VARILLAS ROSCADAS Y TORNILLOS DE ALTA RESISTENCIA

VARITECH

VARILLAS

VARITECH 1018
SAE J429 G2

CARACTERISTICAS

CÓDIGO	DESCRIPCIÓN	DIÁMETRO DE LA BROCA (in)	DIÁMETRO DE DADO PARA TUERCA (in)	EMPOTRAMIENTO ESTANDAR (in)	TIPO DE GALVANIZADOS	TIPO DE ACERO	MATERIAL	RESISTENCIA ULTIMA ESPECIFICADA	RESISTENCIA A LA FLUENCIA	TIPO DE TUERCA	TIPO DE ARANDELA
1038600	VARITECH SAE J429 G2 DE 3/8" x 6"	7/16"	9/16"	3 1/2"	GALVANIZADO ELECTROLITICO / GIC	Grado 2 (SAE J429-2014)	ACERO AL CARBON	72,500 (Psi) / 500 (Mpa) /5,100 (kg/cm2)	58,000 (Psi) / 400 (Mpa) / 4,080 (kg/cm2)	2 H ASTM A-194	Tipo 1 (ASTM F436-18
1012612	VARITECH SAE J429 G2 DE 1/2" x 6 1/2"	9/16"	7/8"	4 1/2"							
1058800	VARITECH SAE J429 G2 DE 5/8" x 8"	3/4"	1 1/16"	5 "							
1034100	VARITECH SAE J429 G2 DE 3/4" x 10"	7/8"	1 1/4"	6 1/2"							
1078100	VARITECH SAE J429 G2 DE 7/8" x 10"	1"	1 7/16"	7"							
1011200	VARITECH SAE J429 G2 DE 1" x 12"	1 1/8"	1 5/8"	7 1/2"							
1011816	VARITECH SAE J429 G2 1 1/8" x 16"	1 1/4"	1 13/16"	10 1/2"							
1011416	VARITECH SAE J429 G2 1 1/4" x 16"	1 3/8"	2"	10 1/2"							
1011230	VARITECH SAE J429 G2 1 1/2" x 30"	1 5/8"	2 3/8"	30"							

Nota.-
Las propiedades mecánicas y resistencias de diseño de las varillas roscadas, fueron determinadas de acuerdo a la normatividad del ACI 318-19 17.5.2, ACI 318-14 17.3.1.1 o 318-11 D.4.1.1

RESISTENCIA DE DISEÑO

- La resistencia de diseño del acero se define de acuerdo al Manual del AISC 360-16
- Tensión=0.75 x Fu x Ae
- Corte=0.45 x Fu x Ae

DIÁMETRO (in) (D)	ÁREA (cm2) (A)	ÁREA EFECTIVA (cm2) (AE)	TENSIÓN (kg) (T)	CORTE (kg) (C)
3/8"	0.71	0.50	1,429	867
1/2"	1.27	0.92	2,628	1,596
5/8"	1.98	1.46	4,171	2,533
3/4"	2.85	2.16	6,171	3,747
7/8"	3.88	2.98	8,514	5,169
1"	5.07	3.91	11,171	6,782
1 1/4"	7.92	6.25	17,856	10,841

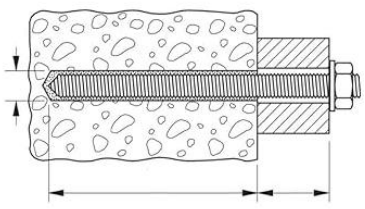
Nota.-
Los productos descritos en el presente informe, cumplen con todos los requisitos dimensionales y de idoneidad los cuales están elaborados acorde a la Normas ASME B1.1-2003(R2008) y ASME B18.31.3-2014.
Las pruebas están referenciadas a través de los métodos descritos de la Norma SAE J429-2014

COMPOSICIÓN QUIMICA

MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Carbono %		Silicio %		Manganeso %		Fosforo %		Azufre %	
0.070	0.100	0.080	0.090	0.300	0.500	0.003	0.040	0.006	0.005

