



DESIGNACION		Peso	Peralte	Alma	Patin		Distancia			Gramil		Sujetadores		Area	Criterios de seccion compacta				f <sub>ts</sub>	d	Eje X - X			Eje Y - Y			Constante de torsion	Modulo de seccion plastico		Longitud Limite	Longitud Limite	Distancia	Longitud Limite	Longitud Limite
d x Peso		d	tw	bf	tf	T	k	k <sub>1</sub>	g	g <sub>1</sub>	Ømax. En patin	b <sub>1</sub>	F <sub>y</sub>	d	F <sub>y</sub>	d	Af	I	S	r	I	S	r	J	Z <sub>x</sub>	Z <sub>y</sub>	L <sub>p</sub>	L <sub>p</sub>	h <sub>0</sub>	L <sub>c</sub>	L <sub>c</sub>			
IR 305 x 21.1	IR 12 x 14	21.1	303	5	101	5.7	268	17	13	60	65	12.7	1/2	26.8	8.8	3818	59.6	1307	2.44	0.25	3688	244	11.7	98	20	1.9	2.9	285	31	80.5	2.6	29.7	235.7	7.7
IR 305 x 23.9	IR 12 x 16	23.9	305	5.6	101	6.7	266	19	13	60	65	12.7	1/2	30.4	7.5	54.5	1564	2.50	4.46	4287	280	11.9	117	23	2	4.2	329	37	84.8	2.8	29.8	244.7	8.0	
IR 305 x 28.2	IR 12 x 19	28.2	309	6	102	8.9	268	21	13	60	70	12.7	1/2	35.9	5.7	51.7	1737	2.45	2.42	5411	394	12.2	157	31	2.1	7.5	405	49	89.0	2.9	30.0	244.7	8.0	
IR 305 x 32.8	IR 12 x 22	32.8	313	6.6	102	10.8	268	22	13	60	70	12.7	1/2	41.8	4.7	47.3	2076	2.65	2.83	6493	416	12.5	194	38	2.2	12	480	60	93.3	3.1	30.2	279.1	9.2	
IR 305 x 38.7	IR 12 x 26	38.7	310	5.8	165	9.7	266	22	13	90	70	25.4	1	49.4	8.5	4073	53.1	1647	4.45	1.95	8491	547	13.1	720	88	3.8	12.5	610	134	161.1	5.3	30.0	453.8	14.9
IR 305 x 44.5	IR 12 x 30	44.5	313	6.6	166	11.2	266	24	13	90	70	25.4	1	56.7	7.4	47.5	2058	4.49	1.69	9906	633	13.2	845	102	3.9	19.1	706	157	165.3	5.4	30.2	475.2	15.6	
IR 305 x 52.2	IR 12 x 35	52.2	318	7.6	167	13.2	267	25	14	90	70	28.6	1	66.5	6.3	41.7	2671	4.56	1.44	11863	747	13.3	1020	122	3.9	30.8	839	188	165.3	5.4	30.5	509.1	16.7	
IR 305 x 59.8	IR 12 x 40	59.8	303	7.5	203	13.1	240	32	19	140	80	22.2	7/8	76.1	7.8	4920	40.5	2831	5.60	1.14	12903	850	13	1836	180	4.9	39.5	942	275	207.7	6.8	29.0	647.4	21.2
IR 305 x 66.9	IR 12 x 45	66.9	306	8.5	204	14.6	243	32	21	140	80	25.4	1	85.2	7	6062	36	3583	5.64	1.03	14568	952	13.1	2081	203	4.9	54.5	1060	311	207.7	6.8	29.1	686.5	22.5
IR 305 x 74.4	IR 12 x 50	74.4	310	9.4	205	16.3	240	35	21	140	80	25.4	1	94.8	6.3	7460	32.9	4290	5.70	0.93	16400	1060	13.2	2343	228	5	74.1	1186	351	211.9	7.0	29.4	731.8	24.0
IR 305 x 79.0	IR 12 x 53	79	306	8.8	254	14.6	243	32	21	140	80	28.6	1	100.7	8.7	3933	35	3791	7.09	0.83	17690	1157	13.3	3987	315	6.3	65.8	1277	477	267.1	8.8	29.1	860.4	28.2
IR 305 x 86.1	IR 12 x 58	86.1	310	9.1	254	16.3	240	35	21	140	80	28.6	1	109.7	7.8	33.9	4041	7.15	0.75	19771	1278	13.4	4454	351	6.4	87.4	1416	533	271.3	8.9	29.4	912.9	30.0	
IR 305 x 96.7	IR 12 x 65	96.7	308	9.9	305	15.4	241	33	21	140	80	28.6	1	123.2	9.9	3018	31.1	8.58	0.66	22185	1440	13.4	7242	477	7.7	90.7	1586	723	326.4	10.7	29.3	1069.9	35.1	
IR 305 x 106.9	IR 12 x 72	106.9	311	10.9	306	17	241	35	22	140	80	28.6	1	136.1	9	3675	28.5	8.65	0.6	24850	1596	13.5	8116	531	7.7	122	1770	806	326.4	10.7	29.4	1141.5	37.4	
