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LimitState:RING idealizes a masonry arch bridge as an assemblage of rigid blocks and uses computational limit analysis methods to directly model the mode of response. The factor that would, when applied to the specified live loads, lead to the ULS (collapse) or PLS (service load limit) states being reached is reported, unless in support movement mode. This factor is termed the Adequacy Factor. When appropriate partial factors are included in the model, the Adequacy Factor should be greater than 1.0 for a safe and serviceable structure, considering the ULS and PLS respectively.

For more information, refer to the LimitState:RING User Manual.

BRIDGE NAME	LOCATION	REFERENCE NO.	MAP REFERENCE
PUENTE DEL HUMILLADERO			
ANALYSIS RESULT			ANALYSIS TYPE
Total work done by moving the supports (J) = 66.75, Scenario 2			Support Movement
			MOSEK

Backfill Basic Properties

UNIT WEIGHT	ANGLE OF FRICTION	COHESION	MODEL LIVE LOAD DISPERSION	MODEL HORIZONTAL PRESSURES	BACKING COMPRESSIVE STRENGTH
18	37.5	0	Yes	Yes	5

Load Cases

NAME	AXLE #	FORCE KN/M2	LOCAL POSITION	WIDTH	CONTACT
PERSONAS	1	10	0	1800	300

Propiedades de los materiales:

Propiedad	Valor
Resistencia a compresión (f_c)	5 N/mm ²
Peso unitario de la mampostería	20 kN/m ³
Coefficiente de fricción radial	0.60
Ancho efectivo de análisis	2,500 mm
Refuerzo habilitado	No

Geometría General

El Puente del Humilladero está compuesto por 12 vanos tipo arco de mampostería (tipología Highway). La estructura presenta dos configuraciones geométricas diferenciadas según la posición y magnitud de sus vanos:

- Vanos 1 a 3 (extremo inicial): Arcos de anillo simple (bonded brick), con luces entre 4.67 m y 6.84 m, y espesores del anillo que varían entre 450 mm y 650 mm.
- Vanos 4 a 11: Arcos de doble anillo (multi-ring, 2 anillos), con luces entre 7.88 m y aproximadamente 11.84 m, y espesores del anillo entre 440 mm y 880 mm.
- Vano 12 (extremo final): Arco carpanel, con espesor de anillo de 880 mm, que representa el vano más robusto de la estructura.

Mode of response at current load case



Mode of response at current load case (Moment)



Mode of response at current load case (shear)