PROPIEDADES MECANICAS

CARACTERISTICAS	ESPECIFICACIÓN MIN	MAX
Dureza	80	100



VARILLAS

VARITECH B7
ASTM A193

CARACTERISTICAS

CÓDIGO	DESCRIPCIÓN	DIÁMETRO DE LA BROCA (in)	DIÁMETRO DE DADO PARA TUERCA (in)	EMPOTRAMIENTO ESTANDAR (in)	TIPO DE GALVANIZADOS	TIPO DE ACERO	MATERIAL	RESISTENCIA ULTIMA ESPECIFICADA	RESISTENCIA A LA FLUENCIA	TIPO DE TUERCA	TIPO DE ARANDELA
1112612	VARITECH ASTM A193 B7 DE 1/2" x 6 1/2"	9/16"	7/8"	4 1/2"	GALVANIZADO ELECTROLITICO / GIC	ASTM A193/A193M-2017)	ACERO ALEADO (SAE 4140)	125,00 (Psi) / 862 (Mpa) /8,800 (kg/cm2)	105,000 (Psi) / 724 (Mpa) / 7,390 (kg/cm2)	2 H ASTM A-194	Tipo 1 (ASTM F436-18
1158800	VARITECH ASTM A193 B7 DE 5/8" x 8"	3/4"	1 1/16"	5 "							
1134100	VARITECH ASTM A193 B7 DE 3/4" x 10"	7/8"	1 1/4"	6 1/2"							
1178100	VARITECH ASTM A193 B7 DE 7/8" x 10"	1"	1 7/16"	7"							
1111200	VARITECH ASTM A193 B7 DE 1" x 12"	1 1/8"	1 5/8"	7 1/2"							
1111816	VARITECH ASTM A193 B7 DE 1 1/8" x 16"	1 1/4"	1 13/16"	10 1/2"							
1111416	VARITECH ASTM A193 B7 DE 1 1/4" x 16"	1 3/8"	2"	10 1/2"							
1111230	VARITECH ASTM A193 B7 DE 1 1/2" x 30"	1 5/8"	2 3/8"	30"							

Nota.-
Las propiedades mecánicas y resistencias de diseño de las varillas roscadas, fueron determinadas de acuerdo a la normatividad del ACI 318-19 17.5.2, ACI 318-14 17.3.1.1 o 318-11 D.4.1.1

RESISTENCIA DE DISEÑO

- La resistencia de diseño del acero se define de acuerdo al Manual del AISC 360-16
- Tensión=0.75 x Fu x Ae
- Corte=0.45 x Fu x Ae

DIÁMETRO (in) (D)	ÁREA (cm2) (A)	ÁREA EFECTIVA (cm2) (AE)	TENSIÓN (kg) (T)	CORTE (kg) (C)
3/8"	0.71	0.50	2,463	1,495
1/2"	1.27	0.92	4,532	2,751
5/8"	1.98	1.46	7,192	4,366
3/4"	2.85	2.16	10,640	6,460
7/8"	3.88	2.98	14,679	8,912
1"	5.07	3.91	19,260	11,694
1 1/4"	7.92	6.25	30,787	18,692

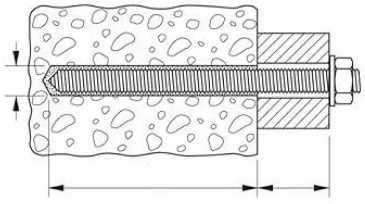
Nota.-
Los productos descritos en el presente informe, cumplen con todos los requisitos dimensionales y de idoneidad los cuales están elaborados acorde a la Normas ASME B1.1-2003(R2008) y ASME B18.31.3-2014.
Las pruebas están referenciadas a través de los métodos descritos de la Norma SAE J429-2014

COMPOSICIÓN QUIMICA

MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Carbono %		Silicio %		Manganeso %		Fosforo %		Azufre %		Cromo		Molibdeno	
0.380	0.480	0.150	0.350	0.750	1.100	0.011	0.035	0.002	0.040	0.800	1.100	0.150	0.250

PROPIEDADES MECANICAS

CARACTERISTICAS	ESPECIFICACIÓN MIN	MAX
Dureza	27	35



VARILLAS

VARITECH B7, SIN ACABADO

CARACTERISTICAS

DESCRIPCIÓN	DIÁMETRO DE LA BROCA (in)	DIÁMETRO DE DADO PARA TUERCA (in)	EMPOTRAMIENTO ESTANDAR (in)	TIPO DE ACABADO	TIPO DE ACERO	MATERIAL	RESISTENCIA ULTIMA ESPECIFICADA	RESISTENCIA A LA FLUENCIA	TIPO DE TUERCA	TIPO DE ARANDELA
VARITECH ASTM A193 B7 SIN ACABADO DE 1/2" x 6 1/2"	9/16"	7/8"	4 1/2"	NATURAL(NEGRO)	ASTM A193/A193M-2017)	ACERO ALEADO (SAE 4140)	125,00 (Psi) / 862 (Mpa) /8,800 (kg/cm2)	105,000 (Psi) / 724 (Mpa) / 7,380 (kg/cm2)	2 H ASTM A-194	Tipo 1 (ASTM F436-18
VARITECH ASTM A193 B7 SIN ACABADO DE 5/8" x 8"	3/4"	1 1/16"	5 "							
VARITECH ASTM A193 B7 SIN ACABADO DE 3/4" x 10"	7/8"	1 1/4"	6 1/2"							
VARITECH ASTM A193 B7 SIN ACABADO DE 7/8" x 10"	1"	1 7/16"	7"							
VARITECH ASTM A193 B7 SIN ACABADO DE 1" x 12"	1 1/8"	1 5/8"	7 1/2"							
VARITECH ASTM A193 B7 SIN ACABADO DE 1 1/4" x 16"	1 3/8"	2"	10 1/2"							