IR 305 x 117.5	IR 12 x 79	117.5	314	11.9	307	18.7	241	37	22	140	85	28.6	1	149.7	8.2	4396	26.3	8.70	0.55	27554	1753	13.6	8991	587	7.7	160	1950	890	326.4	10.7	29.5	1217.4	39.9	
IR 305 x 129.7	IR 12 x 87	129.7	318	13.1	308	20.6	242	38	22	140	85	28.6	1	165.2	7.5	24.3	24.3	8.78	0.5	30801	1934	13.7	10031	651	7.8	212	2163	990	330.6	10.8	29.7	1310.4	43.0	
IR 305 x 142.8	IR 12 x 96	142.8	323	14	309	22.9	240	41	22	140	90	28.6	1	181.9	6.8	23.1	23.1	8.86	0.46	34672	2147	13.8	11238	728	7.8	286	2409	1106	330.6	10.8	30.0	1423.1	46.7	
IR 305 x 158.0	IR 12 x 106	158	327	15.5	310	25.1	242	43	24	140	90	28.6	1	201.3	6.2	21.1	21.1	8.92	0.42	38834	2374	13.9	12529	808	7.9	380	2687	1231	334.9	11.0	30.2	1543.0	50.6	
IR 305 x 178.8	IR 12 x 120	178.8	333	18	312	28.1	241	46	25	140	95	28.6	1	227.8	5.6	18.5	18.5	9.05	0.38	44537	2671	14	14360	920	8	537	3048	1400	339.1	11.1	30.5	1724.6	56.6	
IR 305 x 202.1	IR 12 x 136	202.1	341	20.1	315	31.8	242	49	25	140	95	28.6	1	257.4	5	17	17	9.17	0.34	51613	3048	14.2	16566	1052	8	770	3507	1606	339.1	11.1	30.9	1926.9	63.2	
IR 305 x 226.4	IR 12 x 152	226.4	348	22.1	317	35.6	240	54	27	140	100	28.6	1	288.4	4.5	15.8	15.8	9.28	0.31	59521	3425	14.4	18897	1193	8.1	1074	3982	1819	343.4	11.3	31.2	2150.7	70.6	
IR 305 x 253.2	IR 12 x 170	253.2	356	24.4	319	39.6	242	57	29	140	105	28.6	1	322.6	4	14.6	14.6	9.40	0.28	68678	3851	14.6	21519	1349	8.2	1482	4506	2065	347.6	11.4	31.6	2389.0	78.4	
IR 305 x 282.6	IR 12 x 190	282.6	365	26.9	322	44.1	241	62	30	140	110	28.6	1	360	3.7	13.6	13.6	9.55	0.26	78647	4310	14.8	24516	1524	8.3	2031	5096	2343	351.8	11.5	32.1	2660.5	87.3	
IR 305 x 313.0	IR 12 x 210	313	374	30	325	48.3	240	67	32	140	115	28.6	1	398.7	3.4	12.5	12.5	9.70	0.24	89073	4785	15	27638	1704	8.3	2693	5703	2606	351.8	11.5	32.6	2925.4	96.0	
IR 305 x 342.9	IR 12 x 230	342.9	382	32.6	328	52.6	243	70	32	140	115	28.6	1	436.8	3.1	11.7	11.7	9.83	0.22	100728	5260	15.2	30884	1885	8.4	3488	6325	2900	356.1	11.7	32.9	3198.2	104.9	
IR 305 x 375.3	IR 12 x 252	375.3	391	35.4	330	57.2	242	75	33	140	120	28.6	1	478.1	2.9	11	11	9.97	0.21	113215	5785	15.4	34444	2081	8.5	4495	7014	3212	360.3	11.8	33.4	3484.6	114.3	
IR 305 x 414.3	IR 12 x 279	414.3	403	38.9	334	62.7	241	81	35	140	130	28.6	1	526.4	2.7	10.4	10.4	10.15	0.19	129448	6440	15.6	39000	2343	8.6	5952	7882	3605	364.5	12.0	34.0	3829.4	125.6	
IR 305 x 453.8	IR 12 x 305	453.8	415	41.3	336	68.7	240	87	37	140	135	28.6	1	578.1	2.5	10	10	10.30	0.18	147762	7128	16	43704	2606	8.7	7700	8800	3978	368.8	12.1	34.6	4164.0	136.6	
IR 305 x 500.4	IR 12 x 336	500.4	427	45.1	340	75.1	240	94	38	140	140	28.6	1	637.4	2.3	9.5	9.5	10.49	0.17	168990	7915	16.3	49531	2900	8.8	10114	9881	4490	373.0	12.2	35.2	4573.8	150.1	
IR 356 x 32.9	IR 14 x 22	32.9	349	5.8	127	8.5	305	22	14	70	70	19	3/4	41.9	7.5	59.7	1303	3.23	3.23	8283	475	14.1	291	46	2.6	8.7	544	72	110.2	3.6	34.1	318.4	10.4	
