TYPICAL STAINLESS STEEL WIRE ROPE BREAKING LOAD SPECIFICATIONS

WIRE DIAMETER		1 x 19			7 x 19		
		kN	kg	lb	kN	kg	lb
1.2mm	3/64 in.	1.08	110	243	0.81	83	183
1.5mm	1/16 in.	2.11	215	474	1.44	147	324
2.0mm	5/64 in.	3.14	320	705	2.26	230	507
2.5mm	3/32 in.	4.90	500	1102	3.82	390	860
3.0mm	1/8 in.	7.06	720	1587	5.00	510	1124
4.0mm	5/32 in.	12.60	1285	2833	8.89	907	2000
4.8mm	3/16 in.	18.90	1930	4255	12.60	1280	2822
5.0mm	–	19.60	1999	4407	13.90	1417	3124
5.6mm	7/32 in.	24.20	2470	5445	17.20	1750	3858
6.0mm	–	28.00	2876	6340	20.00	2039	4495
6.4mm	1/4 in.	34.00	3440	7584	22.00	2280	5027
7.0mm	9/32 in.	35.00	3549	7824	36.00	2784	6138
8.0mm	5/16 in.	46.00	4640	10229	36.00	3630	8003
9.5mm	3/8 in.	65.00	6580	14506	51.00	5150	11354
10.0mm	–	71.00	7250	15984	56.00	5670	12500
11.0mm	7/16 in.	86.00	8770	19335	68.00	6950	15322
12.0mm	–	102.00	10401	22930	80.00	8158	17985
12.7mm	1/2 in.	119.00	12101	26678	90.00	9150	20172
14.0mm	9/16 in.	139.00	14174	31248	109.00	11115	24504
16.0mm	5/8 in.	182.00	18559	40916	133.00	13600	29983
19.0mm	3/4 in.	212.00	21618	47660	191.00	19500	44730
22.0mm	7/8 in.	285.00	29062	64071	–	–	–
26.0mm	1 in.	398.00	40585	89475	–	–	–
28.0mm	–	516.00	52600	115963	–	–	–
30.0mm	–	660.00	67300	148371	–	–	–
32.0mm	1 1/4 in.	751.00	76580	168830	–	–	–
34.0mm	–	848.00	88500	195109	–	–	–
36.0mm	–	950.00	96875	213573	–	–	–

Note – Wire construction for sizes above 26mm diameter may not be 1 x 19

STRETCH IN WIRE ROPES

Stretch is a characteristic of all wire ropes, initially as permanent stretch when the load is first applied and the individual wires bed down, and then as conventional elastic stretch within the wires. Where stretch is critical to the application, initial stretch can be accounted for with cables pre-tensioned or pre-stressed during swaging and cable manufacturing. Elastic stretch can be calculated by the following formula:

$$\text{Elastic stretch (mm)} = \frac{W \times L}{E \times A}$$

where:

W = Applied Load (kN)

L = Cable Length (mm)

E – Strand Modulus (kN/mm²)

$$A = \text{Area of Cable} = \frac{D^2 \times \pi}{4}$$

where D = Nominal Diameter of Cable (mm)

Typical values for E are:-

1 x 19 107.5kN/mm² 15.59 x 10^6 P.S.I.

7 x 19 47.5kN/mm² 6.89 x 10^6 P.S.I.

SWAGING DIMENSIONS

Correct installation of a swage fitting requires that the shank of the fitting be formed down onto the wire with specialised dies and presses in accordance with the following dimensions:

Wire Diameter		2.5	3.0	4.0	5.0	5.6	6.0	7.0	8.0	10.0	11.0	12.0	14.0	16.0	19.0	22.0	26.0
mm																	
in.		3/32	1/8	5/32	3/16	7/32	1/4	9/32	5/16	3/8	7/16	1/2	9/16	5/8	3/4	7/8	1
Code mm		2.5M	03M	04M	05M	–	06M	07M	08M	10M	–	12M	14M	16M	19M	22M	26M
Code in.		03	04	05	06	07	08	09	10	12	14	16	18	20	24	28	32
Length of Wire Inside Swage	mm	32.3	38.4	45	55	60.5	70	78.5	88	110	122	140	157	176	210	245	286
	in.	1.27	1.51	1.77	2.17	2.38	2.76	3.09	3.46	4.33	4.80	5.51	6.18	6.93	8.27	9.65	11.26
Diameter OD Before swaging	mm	5.54	6.35	7.54	9.12	10.85	12.55	14.30	16.13	17.86	19.84	21.44	24.99	28.17	34.52	40.46	46.02
	in.	0.218	0.250	0.297	0.359	0.427	0.494	0.563	0.635	0.703	0.781	0.844	0.984	1.109	1.359	1.593	1.812
Diameter OD After swaging	mm	4.83	5.56	6.35	7.95	9.53	11.13	12.70	14.30	15.88	17.48	19.05	22.23	25.40	31.75	36.50	41.28
	in.	0.190	0.219	0.250	0.313	0.375	0.438	0.500	0.563	0.625	0.688	0.750	0.875	1.000	1.250	1.437	1.625
Tolerance on OD	mm	+0, -0.13				+0, -0.18		+0, -0.20				+0, -0.23		+0, -0.26		+0, -0.31	
	in.	+0, -0.005				+0, -0.007		+0, -0.008				+0, -0.009		+0, -0.010		+0, -0.012	