Nota.-
Las propiedades mecánicas y resistencias de diseño de las varillas roscadas, fueron determinadas de acuerdo a la normatividad del ACI 318-19 17.5.2, ACI 318-14 17.3.1.1 o 318-11 D.4.1.1

RESISTENCIA DE DISEÑO

- La resistencia de diseño del acero se define de acuerdo al Manual del AISC 360-16
- Tensión=0.75 x Fu x Ae
- Corte=0.45 x Fu x Ae

DIÁMETRO (in) (D)	ÁREA (cm2) (A)	ÁREA EFECTIVA (cm2) (AE)	TENSIÓN (kg) (T)	CORTE (kg) (C)
3/8"	0.71	0.50	2,463	1,495
1/2"	1.27	0.92	4,532	2,751
5/8"	1.98	1.46	7,192	4,366
3/4"	2.85	2.16	10,640	6,460
7/8"	3.88	2.98	14,679	8,912
1"	5.07	3.91	19,260	11,694
1 1/4"	7.92	6.25	30,787	18,692

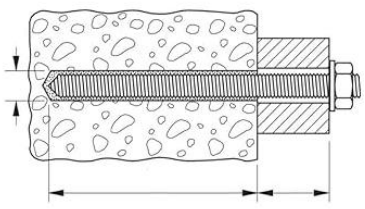
Nota.-
Los productos descritos en el presente informe, cumplen con todos los requisitos dimensionales y de idoneidad los cuales están elaborados acorde a la Normas ASME B1.1-2003(R2008) y ASME B18.31.3-2014.
Las pruebas están referenciadas a través de los métodos descritos de la Norma SAE J429-2014

COMPOSICIÓN QUIMICA

MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX	MIN	MAX
Carbono %		Silicio %		Manganeso %		Fosforo %		Azufre %		Cromo		Molibdeno	
0.380	0.480	0.150	0.350	0.750	1.100	0.011	0.035	0.002	0.040	0.800	1.100	0.150	0.250

PROPIEDADES MECANICAS

CARACTERISTICAS	ESPECIFICACIÓN MIN	MAX
Dureza	27	35



RESISTENCIA DE DISEÑO VARITECH B7, ASTM A193

Resistencia de diseño utilizando adhesivo epoxico con esfuerzo de adherencia (**16.4 Mpa – 12.4 MPa**) con Varitech ASTM A193 B7 falla a tensión y corte en concreto **NO FISURADO**