IR 356 x 38.9	IR 14 x 26	38.9	353	6.4	128	10.7	306	24	14	70	70	22.2	7/8	49.6	6	54.5	1564	3.31	2.59	10198	578	14.1	371	58	2.7	15	659	91	114.5	3.8	34.2	338.1	11.1	
IR 356 x 44.8	IR 14 x 30	44.8	352	6.9	171	9.8	304	24	16	90	70	28.6	1	57.1	8.7	3888	51.3	1765	4.50	2.1	12112	688	14.6	816	95	3.8	15.8	775	147	161.1	5.3	34.2	453.4	14.9
IR 356 x 50.6	IR 14 x 34	50.6	355	7.2	171	11.6	304	25	16	90	70	28.6	1	64.5	7.4	49.1	1926	4.57	1.79	14152	796	14.8	970	113	3.9	23.7	895	174	165.3	5.4	34.3	474.6	15.6	
IR 356 x 56.7	IR 14 x 38	56.7	358	7.9	172	13.1	304	27	16	90	70	28.6	1	72.3	6.6	45.5	2243	4.63	1.59	16025	895	14.9	1111	129	3.9	33.3	1008	198	165.3	5.4	34.5	495.7	16.3	
IR 356 x 63.8	IR 14 x 43	63.8	347	7.8	203	13.5	280	33	22	140	80	22.2	7/8	81.3	7.5	44.8	2314	5.53	1.27	17815	1027	14.8	1881	185	4.8	43.7	1141	283	203.5	6.7	33.4	609.8	20.0	
IR 356 x 71.4	IR 14 x 48	71.4	350	8.6	204	15.1	280	35	22	140	80	25.4	1	91	6.8	40.6	2817	5.58	1.14	20187	1152	14.9	2139	210	4.9	60.8	1285	321	207.7	6.8	33.5	642.7	21.1	
IR 356 x 79.0	IR 14 x 53	79	354	9.4	205	16.8	281	37	24	140	85	25.4	1	100.7	6.1	37.6	3285	5.64	1.03	22518	1275	15	2402	234	4.9	80.7	1427	361	207.7	6.8	33.7	677.4	22.2	
IR 356 x 90.7	IR 14 x 61	90.7	353	9.5	254	16.4	280	37	24	140	85	28.6	1	115.5	7.8	37	3392	7.04	0.85	26640	1511	15.2	4454	352	6.2	91.6	1671	537	262.8	8.6	33.7	837.8	27.5	
IR 35																																		

DESIGNACION		Peso	Peralte	Alma	Pafin		Distancia			Gramil		Sujetadores		Area	Criterios de seccion compacta				f <sub>ts</sub>	d	Eje X - X			Eje Y - Y			Constante de torsion	Modulo de seccion plastico		Longitud Limite	Longitud Limite	Distancia	Longitud Limite	Longitud Limite
d x Peso		d	tw	bf	ff	T	k	k <sub>i</sub>	g	g <sub>i</sub>	Ømax. En pafin	b <sub>1</sub>	F <sub>v</sub>	d	F <sub>v</sub>	f <sub>ts</sub>	d	l	s	r	l	s	r	J	Z <sub>x</sub>	Z <sub>y</sub>	L <sub>p</sub>	L <sub>p</sub>	h <sub>0</sub>	L <sub>c</sub>	L <sub>c</sub>			
IR 356 x 552.0	IR 14 x 370	552	455	42	418	67.6	287	84	37	140	130	28.6	1.1/8	703.3	3.1	10.8	12.70	0.16	226429	9947	18	82830	3949	11	9240	###	6063	457.8	15.0	38.7	4503.9	147.8		
IR 356 x 592.3	IR 14 x 398	592.5	465	45	421	72.3	287	89	38	140	135	28.6	1.1/8	754.9	2.9	10.3	12.84	0.15	249738	###	18.2	90322	4293	11	11363	###	6588	462.0	15.2	39.3	4823.9	158.3		
IR 356 x 633.1	IR 14 x 426	633.1	474	47.6	424	77.1	287	94	40	140	140	28.6	1.1/8	806.5	2.8	10	12.97	0.15	274712	###	18.4	98230	4638	11	13777	###	7112	466.3	15.3	39.7	5137.9	168.6		
IR 356 x 678.6	IR 14 x 455	678.6	483	51.2	428	81.5	286	98	41	140	145	28.6	1.1/8	864.6	2.6	9.4	13.14	0.14	299270	###	18.6	1E+05	4982	11	16441	###	7669	470.5	15.4	40.2	5465.5	179.3		
IR 356 x 744.5	IR 14 x 500	744.5	498	55.6	432	88.9	285	106	44	140	155	28.6	1.1/8	948.4	2.4	9	13.36	0.13	341725	###	19	1E+05	5555	11	21394	###	8554	479.0	15.7	40.9	5964.5	195.7		
