Anchor system selection from Salty John

Anchor and rode selection: Moderate displacement sail boat in anchorage with good holding, to 40 knots of wind, gusting higher.

Boat LOA m (ft):	7 (22)	8 (26)	9 (30)	10 (33)	11 (36)	12 (40)	13 (43)	14 (46)	15 (50)
Anchor kg (lbs)									
CQR	7 (15)	9 (20)	16 (35)	16 (35)	16 (35)	20 (45)	20 (45)	20 (45)	27 (60)
Danforth	7 (14)	7 (14)	11 (25)	11 (25)	19 (43)	19 (43)	19 (43)	19 (43)	32 (70)
Bruce	5 (11)	7.5 (17)	10 (22)	15 (33)	15 (33)	15 (33)	20 (45)	30 (66)	30 (66)
Delta	6 (13)	10 (22)	10 (22)	16 (35)	16 (35)	16 (35)	20 (45)	20 (45)	40 (88)
Rocna	6 (13)	10 (22)	10 (22)	15 (33)	15 (33)	20 (45)	20 (45)	25 (55)	
Code of Practice	*9 (20)*	*10 (22)*	*11 (24)*	*13 (29)*	*15 (33)*	*18 (40)*	*21 (46)*	*24 (53)*	*27(60)*
Chain:									
Calibrated DIN766*	6mm	8mm	8mm	8mm	8mm	8mm	10mm	10mm	12mm
*Code of Practice***	*6mm*	*8mm*	*8mm*	*8mm*	*8mm*	*8mm*	*10mm*	*10mm*	*10mm*
Rope* **	12mm	12mm	12mm	12mm	14mm	14mm	14mm	14mm	All chain
Code of Practice	*12mm*	*12mm*	*12mm*	*12mm*	*12mm*	*14mm*	*14mm*	*14mm*	*All chain*

For a light displacement boat, go one boat size smaller, for a heavy displacement boat, go one larger.

MCA (Maritime and Coastguard Agency) Code of Practice shown in italics

* Short link galvanized chain made to EN 24565 (ISO 4565, BS 7160) and calibrated to DIN 766. This fits most new windlasses, but check with supplier of windlass.
** Ditto
*** This is three-strand nylon, three-strand polyester or Anchorplait

Comments:
I recommend all chain on the primary rode.
I recommend at least 1 boat length of chain on rope rodes.
Beware of cheap imitation CQR anchors. Watch out for a steel pin or bolt securing the shank to the flukes – on the genuine CQR this is forged with the shank.
I would use a Danforth as my second anchor but not my primary anchor. Note that on Danforth's own selection charts they give recommended sizes for winds to only 20 knots. I show bigger sizes.
Note that some manufacturer's recommendations give a lower weight anchor than the Code of Practice.
Do NOT assume that American chain sizes are direct conversions from European chain sizes. Not only is the pitch different but in the USA the wire size of a chain link is actually 1/32" larger than the nominal size.
In severe weather conditions I recommend anchoring to two anchors laid from the bow 45° apart. Protect rope rodes with canvas or leather sleeves at wear points.

Tension on an anchor rode.

This table shows the estimated tension imposed on an anchor rode by various wind velocities acting on a 36' cruising sloop with sails furled:

Wind speed in knots	20	25	30	35	40	45	50	60
Rode tension lbs (kg)	150 (70)	225 (100)	300 (140)	400 (180)	550 (250)	700 (310)	900 (400)	1200 (550)

The load on the anchor rode is substantially less than the safe working load of the chain or rope used to secure a boat of this size. For example, the safe working load of the 8mm chain recommended for a 36’ boat of this type is 800kg, with an ultimate breaking strain of around 3200kgs.
So, unless there is a “weak link” in the system such as a bad splice or deficient shackle, the factor which most effects security is the strength of the connection between anchor and seabed. In most cases the ultimate strength of the anchoring system vastly exceeds the load at which the anchor will break out. I have seen numerous anchor pull tests that compare the break-out load for most of the popular anchor types. There is little consistency in these tests, sometimes one type of anchor wins, in another test that anchor might come out as the worst! The interesting thing is that the majority of the test results, and all the manufacturers’ data, credit the popular anchors with a greater break-out load than would be necessary to hold the boat in the circumstances of the selection chart. So, as long as the anchor is properly set, in the bottom for which it is suited, you can feel confident in ground tackle selected from the chart.

Disclaimer: This information is provided in good faith but I cannot be held responsible for any consequence of use of the information.