Diámetro nominal del anclaje in	Empotramiento efectivo in [cm] (mm)	Tensión ØNn				Corte ØVn			
		f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)	f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)
3/8	2-3/8	2832	3102	3582	4387	3050	3341	3858	4725
	[6.0]	[1286]	[1408]	[1626]	[1992]	[1385]	[1517]	[1751]	[2145]
	(60)	(12.6)	(13.8)	(15.9)	(19.5)	(13.6)	(14.9)	(17.2)	(21.0)
	3-3/8	4860	5323	6147	7528	10467	11466	13239	16215
	[8.6]	[2206]	[2417]	[2791]	[3418]	[4752]	[5205]	[6011]	[7362]
	(86)	(21.6)	(23.7)	(27.3)	(33.5)	(46.6)	(51.0)	(58.9)	(72.1)
	4-1/2	7417	8124	9200	10181	15974	17499	19815	21929
	[11.4]	[3367]	[3688]	[4177]	[4622]	[7252]	[7944]	[8996]	[9956]
	(114)	(33.0)	(36.1)	(40.9)	(45.3)	(71.1)	(77.8)	(88.1)	(97.5)
	7-1/2	13705	14344	15413	17058	29518	30894	33198	36740
	[19.1]	[6222]	[6512]	[6998]	[7744]	[13401]	[14026]	[15072]	[16680]
	(191)	(61.0)	(63.8)	(68.6)	(75.9)	(131.3)	(137.4)	(147.7)	(163.4)
1/2	2-3/4	3569	3909	4514	5528	7686	8420	9722	11907
	[7.0]	[1620]	[1775]	[2049]	[2510]	[3489]	[3823]	[4414]	[5406]
	(70)	(15.9)	(17.4)	(20.1)	(24.6)	(34.2)	(37.5)	(43.2)	(53.0)
	4-1/2	7417	8124	9381	11490	15974	17499	20206	24747
	[11.4]	[3367]	[3688]	[4259]	[5216]	[7252]	[7944]	[9173]	[11235]
	(114)	(33.0)	(36.1)	(41.7)	(51.1)	(71.1)	(77.8)	(89.9)	(110.1)
	6	11419	12508	14443	17491	24594	26941	31109	37674
	[15.2]	[5184]	[5679]	[6557]	[7941]	[11166]	[12231]	[14123]	[17104]
	(152)	(50.8)	(55.6)	(64.2)	(77.8)	(109.4)	(119.8)	(138.4)	(167.6)
	10	23483	24579	26411	29229	50580	52938	56886	62955
	[25.4]	[10661]	[11159]	[11991]	[13270]	[22963]	[24034]	[25826]	[28581]
	(254)	(104.5)	(109.3)	(117.5)	(130.0)	(225.0)	(235.5)	(253.0)	(280.0)
5/8	3-1/8	4278	4687	5412	6628	9215	10095	11656	14276
	[7.9]	[1942]	[2128]	[2457]	[3009]	[4184]	[4583]	[5292]	[6481]
	(79)	(19.0)	(20.8)	(24.1)	(29.5)	(41.0)	(44.9)	(51.8)	(63.5)
	5-5/8	10420	11414	13180	16142	22442	24584	28387	34767
	[14.3]	[4730]	[5182]	[5984]	[7328]	[10189]	[11161]	[12888]	[15784]
	(143)	(46.3)	(50.8)	(58.6)	(71.8)	(99.8)	(109.4)	(126.3)	(154.7)
	7-1/2	16084	17619	20345	24917	34642	37949	43820	53668
	[19.1]	[7302]	[7999]	[9237]	[11312]	[15728]	[17229]	[19894]	[24365]
	(191)	(71.5)	(78.4)	(90.5)	(110.8)	(154.1)	(168.8)	(194.9)	(238.7)
	12-1/2	34553	36959	39715	43952	74422	79605	85541	94667
	[31.8]	[15687]	[16780]	[18031]	[19954]	[33787]	[36141]	[38836]	[42979]
	(318)	(153.7)	(164.4)	(176.7)	(195.5)	(331.0)	(354.1)	(380.5)	(421.1)
3/4	3-1/2	5116	5604	6471	7926	11019	12071	13938	17071
	[8.9]	[2323]	[2544]	[2938]	[3598]	[5003]	[5480]	[6328]	[7750]
	(89)	(22.8)	(24.9)	(28.8)	(35.3)	(49.0)	(53.7)	(62.0)	(75.9)
	6-3/4	13625	14925	17234	21108	29346	32147	37120	45463
	[17.1]	[6186]	[6776]	[7824]	[9583]	[13323]	[14595]	[16853]	[20640]
	(171)	(60.6)	(66.4)	(76.7)	(93.9)	(130.5)	(143.0)	(165.1)	(202.2)
	9	21115	23131	26709	32712	45479	49820	57527	70456
	[22.9]	[9586]	[10501]	[12126]	[14851]	[20648]	[22618]	[26117]	[31987]
	(229)	(93.9)	(102.9)	(118.8)	(145.5)	(202.3)	(221.6)	(255.9)	(313.4)
	15	45314	49639	55033	60904	97599	106915	118533	131179
	[38.1]	[20573]	[22536]	[24985]	[27651]	[44310]	[48539]	[53814]	[59555]
	(381)	(201.6)	(220.8)	(244.8)	(270.9)	(434.1)	(475.6)	(527.3)	(583.5)

RESISTENCIA DE DISEÑO VARITECH B7, ASTM A193

Resistencia de diseño utilizando adhesivo epoxico con esfuerzo de (**16.4 Mpa – 12.4 MPa**) con Varitech ASTM A193 B7 falla a tensión y corte en concreto **NO FISURADO**

