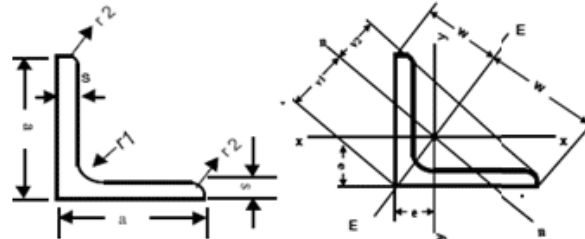


# Ángulos

Calidades: COVENIN 1036 – 2005  
ASTM – A – 36.  
ST – 37 – 2



## Nacionales

L	DIMENSIONES (mm)				Área cm <sup>2</sup>	Peso kg/m	DISTANCIA DE LOS EJES				MOMENTO RESPECTO A LOS EJES								
							e cm	w cm	v <sub>1</sub> cm	v <sub>2</sub> cm	x - x = y - y			E-E		n - n			
	a	s	r <sub>1</sub>	r <sub>2</sub>							I <sub>x</sub> cm <sup>4</sup>	S <sub>x</sub> cm <sup>3</sup>	R <sub>x</sub> cm	I <sub>E</sub> cm <sup>4</sup>	R <sub>E</sub> cm	I <sub>n</sub> cm <sup>4</sup>	R <sub>n</sub> cm <sup>3</sup>	S <sub>n</sub> cm	
20 x 3	20	3.0	3.5	2.0	1.12	0.88	0.60	1.41	0.85	0.70	0.39	0.28	0.59	0.62	0.74	0.15	0.18	0.37	
25 x 3	25	3.0	3.5	2.0	1.42	1.12	0.73	1.77	1.03	0.87	0.79	0.45	0.75	1.27	0.95	0.31	0.30	0.47	
30 x 3	30	3.0	5.0	2.5	1.74	1.36	0.84	2.12	1.18	1.04	1.41	0.65	0.90	2.24	1.14	0.57	0.48	0.57	
35 x 4	35	4.0	5.0	2.5	2.67	2.10	1.00	2.47	1.41	1.24	2.96	1.18	1.05	4.68	1.33	1.24	0.88	0.68	
		6.0			3.87	3.04	1.08		1.53	1.27	4.14	1.71	1.04	6.50	1.30	1.77	1.16	0.68	
40 x 4	40	4.0	6.0	3.0	3.08	2.42	1.12	2.83	1.58	1.40	4.48	1.55	1.21	7.08	1.52	1.86	1.18	0.78	
		6.0			4.48	3.52	1.20		1.70	1.43	6.33	2.26	1.19	9.98	1.49	2.67	1.57	0.77	
50 x 4	50	4.0	7.0	3.5	3.89	3.06	1.36	3.54	1.92	1.75	8.97	2.46	1.52	14.20	1.91	3.73	1.94	0.98	
		5.0			4.80	3.77	1.40		1.98	1.76	11.00	3.05	1.51	17.40	1.90	4.59	2.32	0.98	
		7.0			6.56	5.15	1.49		2.11	1.78	14.60	4.15	1.49	23.10	1.88	6.02	2.85	0.96	
65 x 5	65	4.5	9.0	4.5	6.35	4.98	1.75	4.60	2.49	2.28	24.96	5.27	1.98	39.91	2.53	10.00	4.00	1.27	
		6.0			7.53	5.91	1.80		2.55	2.28	29.20	6.21	1.97	46.30	2.48	12.10	4.74	1.27	
		7.0			8.70	6.83	1.85		2.62	2.29	33.40	7.18	1.96	53.0	2.47	13.80	5.27	1.26	
75 x 7	75	7.0	10.0	5.0	10.10	7.94	2.09	5.30	2.95	2.63	52.40	9.67	2.28	83.60	2.88	21.10	7.15	1.45	
		8.0			11.50	9.03	2.13		3.01	2.65	58.90	11.00	2.26	93.30	2.85	24.40	8.11	1.46	
90 x 7	90	7.0	11.0	5.5	12.20	9.62	2.45	6.36	3.46	3.17	92.50	14.13	2.75	147.0	3.46	38.00	11.00	1.77	
100 x 8	100	8.0	12.0	6.0	15.50	12.20	2.74	7.07	3.87	3.52	145.00	19.90	3.06	230.00	3.85	59.90	15.50	1.96	
		10.0			19.20	15.10	2.82		3.99	3.54	177.00	24.70	3.04	280.00	3.82	73.30	18.40	1.95	

## Importados

120 x 8	120	8.0	13.0	4.8	18.70	14.70	3.23	8.49	4.56	4.22	255.00	29.10	3.69	405.00	4.65	105.00	23.60	2.37
		10.0		23.10	18.20	3.31	4.68		4.24	313.00	36.00	3.68	497.00	4.73	129.00	27.60	2.37	
		12.0		27.50	21.60	3.40	4.80		4.26	368.00	42.70	3.65	584.00	4.60	152.00	31.60	2.35	
150 x 12	150	12.0	16.0	8.0	34.80	27.30	4.12	10.60	5.83	5.29	737.00	67.70	4.60	1170.00	5.80	303.00	52.00	2.95

## Características Mecánicas

GRADO NORMA COVENIN	GRADO EQUIV. ASTM	PTO. CEDENTE Fy (min)	PTO. RUPTURA Fu (min)	ALARGAMIENTO (%)
AE - 25	A - 36	2.500 kg/cm <sup>2</sup>	3.700 kg/cm <sup>2</sup>	21
AE - 35	A - 50	3.500 kg/cm <sup>2</sup>	5.200 kg/cm <sup>2</sup>	18

## Composición Química Típica

C %	Mn %	Si %	S (max) %	P (max) %
0.12 - 0.20	0.60 - 0.80	0.15 - 0.25	0.05	0.05