IR 356 x 820.4	IR 14 x 550	820.4	514	60.5	437	97	285	114	46	140	160	28.6	1.1/8	1045	2.3	8.5	13.60	0.12	392505	###	19.4	1E+05	6194	11	27887	###	9554	483.2	15.9	41.7	6509.9	213.6		
IR 356 x 901.5	IR 14 x 605	901.5	531	65.9	442	106	287	122	49	140	170	28.6	1.1/8	1149	2.1	8.1	13.82	0.11	449528	###	19.8	2E+05	6932	12	36212	###	###	491.7	16.1	42.5	7065.4	231.8		
IR 356 x 992.6	IR 14 x 665	992.6	550	71.9	448	115	286	132	52	140	180	28.6	1.1/8	1265	2	7.7	14.15	0.11	516125	###	20.2	2E+05	7735	12	46618	###	###	496.0	16.3	43.5	7716.3	253.2		
R 356 x 1088.4	IR 14 x 730	1088.9	569	78	454	125	287	141	56	140	190	28.6	1.1/8	1387	1.8	7.3	14.42	0.11	595210	###	20.8	2E+05	8636	12	60353	###	###	504.4	16.5	44.4	8391.5	275.3		
IR 406 x 38.9	IR 16 x 26	38.9	399	6.4	140	8.8	345	27	19	70	75	25.4	1	49.6	8	62.8	1178	3.52	3.26	12529	629	15.9	399	57	2.8	10.8	724	90	118.7	3.9	39.0	341.5	11.2	
IR 406 x 46.2	IR 16 x 31	46.2	403	7	140	11.2	346	29	19	70	75	25.4	1	58.8	6.3	57.7	1395	3.62	2.57	15609	773	16.3	516	74	3	19.1	885	115	127.2	4.2	39.2	361.7	11.9	
IR 406 x 53.7	IR 16 x 36	53.7	403	7.5	177	10.9	346	29	19	90	75	28.6	1.1/8	68.4	8.1	4527	53.8	1604	4.65	2.08	18.647	926	16.5	1020	115	3.9	22.5	1049	117	165.3	5.4	39.2	464.0	15.2
IR 406 x 59.8	IR 16 x 40	59.8	407	7.8	178	12.8	346	30	21	90	75	28.6	1.1/8	76.1	6.9	52.5	1685	4.73	1.78	21561	1060	16.8	1203	135	4	32.9	1195	208	169.6	5.6	39.4	484.7	15.9	
IR 406 x 67.4	IR 16 x 45	67.4	410	8.8	179	14.4	346	32	21	90	80	28.6	1.1/8	85.8	6.2	46.8	2120	4.76	1.6	24391	1191	16.9	1365	153	4	46.2	1349	238	169.6	5.6	39.6	502.6	16.5	
IR 406 x 74.4	IR 16 x 50	74.4	413	9.7	180	16	346	33	21	90	80	28.6	1.1/8	94.8	5.6	42.8	2535	4.81	1.44	27430	1327	17	1548	172	4	63.3	1508	267	169.6	5.6	39.7	525.2	17.2	
IR 406 x 85.1	IR 16 x 57	85.1	417	10.9	181	18.2	347	35	22	90	80	28.6	1.1/8	108.4	5	38.2	3183	4.87	1.27	31550	1511	17.1	1794	198	4.1	92.4	1721	310	173.8	5.7	39.9	557.4	18.3	
IR 406 x 99.8	IR 16 x 67	99.8	415	10	260	16.9	345	33	21	140	80	28.6	1.1/8	127.1	7.7	41.3	2743	7.17	0.95	39708	1917	17.7	4953	380	6.2	99.5	2130	582	262.8	8.6	39.8	794.6	26.1	
IR 406 x 114.5	IR 16 x 77	114.5	420	11.6	261	19.3	347	37	22	140	85	28.6	1.1/8	145.8	6.8	36.3	3524	7.24	0.83	46202	2194	17.8	5744	441	6.3	148.6	2250	674	267.1	8.8	40.1	847.8	27.8	
IR 406 x 132.7	IR 16 x 89	132.7	425	13.2	263	22.2	346	40	22	140	85	28.6	1.1/8	169	5.9	31.9	4564	7.33	0.73	54110	2540	17.9	6785	515	6.3	226.9	2868	788	267.1	8.8	40.3	922.7	30.3	
IR 406 x 148.9	IR 16 x 100	148.9	431	14.9	265	25	345	43	24	140	90	28.6	1.1/8	189.7	5.3	29	7.40	0.65	62018	2868	18	7742	585	6.4	321.7	3245	900	271.3	8.9	40.6	996.8	32.7		
IR 457 x 52.2	IR 18 x 35	52.2	450	7.6	152	10.8	392	29	19	90	75	22.2	7/8	66.5	7.1	59	1334	3.85	2.73	21228	944	17.9	637	84	3.1	21.2	1090	132	131.4	4.3	43.9	377.9	12.4	