Diámetro nominal del anclaje	Empotramiento efectivo	Tensión ØNn				Corte ØVn			
		f'c=2500psi (17.2Mpa) (175.9kg/cm2)	f'c=3000psi (20.7Mpa) (211.1kg/cm2)	f'c=4000psi (27.6Mpa) (281.5kg/cm2)	f'c=6000psi (41.4Mpa) (422.2kg/cm2)	f'c=2500psi (17.2Mpa) (175.9kg/cm2)	f'c=3000psi (20.7Mpa) (211.1kg/cm2)	f'c=4000psi (27.6Mpa) (281.5kg/cm2)	f'c=6000psi (41.4Mpa) (422.2kg/cm2)
in	in [cm] (mm)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)	lb [kg] (kN)
7/8	3-1/2	5116	5604	6471	7926	11019	12071	13938	17071
	[8.9]	[2323]	[2544]	[2938]	[3598]	[5003]	[5480]	[6328]	[7750]
	(89)	(22.8)	(24.9)	(28.8)	(35.3)	(49.0)	(53.7)	(62.0)	(75.9)
	7-7/8	17234	18879	21800	26699	37120	40663	46953	57505
	[20.0]	[7824]	[8571]	[9897]	[12121]	[16852]	[18461]	[21317]	[26107]
	(200)	(76.7)	(84.0)	(97.0)	(118.8)	(165.1)	(180.9)	(208.9)	(255.8)
	10-1/2	26583	29121	33626	41183	57257	62721	72425	88702
	[26.7]	[12069]	[13221]	[15266]	[18697]	[25994]	[28476]	[32881]	[40271]
	(267)	(118.2)	(129.5)	(149.6)	(183.2)	(254.7)	(279.0)	(322.2)	(394.6)
	17-1/2	57198	62658	71822	79484	123197	134955	154694	171197
	[44.5]	[25968]	[28447]	[32607]	[36086]	[55931]	[61270]	[70231]	[77723]
	(445)	(254.4)	(278.7)	(319.5)	(353.6)	(548.0)	(600.3)	(688.1)	(761.5)
1	4	6277	6876	7940	9724	13519	14810	17101	20944
	[10.2]	[2850]	[3122]	[3605]	[4415]	[6138]	[6724]	[7764]	[9509]
	(102)	(27.9)	(30.6)	(35.3)	(43.3)	(60.1)	(65.9)	(76.1)	(93.2)
	9	21115	23131	26709	32712	45479	49820	57527	70456
	[22.9]	[9586]	[10501]	[12126]	[14851]	[20648]	[22618]	[26117]	[31987]
	(229)	(93.9)	(102.9)	(118.8)	(145.5)	(202.3)	(221.6)	(255.9)	(313.4)
	12	32456	35554	41054	50280	69905	76577	88424	108296
	[30.5]	[14735]	[16141]	[18638]	[22827]	[31737]	[34766]	[40144]	[49167]
	(305)	(144.4)	(158.2)	(182.6)	(223.7)	(311.0)	(340.6)	(393.3)	(481.7)
	20	69765	76424	88247	99633	150264	164606	190070	214594
	[50.8]	[31673]	[34697]	[40064]	[45233]	[68220]	[74731]	[86292]	[97425]
	(508)	(310.3)	(340.0)	(392.5)	(443.2)	(668.4)	(732.2)	(845.5)	(954.6)
1 1/4	5	8721	9553	11031	13510	18783	20576	23759	29098
	[12.7]	[3959]	[4337]	[5008]	[6134]	[8527]	[9341]	[10786]	[13211]
	(127)	(38.8)	(42.5)	(49.1)	(60.1)	(83.6)	(91.5)	(105.7)	(129.4)
	11-1/4	29471	32284	37278	45656	63476	69534	80291	98336
	[28.6]	[13380]	[14657]	[16924]	[20728]	[28818]	[31569]	[36452]	[44645]
	(286)	(131.1)	(143.6)	(165.8)	(203.1)	(282.4)	(309.3)	(357.2)	(437.4)
	15	45314	49639	57318	70200	97599	106915	123454	151200
	[38.1]	[20573]	[22536]	[26022]	[31871]	[44310]	[48539]	[56048]	[68645]
	(381)	(201.6)	(220.8)	(255.0)	(312.3)	(434.1)	(475.6)	(549.2)	(672.6)
	25	97500	106806	123329	142174	210000	230043	265631	306220
	[63.5]	[44265]	[48490]	[55991]	[64547]	[95340]	[104440]	[120597]	[139024]
	(635)	(433.7)	(475.1)	(548.6)	(632.4)	(934.1)	(1023.3)	(1181.6)	(1362.1)

RESISTENCIA DE DISEÑO VARITECH B7, ASTM A193

Resistencia de diseño utilizando adhesivo epoxico con esfuerzo de adherencia (**8.8 Mpa – 8.1 MPa**) con Varitech ASTM A193 B7 falla a tensión y corte en concreto **FISURADO**

