

MINING

SQUARE ARCHES

V-29 SECTION SHAPE

*Certificate issued by the Central Mining Institute in Katowice
No B/1026/V/2016*

DESCRIPTION

The idea for designing these arches was created thanks to cooperation with the mining industry and is a response to the requirements of a rectangular coal mine to obtain a large width of the excavation.

Square arches consist of elements made of V-29 section shape joined by “overlapping” SD29 or SDO29 clamps.

APPLICATION AND USE

Square arches of V-29 section shape are designed to support mining excavations of square shape.

Arches are used for face installation and for bolting roadways in case of crossing worse geological conditions.

ADVANTAGES

- Arches successfully used for yeas in coal mines
- Suitable for excavations drilled with the continuous mining method
- Enables two-stage excavation

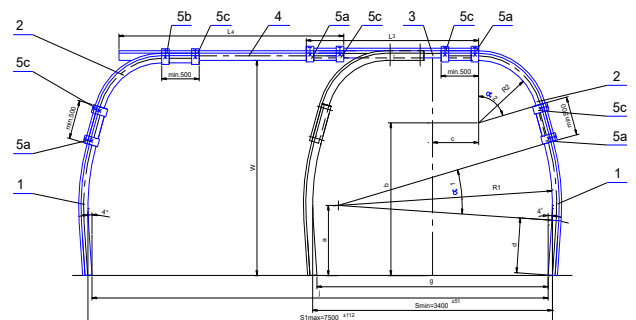


TECHNICAL DATA

CONFIGURATION NO 1

Arches of type V29 can support square mining excavations of the following cross - sections:

- height: from 2200 mm to 4000 mm
- width: from 3200 mm to 7500 mm



BASIC DIMENSIONS

S;S1 (mm)	W (mm)	R1 (mm)	R2 (mm)	Angle 1 (°)	Angle 2 (°)	L3 (mm)	L4 (mm)
3400 ± 51 / 7500 ± 112	2200 ±33	1800 ±18	800 ±16	20 ± 1	74 ± 1	2500.	4100
	2500 ±37	2400 ±24	800 ±16			2500	4100
	2800 ±42	2800 ±28	900 ±18			2300	4300
	3100 ±46	3200 ±32	900 ±18			2300	4300
	3400 ±51	4000 ±40	900 ±18			2300	4300
	3700 ±55	4500 ±45	900 ±18			2300	4300
	4000 ±60	5000 ±50	900 ±28			2300	4300

S;S1 (mm)	W (mm)	a (mm)	b (mm)	c (mm)	d (mm)	g (mm)	j (mm)
3400 ± 51 / 7500 ± 112	2200 ±33	643	1400	754	520	3320 ±50	7420 ±111
	2500 ±37	778	1700	731	613	3310 ±50	7410 ±111
	2800 ±42	896	1900	617	703	3290 ±49	7390 ±111
	3100 ±46	1085	2200	602	865	3265 ±49	7365 ±111
	3400 ±51	1165	2500	572	888	3260 ±49	7360 ±110
	3700 ±55	1327	2800	550	1015	3235 ±49	7335 ±110
	4000 ±60	1490	3100	532	1144	3220 ±49	7320 ±110

WEIGHT OF ELEMENTS FOR S=3400 ± 51

W (mm)	Pos.1 Total (kg)	Pos.2 Total (kg)	Pos.3 (kg)	Pos.5 (kg)	Total arch weight
2200 ± 33	97.0	122.4	72.5	65.9	357.8
2500 ± 37	114.4	122.4	72.5		375.2
2800 ± 42	127.8	129.8	66.7		390.2
3100 ± 46	145.2	129.8	66.7		407.6
3400 ± 51	162.8	129.8	66.7		425.2
3700 ± 55	180.4	129.8	66.7		442.8
4000 ± 60	197.8	129.8	66.7		460.2

WEIGHT OF ELEMENTS FOR S1=7500 ± 112

W (mm)	Pos.1 Total (kg)	Pos.2 Total (kg)	Pos.3 (kg)	Pos.4 (kg)	Pos.5 Total (kg)	Total arch weight
2200 ± 33	97.0	122.4	72.5	118.9	82.4	493.2
2500 ± 37	114.4	122.4	72.5	118.9		510.6
2800 ± 42	127.8	129.8	66.7	124.7		531.4
3100 ± 46	145.2	129.8	66.7	124.7		548.8
3400 ± 51	162.8	129.8	66.7	124.7		566.4
3700 ± 55	180.4	129.8	66.7	124.7		584.0
4000 ± 60	197.8	129.8	66.7	124.7		601.4

The quantity of elements for one arch is 5 or 6 depending on height.

The roof beam is made of one or two straight elements. Rib part is made of two elements of different curvature but straight along the overlapping length in order to make joining possible despite different radius.

Overlapping for all arches is the same and is 500mm.

Different arch height is achieved by changing the length and radius of rib element.

Different arch width is achieved by using one or two straight elements of roof beam.

APPLICATION METHOD

To increase capacity, it is recommended secondary bolting by one or two pair of bolts.

PACKAGING AND TRANSPORTATION

Housing components packed and sent in packages of 10-20 items.

APPROVALS AND CERTIFICATES

- Square arches of type V29 section shape have certificate No B/1026/V/2016 issued by the Central Mining Institute 'Główny Instytut Górnictwa' in Katowice.

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