IR 457 x 59.8	IR 18 x 40	59.8	455	8	153	13.3	394	30	21	90	75	22.2	7/8	76.1	5.7	56.8	1439	3.96	2.23	25473	1121	18.3	795	104	3.2	33.7	1285	163	135.6	4.5	44.2	398.9	13.1	
IR 457 x 68.4	IR 18 x 46	68.4	459	9.1	154	15.4	395	32	21	90	80	25.4	1	87.1	5	50.2	1843	4.01	1.94	29636	1291	18.4	932	122	3.3	50.8	1486	192	139.9	4.6	44.4	417.6	13.7	
IR 457 x 74.5	IR 18 x 50	74.4	457	9	190	14.5	393	32	21	90	80	28.6	1.1/8	94.8	6.6	50.7	1807	5.03	1.66	33298	1457	18.7	1669	175	4.2	51.6	1655	272	178.0	5.8	44.3	517.0	17.0	
IR 457 x 82.0	IR 18 x 50	82	460	9.9	191	16	393	33	21	90	80	28.6	1.1/8	104.5	6	46.4	2157	5.07	1.5	37045	1611	18.8	1869	195	4.2	69.1	1835	303	178.0	5.8	44.4	534.6	17.5	
IR 457 x 89.1	IR 18 x 60	89.1	463	10.5	192	17.7	393	35	21	90	80	28.6	1.1/8	113.6	5.4	44	2399	5.12	1.37	40957	1770	18.9	2065	218	4.3	90.3	2016	338	182.3	6.0	44.5	554.3	18.2	
IR 457 x 96.7	IR 18 x 65	96.7	466	11.4	193	19.1	393	37	22	90	85	28.6	1.1/8	123.2	5.1	40.8	2790	5.16	1.27	44537	1917	19	2281	236	4.3	114	2197	369	182.3	6.0	44.7	573.6	18.8	
IR 457 x 105.3	IR 18 x 71	105.3	469	12.6	194	20.6	393	38	22	90	85	28.6	1.1/8	134.2	4.7	37.3	3338	5.20	1.18	48699	2081	19.1	2510	259	4.3	145	2376	405	182.3	6.0	44.8	597.5	19.6	
IR 457 x 112.9	IR 18 x 76	112.9	463	10.8	280	17.3	393	35	21	140	80	28.6	1.1/8	143.9	8.1	42.8	2535	7.68	0.96	55359	2393	19.6	6327	452	6.6	118	2671	692	279.8	9.2	44.6	825.9	27.1	
IR 457 x 128.1	IR 18 x 86	128.1	467	12.2	282	19.6	394	37	22	140	85	28.6	1.1/8	163.2	7.2	38.3	3166	7.74	0.85	63683	2720	19.7	7284	518	6.7	171	3048	793	284.0	9.3	44.7	870.4	28.6	
IR 457 x 144.3	IR 18 x 97	144.3	472	13.6	283	22.1	393	40	22	140	85	28.6	1.1/8	183.9	6.4	34.7	3857	7.82	0.76	72840	3081	19.9	8366	592	6.7	244	3458	906	284.0	9.3	45.0	924.4	30.3	
IR 457 x 157.3	IR 18 x 106	157.5	476	15	284	23.9	393	41	24	140	90	28.6	1.1/8	200.7	6	31.7	7.87	0.7	79500	3343	19.9	9157	646	6.8	311	3769	991	288.2	9.5	45.2	969.2	31.8		
IR 457 x 177.8	IR 18 x 119	177.8	482	16.6	286	26.9	393	44	24	140	90	28.6	1.1/8	226.5	5.3	29	7.96	0.63	91154	3785	20	10531	736	6.8	441	4277	1132	288.2	9.5	45.5	1045.3	34.3		
IR 533 x 65.8	IR 21 x 44	65.8	525	8.9	165	11.4	464	30	22	90	75	25.4	1	83.9	7.2	59	1334	4.07	2.78	35088	1337	20.5	862	104	3.2	32	1563	167	135.6	4.5	51.4	396.6	13.0	
IR 533 x 74.4	IR 21 x 50	74.4	529	9.7	166	13.6	462	33	22	90	80	25.4	1	94.8	6.1	54.8	1546	4.15	2.35	40957	1549	20.8	1036	125	3.3	47.5	1803	200	139.9	4.6	51.5	412.9	13.5	
IR 533 x 84.6	IR 21 x 57	84.6	535	10.3	166	16.5	465	35	22	90	80	28.6	1.1/8	107.7	5	52	1717	4.26	1.95	48699	1819	21.2	1274	153	3.4	73.7	2114	243	144.1	4.7	51.9	436.3	14.3	
IR 553 x 92.7	IR 21 x 62	92.7	533	10.2	209	15.6	463	35	22	140	80	25.4	1	118.1	6.7	52.5	1685	5.45	1.63	55359	2081	21.7	2393	228	4.5	76.2	2360	356	190.8	6.3	51.7	552.1	18.1	