Diámetro nominal del anclaje in	Empotramiento efectivo in [cm] (mm)	Tensión ØNn				Corte ØVn			
		f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)	f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)
3/8	2-3/8	2006	2197	2485	2640	2160	2366	2676	2843
	[6.0]	[911]	[998]	[1128]	[1199]	[981]	[1074]	[1215]	[1291]
	(60)	(8.9)	(9.8)	(11.1)	(11.7)	(9.6)	(10.5)	(11.9)	(12.6)
	3-3/8	3319	3411	3561	3784	7148	7346	7670	8151
	[8.6]	[1507]	[1548]	[1617]	[1718]	[3245]	[3335]	[3482]	[3701]
	(86)	(14.8)	(15.2)	(15.8)	(16.8)	(31.8)	(32.7)	(34.1)	(36.3)
	4-1/2	4399	4521	4721	5017	9475	9738	10167	10805
	[11.4]	[1997]	[2053]	[2143]	[2278]	[4302]	[4421]	[4616]	[4905]
	(114)	(19.6)	(20.1)	(21.0)	(22.3)	(42.1)	(43.3)	(45.2)	(48.1)
	7-1/2	7371	7575	7909	8405	15875	16315	17035	18103
	[19.1]	[3346]	[3439]	[3591]	[3816]	[7207]	[7407]	[7734]	[8219]
	(191)	(32.8)	(33.7)	(35.2)	(37.4)	(70.6)	(72.6)	(75.8)	(80.5)
1/2	2-3/4	2528	2769	3197	3916	5444	5964	6887	8434
	[7.0]	[1148]	[1257]	[1452]	[1778]	[2472]	[2708]	[3127]	[3829]
	(70)	(11.2)	(12.3)	(14.2)	(17.4)	(24.2)	(26.5)	(30.6)	(37.5)
	4-1/2	5253	5755	6245	6637	11315	12395	13451	14294
	[11.4]	[2385]	[2613]	[2835]	[3013]	[5137]	[5627]	[6107]	[6489]
	(114)	(23.4)	(25.6)	(27.8)	(29.5)	(50.3)	(55.1)	(59.8)	(63.6)
	6	7760	7975	8327	8849	16713	17177	17934	19059
	[15.2]	[3523]	[3621]	[3780]	[4017]	[7588]	[7798]	[8142]	[8653]
	(152)	(34.5)	(35.5)	(37.0)	(39.4)	(74.3)	(76.4)	(79.8)	(84.8)
	10	12967	13326	13914	14787	27929	28703	29969	31848
	[25.4]	[5887]	[6050]	[6317]	[6713]	[12680]	[13031]	[13606]	[14459]
	(254)	(57.7)	(59.3)	(61.9)	(65.8)	(124.2)	(127.7)	(133.3)	(141.7)
5/8	3-1/8	3031	3320	3833	4695	6527	7150	8257	10112
	[7.9]	[1376]	[1507]	[1740]	[2131]	[2963]	[3246]	[3748]	[4591]
	(79)	(13.5)	(14.8)	(17.1)	(20.9)	(29.0)	(31.8)	(36.7)	(45.0)
	5-5/8	7380	8085	9336	10324	15896	17414	20108	22236
	[14.3]	[3351]	[3671]	[4238]	[4687]	[7217]	[7906]	[9129]	[10095]
	(143)	(32.8)	(36.0)	(41.5)	(45.9)	(70.7)	(77.5)	(89.4)	(98.9)
	7-1/2	11393	12428	12976	13789	24538	26767	27948	29700
	[19.1]	[5172]	[5642]	[5891]	[6260]	[11140]	[12152]	[12688]	[13484]
	(191)	(50.7)	(55.3)	(57.7)	(61.3)	(109.2)	(119.1)	(124.3)	(132.1)
	12-1/2	20133	20691	21604	22958	43363	44566	46531	49449
	[31.8]	[9140]	[9394]	[9808]	[10423]	[19687]	[20233]	[21125]	[22450]
	(318)	(89.6)	(92.0)	(96.1)	(102.1)	(192.9)	(198.2)	(207.0)	(220.0)
3/4	3-1/2	3624	3970	4584	5614	7805	8550	9873	12092
	[8.9]	[1645]	[1802]	[2081]	[2549]	[3544]	[3882]	[4482]	[5490]
	(89)	(16.1)	(17.7)	(20.4)	(25.0)	(34.7)	(38.0)	(43.9)	(53.8)
	6-3/4	9651	10572	12208	14697	20787	22771	26294	31655
	[17.1]	[4382]	[4800]	[5542]	[6672]	[9437]	[10338]	[11937]	[14371]
	(171)	(42.9)	(47.0)	(54.3)	(65.4)	(92.5)	(101.3)	(117.0)	(140.8)
	9	14957	16384	18521	19682	32214	35289	39890	42392
	[22.9]	[6790]	[7438]	[8408]	[8936]	[14625]	[16021]	[18110]	[19246]
	(229)	(66.5)	(72.9)	(82.4)	(87.5)	(143.3)	(157.0)	(177.4)	(188.6)
	15	28716	29512	30814	32746	61850	63565	66368	70530
	[38.1]	[13037]	[13399]	[13989]	[14867]	[28080]	[28858]	[30131]	[32020]
	(381)	(127.7)	(131.3)	(137.1)	(145.7)	(275.1)	(282.8)	(295.2)	(313.7)

