sup>2</sup>
Maximum reservoir surface:	260 ha
Length of banks:	32 km
Length of river at the reservoir:	9 km

## Dam

Classification:	type A
Type:	gravity. Straight
Height above foundations:	69 m
Crest length:	178 m
Crest width:	6.5 m
Face slope:	upstream: vertical downstream: 0.78 and 0.88
Volume of masonry:	170,000 m <sup>3</sup>
Galleries:	3 horizontal



## Operating elements

### Spillway

Number of spans:	3 + 3* (saddle dam)
Total length:	27 + 24* m
Operating mechanism:	class: sector gate Stoney gate* height: 5.30 m 5.75 m*
Spilling capacity:	624 m <sup>3</sup> /s

### Outlets

Location:	bottom + intermediate
Number of ducts:	1 + 3**
Operating mechanism:	upstream: gate valves downstream: hollow jet valve 2 gate valves** 1 ring valve **
Dimensions:	125 x 150 cm 120** cm
Total dewatering capacity:	91 m <sup>3</sup> /s*

\* Data for the side saddle dam. \*\* Data for the middle outlet.

## Monitoring elements

- 6 pendulums
- 19 jointmeters
- 10 strain gauges
- 14 pressure gauges
- 2 resistance thermometers
- 34 topographical bases for levelling and collimation
- 13 points of area gauging

## Automated monitoring elements

- Reservoir point gauge
- Thermometer
- Rain gauge
- 4 pendulums
- 2 resistance thermometers
- 14 piezometers
- 13 liquid level gauges

 See tapping PDF

 See tapping video

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