IR 553 x 101.3	IR 21 x 68	101.3	537	10.9	210	17.4	464	37	22	140	85	25.4	1	129	6	49.1	1929	5.52	1.47	61602	2294	21.8	2693	257	4.6	102	2622	400	195.0	6.4	52.0	572.0	18.8	
IR 553 x 108.9	IR 21 x 73	108.9	539	11.6	211																													

DESIGNACION		Peso	Peralte		Alma	Patin		Distancia			Gramil		Sujetadores		Area	Criterios de seccion compacta				f <sub>ts</sub>	d	Af	Eje X - X			Eje Y - Y			Constante de torsion	Modulo de seccion plástico		Longitud Límite	Longitud Límite	Distancia	Longitud Límite	Longitud Límite
d x	Peso		d	tw		bf	tf	T	k	k <sub>1</sub>	g	G <sub>1</sub>	Ømax. En patin	b <sub>1</sub>		F <sub>y</sub>	d	F <sub>y</sub> <sup>m</sup>	I				S	r	I	S	r	J		Z <sub>x</sub>	Z <sub>y</sub>					
IR 610 x 195.0	IR 24 x 131	195	622	15.4	327	24.4	533	44	27	140	90	28.6	1.1/8	248.4	6.7	40.5	2831	8.86	0.78	167324	5391	25.9	14152	869	7.5	395	6063	1336	317.9	10.4	59.8	970.1	31.8			
IR 610 x 217.8	IR 24 x 146	217.8	628	16.5	328	27.7	533	48	27	140	95	28.6	1.1/8	277.4	5.9	38.1	3199	8.96	0.69	190633	6080	26.2	16275	991	7.6	558	6850	1527	322.2	10.6	60.0	1026.2	33.7			
IR 610 x 241.6	IR 24 x 162	241.6	635	17.9	329	31.1	533	51	27	140	100	28.6	1.1/8	307.8	5.3	35.5	3685	9.06	0.62	215191	6784	26.4	18439	1121	7.7	770	7669	1721	326.4	10.7	60.4	1089.3	35.7			
IR 686 x 125.6	IR 27 x 84	125.6	678	11.7	253	16.3	609	35	24	140	80	28.6	1.1/8	160	7.8	58.1	1376	6.47	1.65	118626	3490	27.2	4412	347	5.3	117	3998	544	224.7	7.4	66.2	634.4	20.8			
IR 686 x 140.3	IR 27 x 94	140.3	684	12.4	254	18.9	611	37	24	140	85	28.6	1.1/8	178.7	6.7	54.9	1541	6.57	1.42	136107	3982	27.7	5161	406	5.4	168	4556	636	228.9	7.5	66.5	657.0	21.6			
IR 686 x 151.9	IR 27 x 102	151.9	688	13.1	254	21.1	609	40	24	140	85	28.6	1.1/8	193.6	6	52.6	1679	6.64	1.28	150675	4375	27.9	5786	456	5.5	220	4998	711	233.1	7.6	66.7	677.1	22.2			
IR 686 x 169.7	IR 27 x 114	169.7	693	14.5	256	23.6	611	41	24	140	90	28.6	1.1/8	216.1	5.4	47.9	2024	6.72	1.15	170238	4900	28	6618	516	5.5	305	5621	808	233.1	7.6	66.9	704.3	23.1			
IR 686 x 217.3	IR 27 x 146	217.3	695	15.4	355	24.8	610	43	25	140	90	28.6	1.1/8	276.8	7.2	45.3	2263	9.58	0.79	234337	6735	29	18439	1041	8.2	454	7554	1598	347.6	11.4	67.0	1015.0	33.3			
IR 686 x 240.1	IR 27 x 161	240.1	701	16.8	356	27.4	609	46	25	140	95	28.6	1.1/8	305.8	6.5	41.8	2658	9.67	0.72	261392	7456	29.2	20687	1162	8.2	612	8390	1786	347.6	11.4	67.4	1057.7	34.7			
IR 686 x 264.9	IR 27 x 178	264.9	706	18.4	358	30.2	611	48	27	140	95	28.6	1.1/8	337.4	5.9	38.4	3149	9.74	0.65	290945	8226	29.5	23100	1291	8.3	812	9291	2000	351.8	11.5	67.6	1104.3	36.2			
IR 762 x 147.4	IR 30 x 99	147.4	753	13.2	265	17	680	37	25	140	85	28.6	1.1/8	187.8	7.8	57	1429	6.67	1.67	166076	4408	29.7	5328	401	5.3	157	5113	633	224.7	7.4	73.6	651.9	21.4			
IR 762 x 160.5	IR 30 x 108	160.5	758	13.8	266	19.3	678	40	25	140	85	28.6	1.1/8	204.5	6.9	54.7	1552	6.77	1.48	186055	4900	30.2	6077	457	5.5	208	5670	719	233.1	7.6	73.9	671.0	22.0			