RESISTENCIA DE DISEÑO VARITECH B7, ASTM A193

Resistencia de diseño utilizando adhesivo epoxico con esfuerzo de adherencia (**8.8 Mpa – 8.1 MPa**) con Varitech ASTM A193 B7 falla a tensión y corte en concreto **FISURADO**

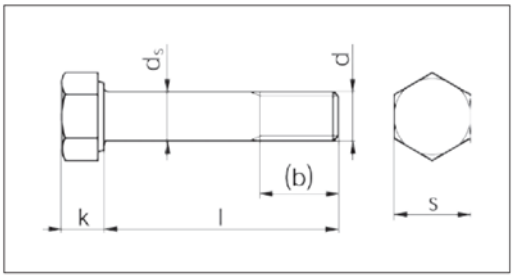
Diámetro nominal del anclaje in	Empotramiento efectivo in [cm] (mm)	Tensión ØNn				Corte ØVn			
		f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)	f'c=2500psi (17.2Mpa) (175.9kg/cm2) lb [kg] (kN)	f'c=3000psi (20.7Mpa) (211.1kg/cm2) lb [kg] (kN)	f'c=4000psi (27.6Mpa) (281.5kg/cm2) lb [kg] (kN)	f'c=6000psi (41.4Mpa) (422.2kg/cm2) lb [kg] (kN)
7/8	3-1/2	3624	3970	4584	5614	7805	8550	9873	12092
	[8.9]	[1645]	[1802]	[2081]	[2549]	[3544]	[3882]	[4482]	[5490]
	(89)	(16.1)	(17.7)	(20.4)	(25.0)	(34.7)	(38.0)	(43.9)	(53.8)
	7-7/8	12207	13373	15441	18912	26293	28803	33258	40733
	[20.0]	[5542]	[6071]	[7010]	[8586]	[11937]	[13076]	[15099]	[18493]
	(200)	(54.3)	(59.5)	(68.7)	(84.1)	(117.0)	(128.1)	(147.9)	(181.2)
	10-1/2	18830	20627	23818	26558	40557	44428	51301	57203
	[26.7]	[8549]	[9365]	[10813]	[12058]	[18413]	[20170]	[23291]	[25970]
	(267)	(83.8)	(91.8)	(105.9)	(118.1)	(180.4)	(197.6)	(228.2)	(254.5)
	17-1/2	38817	39893	41652	44264	83605	85923	89712	95338
	[44.5]	[17623]	[18111]	[18910]	[20096]	[37957]	[39009]	[40729]	[43283]
	(445)	(172.7)	(177.5)	(185.3)	(196.9)	(371.9)	(382.2)	(399.1)	(424.1)
1	4	4446	4870	5624	6888	9576	10490	12113	14836
	[10.2]	[2019]	[2211]	[2553]	[3127]	[4348]	[4763]	[5499]	[6735]
	(102)	(19.8)	(21.7)	(25.0)	(30.6)	(42.6)	(46.7)	(53.9)	(66.0)
	9	14957	16384	18919	23171	32214	35289	40748	49906
	[22.9]	[6790]	[7438]	[8589]	[10520]	[14625]	[16021]	[18500]	[22657]
	(229)	(66.5)	(72.9)	(84.2)	(103.1)	(143.3)	(157.0)	(181.3)	(222.0)
	12	22990	25184	29080	34672	49516	54242	62633	74679
	[30.5]	[10437]	[11433]	[13202]	[15741]	[22480]	[24626]	[28436]	[33904]
	(305)	(102.3)	(112.0)	(129.4)	(154.2)	(220.3)	(241.3)	(278.6)	(332.2)
	20	49417	52047	54342	57749	106437	112100	117044	124383
	[50.8]	[22435]	[23629]	[24671]	[26218]	[48322]	[50894]	[53138]	[56470]
	(508)	(219.8)	(231.5)	(241.7)	(256.9)	(473.5)	(498.6)	(520.6)	(553.3)
1 1/4	5	6177	6767	7814	9570	13305	14574	16829	20611
	[12.7]	[2804]	[3072]	[3547]	[4345]	[6040]	[6617]	[7640]	[9358]
	(127)	(27.5)	(30.1)	(34.8)	(42.6)	(59.2)	(64.8)	(74.9)	(91.7)
	11-1/4	20875	22868	26405	32340	44962	49253	56873	69655
	[28.6]	[9477]	[10382]	[11988]	[14682]	[20413]	[22361]	[25820]	[31623]
	(286)	(92.9)	(101.7)	(117.5)	(143.9)	(200.0)	(219.1)	(253.0)	(309.8)
	15	32097	35161	40600	49725	69133	75731	87447	107100
	[38.1]	[14572]	[15963]	[18433]	[22575]	[31386]	[34382]	[39701]	[48623]
	(381)	(142.8)	(156.4)	(180.6)	(221.2)	(307.5)	(336.9)	(389.0)	(476.4)
	25	69063	75654	80800	85867	148750	162947	174032	184945
	[63.5]	[31354]	[34347]	[36683]	[38984]	[67533]	[73978]	[79010]	[83965]
	(635)	(307.2)	(336.5)	(359.4)	(382.0)	(661.7)	(724.8)	(774.1)	(822.7)