IR 762 x 173.2	IR 30 x 116	173.2	762	14.4	267	21.6	680	41	25	140	90	28.6	1.1/8	220.7	6.2	53.1	1647	6.85	1.32	205201	5391	30.5	6826	513	5.6	268	6194	806	237.4	7.8	74.0	689.1	22.6			
IR 762 x 184.9	IR 30 x 124	184.9	766	14.9	267	21.6	681	43	25	140	90	28.6	1.1/8	235.5	5.7	51.6	1744	6.94	1.21	223100	5817	30.7	7534	564	5.7	333	6686	885	241.6	7.9	74.4	709.5	23.3			
IR 762 x 197.0	IR 30 x 132	197	770	15.6	268	25.4	681	44	27	140	90	28.6	1.1/8	251	5.3	49.3	1911	6.98	1.13	240165	6227	31	8158	610	5.7	405	7161	957	241.6	7.9	74.5	725.3	23.8			
IR 762 x 257.3	IR 30 x 173	257.3	773	16.6	381	27.1	678	48	27	140	95	28.6	1.1/8	327.8	7	46.5	2148	10.25	0.75	341309	8833	32.3	24891	1308	8.7	637	9914	2016	368.8	12.1	74.6	1080.0	35.4			
IR 762 x 284.1	IR 30 x 191	284.1	779	18	382	30.1	681	49	27	140	95	28.6	1.1/8	362	6.4	43.2	2488	10.35	0.68	381683	9800	32.5	28012	1467	8.8	857	###	2261	373.0	12.2	74.9	1123.4	36.9			
IR 762 x 314.0	IR 30 x 211	314	786	19.7	384	33.4	678	54	29	140	100	28.6	1.1/8	400	5.7	39.9	2917	10.45	0.61	428717	###	32.8	31509	1639	8.9	1161	###	2524	377.3	12.4	75.3	1177.3	38.6			

NOTA: LOS PERFILES SOMBRADOS NO SON DE FABRICACION COMUN, POR LO QUE SE RECOMIENDA CONSULTAR CON EL PROVEEDOR SU DISPONIBILIDAD

$$F_{cr} = \frac{C_b \pi^2 E}{\left(\frac{L_b}{r_x}\right)^2} \sqrt{1 + 0.078 \frac{J_c}{S_x h_o} \left(\frac{L_b}{r_x}\right)^2}$$

L <sub>b</sub> (cm)	800	900	1000
C <sub>b</sub>	1	1	1

C <sub>b</sub> = 1 y L <sub>b</sub> =800cm	C <sub>b</sub> = 1 y L <sub>b</sub> =900cm	C <sub>b</sub> = 1 y L <sub>b</sub> =1000cm
F <sub>cr</sub>	F <sub>cr</sub>	F <sub>cr</sub>
kg/cm <sup>2</sup>	kg/cm <sup>2</sup>	kg/cm <sup>2</sup>
1785.0	1582.7	1421.9
1812.5	1602.2	1436.3
2126.6	1882.2	1688.7
716.0	629.7	562.3
917.9	810.1	725.4
1251.1	1107.0	993.1
1379.1	1204.6	1070.3
1771.6	1556.6	1389.2
2201.8	1941.1	1736.5
515.9	450.6	400.4
666.3	585.6	522.7
773.4	681.1	608.9
1054.3	921.7	819.4
1227.8	1077.3	960.4
1671.5	1460.7	1298.2
1908.0	1672.6	1490.1
2298.5	1999.3	1770.6
2544.6	2220.7	1971.7
2847.5	2492.6	2218.1
3371.9	2962.6	2643.9
4015.2	3537.6	3163.4
4586.9	4047.7	3623.9
462.4	403.1	357.7
534.9	467.9	416.3
629.4	552.3	492.5
700.0	615.5	549.5
1025.2	889.3	785.8
1186.6	1034.4	917.6
1356.6	1187.1	1056.1
1928.3	1666.5	1468.5
2235.4	1943.3	1720.3
2542.8	2218.0	1968.6
3097.7	2672.2	2351.2
3453.6	3162.4	2790.1
3621.3	3144.9	2781.7
4029.2	3511.7	3114.8
4485.4	3921.6	3486.6
5038.2	4417.1	3935.4
5672.2	4984.0	4447.9
6281.6	5528.4	4939.7

$C_b = 1 \text{ y}$ $L_b = 800 \text{ cm}$	$C_b = 1 \text{ y}$ $L_b = 900 \text{ cm}$	$C_b = 1 \text{ y}$ $L_b = 1000 \text{ cm}$
$F_{cr}$	$F_{cr}$	$F_{cr}$
391.2	339.2	299.7
439.4	382.4	338.7
471.7	412.3	366.4
617.3	541.3	482.3
1062.3	909.7	795.8
1181.2	1017.8	894.7
1348.2	1168.4	1031.8
1856.4	1600.7	1408.0
2022.7	1751.1	1545.1
2203.4	1914.0	1693.3
2707.2	2318.9	2028.8
2910.6	2502.8	2196.6
3629.0	3085.2	2682.4
3888.2	3321.0	2898.7
4150.0	3559.2	3117.1
4462.3	3841.6	3374.7
4827.6	4171.7	3675.7
5203.6	4511.7	3985.7
5772.1	5022.2	4448.9
6392.6	5579.5	4954.3
7073.9	6190.3	5507.6
7797.2	6837.7	6093.4
8624.7	7576.8	6760.8
9432.4	8297.4	7411.2
10263.1	9038.3	8079.7
11136.1	9816.5	8781.5
12191.1	10755.9	9628.1
13213.5	11666.4	10448.7
14468.2	12783.1	11454.6
620.1	534.7	470.4
728.3	631.9	558.5
1038.9	886.2	772.6
1152.5	988.8	866.2
1262.1	1087.9	956.6
1686.9	1447.5	1268.3
1836.9	1583.5	1392.6
1985.0	1716.9	1513.9
2616.0	2236.9	1954.3
2829.6	2430.6	2131.4
3040.1	2620.0	2303.6
3255.6	2815.8	2482.8
4809.0	4041.8	3480.0
5105.8	4311.8	3727.8
5419.9	4598.2	3991.0
5767.2	4914.8	4282.0
6138.3	5253.3	4592.8
6843.3	5855.4	5118.4
7312.6	6280.5	5504.7
7904.5	6815.5	5993.4
8481.1	7335.0	6467.2
9117.6	7906.5	6985.5
9863.2	8578.0	7596.0
10733.5	9357.8	8302.1
11616.2	10149.2	9019.1
12615.7	11042.4	9826.3
13738.2	12043.8	10730.0

$C_b = 1 \text{ y}$ $L_b = 800 \text{ cm}$	$C_b = 1 \text{ y}$ $L_b = 900 \text{ cm}$	$C_b = 1 \text{ y}$ $L_b = 1000 \text{ cm}$
$F_{cr}$	$F_{cr}$	$F_{cr}$
14717.9	12918.6	11519.9
15687.0	13783.1	12300.1
16637.0	14630.7	13065.1
17639.5	15522.9	13868.9
19161.4	16878.2	15090.4
20827.6	18361.5	16426.8
22525.2	19872.5	17788.1
24534.7	21657.3	19393.5
26605.4	23498.9	21051.7
648.2	554.0	483.8
759.0	653.6	574.2
1059.1	899.9	782.0
1167.9	997.9	871.2
1267.0	1088.2	954.1
1379.6	1190.0	1046.9
1531.6	1327.3	1172.1
2434.1	2061.0	1785.8
2661.5	2268.6	1974.8
2958.1	2537.6	2222.9
3231.3	2785.3	2449.2
768.8	656.5	573.0
876.7	753.1	660.4
980.3	846.7	745.7
1279.2	1089.7	949.1
1372.6	1174.6	1026.9
1470.8	1263.5	1108.0
1563.7	1347.6	1184.9
1672.4	1445.7	1274.2
2578.7	2164.5	1861.5
2775.4	2344.8	2027.9
2999.3	2548.7	2215.3
3174.8	2708.4	2361.7
3458.8	2965.7	2596.8
807.4	685.6	595.6
894.3	763.7	666.5
1013.1	870.0	762.7
1383.5	1169.3	1011.7
1485.9	1261.7	1096.0
1561.1	1330.1	1158.5
1707.4	1462.7	1279.9
1857.7	1598.7	1404.0
3032.4	2530.4	2164.9
3178.2	2665.0	2289.9
3372.3	2840.9	2450.9
3540.9	2994.7	2592.4
3793.1	3224.1	2802.8
881.3	744.6	644.1
963.4	818.5	711.3
1427.4	1191.1	1019.1
1537.5	1290.4	1109.6
1656.9	1397.8	1207.5
1792.4	1520.8	1320.2
2923.4	2412.3	2042.7
3102.2	2575.1	2192.6

$C_b = 1 \text{ y}$ $L_b = 800\text{cm}$	$C_b = 1 \text{ y}$ $L_b = 900\text{cm}$	$C_b = 1 \text{ y}$ $L_b = 1000\text{cm}$
$F_{cr}$	$F_{cr}$	$F_{cr}$
3290.9	2747.4	2351.5
3527.8	2962.2	2548.4
3778.0	3189.5	2756.9
1666.0	1380.7	1173.8
1785.0	1487.6	1271.2
1887.9	1580.2	1355.7
2023.6	1703.1	1468.1
3588.4	2965.5	2514.7
3775.5	3135.4	2670.8
3967.7	3311.0	2832.8
1737.4	1435.5	1217.1
1836.8	1523.7	1296.6
1930.2	1607.4	1372.6
2031.6	1697.1	1453.3
2110.7	1769.2	1519.6
3992.0	3283.3	2771.8
4182.7	3456.2	2930.4
4407.1	3659.7	3117.3