TORNILLO A-325

CARACTERISTICAS

- Galvanizado por inmersión en caliente (ASTM A-153 Clase C).
- Tornillo estructural de alta resistencia con cabeza hexagonal.
- Vástago cuerda estándar.

	ds	s	k	b	l
DIÁMETRO NOMINAL (in)	DIÁMETRO VÁSTAGO (in)	DISTANCIA ENTRE CARAS (in)	ALTURA CABEZA (in)	LARGO DE LA CUERDA (mm)	LARGO TOTAL (in)
1/2"	0.51	7/8"	5/16"	10	1"-6"
5/8"	0.64	1 1/16"	25/64"	12.5	1 1/4"-6"
3/4"	0.76	1 1/4"	15/32"	13.8	1 1/2"-6"
7/8"	0.89	1 7/16"	35/64"	15	1 1/2"-6"
1"	1.02	1 5/8"	39/64"	17.5	1 1/2"-6"
1 1/8"	1.14	1 13/16	11/16"	20	2 1/2"-6"
1 1/4"	1.27	2"	25/32"	20	3"-6"
1 3/8"	1.4	2 3/16"	27/32"	22.5	3"-6"
1 1/2"	1.53	2 3/8"	15/16"	22.5	3"-6"



DESCRIPCIÓN	DATOS TÉCNICOS
DIMENSIONES	ASME/ANSI B18.2.6
ESPECIFICACIÓN	ASTM A-325
MATERIAL	ACERO MEDIO CARBONO
DUREZA(HRC)	24 MÍNIMO - 34 MÁXIMO
TIPO	A-325
RESISTENCIA A LA TENSIÓN	120 KSI (1/2"A 1") / 105 KSI (1 1/8"A 1 1/2")
CUERDA	UNC , AJUSTE 2A
PRUEBA DE CARGA	85 KSI (1/2"A 1") / 74 KSI (1 1/8"A 1 1/2")
ACABADO	NEGRO O GALVANIZADO POR INMERSIÓN EN CALIENTE (GIC) (ASTM A-153 CLASE C)

TORNILLO AUTOTALADRANTE

RANGO DE APLICACIÓN

Fijación de chapa perfilada de acero a subestructura de acero de 4 - 12 mm.

CARACTERÍSTICAS

- Acero cincado endurecido mediante cementado.
- Recubrimientos de grado alto para mejorar la resistencia a la
- corrosión.
- Arandela de estanqueidad cincada pre-montada.

APROBACIONES

CÓDIGO	DESCRIPCIÓN	TIPO DE CORROSIÓN	LONGITUD (MM)	DIÁMETRO (MM)	ESPESOR FIJACIÓN (MM)	DIÁMETRO ARANDELA (MM)
1855350	JT2-12-5.5x35-V16	C3	35	5.5	0-10	16
1855351	JT2-12-5.5x35-V16 VE100	C3	35	5.5	0-10	16
1855500	JT2-12-5.5x50-V16	C3	50	5.5	0-25	16
1855510	JT2-12-5.5x50-V16 VE100	C3	50	5.5	0-25	16
1855650	JT2-12-5.5x65-V16	C3	65	5.5	6-40	16
1855651	JT2-12-5.5x65-V16 VE100	C3	65	5.5	6-40	16

ESPECIFICACIONES