Proposed Mooring Specification Modern Bilge Keel 21 ft Yacht

Yacht 'Gwynedd Council' measured for example as: -

Freeboard of hull 0.8 mtr multiplied by beam 2.4 mtr	=	1.92	sq mtrs
Topsides 1.9 mtr ht multiplied by 0.7 beam	=	1.33	sq mtrs
Mast 7.5 mtrs multiplied by diameter 0.07 mtrs	=	0.53	sq mtrs
Rigging 8 stays by 7.5 mtrs by 5 mm dia	=	0.3	sq mtrs
Roller reefing headsail 7.5 mtrs by 150 mm dia	=	1.12	sq mtrs
Total area subject to windage	=	5.2	sq mtrs
Dynamic Air Pressure at 80 Knts Force 12	=	105	kg sq mtr
Shape co-efficient of modern sailing boat hull	=	0.70	
Loading of boat on mooring due to wind forces			
= Total area by Pressure of air by shape co-efficient	=	382.2	Kg
Multiply result by 2 to allow for yawing	=	764.4	Kg
Riser			
Bradney short link 11 mm max service load	=	1.5	Tonne
Ground chain			
Bradney short link 12.5 mm max service load	=	1.9	Tonne
Shackles to be rated at next nominal size to chain			
Riser to swivel 13.5mm 16mm Pin working load limit	=	2.0	tons
Ground chain to Anchor 16mm 19mm pin	=	3.25	tons
Swivel to be 13mm Working Load Limit	=	1.6	tons

Riser to be equal to depth at H.A.T.
Ground Chain to be 2 times depth at H.A.T.

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Biblography and calcs: -

Calculations derived from Aero-Dynamics of Sailing (C.A.Marchaj) Pages 168 & 178.

Bradney Mooring and Anchoring.

Anchoring and Mooring (Alain Gree) page 65.

The Ceasars Wife Mooring Explained (Alistair Parker-Rees) article from Practical Boat Owner.

Mooring Specification Modern Bilge Keel 25 ft Yacht

Yacht 'Gwynedd Council 2' measured for example

Freeboard of hull 1.1 mtr multiplied by beam 2.7 mtr	=	2.97	sq mtrs
Topsides 1.1 mtr ht multiplied by 0.950 beam	=	1.05	sq mtrs
Mast 8 mtrs multiplied by diameter 0.1 mtrs	=	0.8	sq mtrs
Rigging 7 stays by 8 mtrs by 5 mm dia	=	0.28	sq mtrs
Roller reefing headsail 8 mtrs by 150 mm dia	=	1.2	sq mtrs
Total area subject to windage	=	6.5	sq mtrs
Dynamic Air Pressure at 80 Knts Force 12	=	105	kg sq mtr
Shape co-efficient of modern sailing boat hull	=	0.70	
Loading of boat on mooring due to wind forces			
= Total area by Pressure of air by shape co-efficient	=	477.75	Kg
Multiply result by 2 to allow for yawing	=	955.5	Kg
Riser			
Bradney short link 12.5 mm max service load	=	1.9	Tonne
Ground chain			
Bradney short link 16 mm max service load	=	3.2	Tonne
Shackles to be rated at next nominal size to chain			
Riser to swivel 13.5mm 16mm Pin working load limit	=	2.0	tons
Ground chain to Anchor			
Swivel to be 16mm Working Load Limit	=	2.4	tons

Riser to be equal to depth at H.A.T.
Ground Chain to be 2 times depth at H.A.T.

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Biblography and calcs: -

Calculations derived from Aero-Dynamics of Sailing (C.A.Marchaj) Pages 168 & 178.

Bradney Mooring and Anchoring.

Anchoring and Mooring (Alain Gree) page 65.

The Ceasars Wife Mooring Explained (Alistair Parker-Rees) article from Practical Boat Owner.

Mooring Specification Modern Bilge Keel 31 ft Yacht

Yacht 'Gwynedd Council 3' measured for example

Freeboard of hull 1.2 mtr multiplied by beam 2.9 mtr	=	3.48	sq mtrs
Topsides 0.8 mtr ht multiplied by 2.2 beam	=	1.76	sq mtrs
Mast 11.52 mtrs multiplied by diameter 0.13 mtrs	=	1.50	sq mtrs
Rigging 6 stays by 11.52 mtrs by 7 mm dia	=	0.48	sq mtrs
Roller reefing headsail 11.52 mtrs by 150 mm dia	=	1.73	sq mtrs
Total area subject to windage	=	8.95	sq mtrs
Dynamic Air Pressure at 80 Knts Force 12	=	105	kg sq mtr
Shape co-efficient of modern sailing boat hull	=	0.70	
Loading of boat on mooring due to wind forces			
= Total area by Pressure of air by shape co-efficient	=	657.83	Kg
Multiply result by 2 to allow for yawing	=	1315.65	Kg
Riser			
Bradney short link 14 mm max service load	=	2.4	Tonne
Ground chain			
Bradney short link 16mm max service load	=	3.2	Tonne
Shackles to be rated at next nominal size to chain			
Riser to swivel 16mm 19mm Pin working load limit	=	3.25	tons
Ground chain to Anchor 19mm 22mm pin W.L.L.	=	4.75	tons
Swivel to be 19 mm Working Load Limit	=	3.3	tons

Riser to be equal to depth at H.A.T.
Ground Chain to be 2 times depth at H.A.T.

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Biblography and calcs: -

Calculations derived from Aero-Dynamics of Sailing (C.A.Marchaj) Pages 168 & 178.

Bradney Mooring and Anchoring.

Anchoring and Mooring (Alain Gree) page 65.

The Ceasars Wife Mooring Explained (Alistair Parker-Rees) article from Practical Boat Owner.

Mooring Specification Modern Bilge Keel 33 ft Yacht

Yacht 'Gwynedd Council 4' measured for example

Freeboard of hull 1.3 mtr multiplied by beam 3.6 mtr	=	4.68	sq mtrs
Topsides 1.4 mtr ht multiplied by 2.7 beam	=	3.78	sq mtrs
Mast 11.52 mtrs multiplied by diameter 0.13 mtrs	=	1.50	sq mtrs
Rigging 6 stays by 11.52 mtrs by 7 mm dia	=	0.47	sq mtrs
Roller reefing headsail 11.52 mtrs by 150 mm dia	=	1.73	sq mtrs
Total area subject to windage	=	12.16	sq mtrs
Dynamic Air Pressure at 80 Knts Force 12	=	105	kg sq mtr
Shape co-efficient of modern sailing boat hull	=	0.70	
Loading of boat on mooring due to wind forces			
= Total area by Pressure of air by shape co-efficient	=	893.76	Kg
Multiply result by 2 to allow for yawing	=	1787.52	Kg
Riser			
Bradney short link 16 mm max service load	=	3.2	Tonne
Ground chain			
Bradney short link 19 mm max service load	=	4.5	Tonne
Shackles to be rated at next nominal size to chain			
Riser to swivel 19mm 22mm Pin working load limit	=	3.25	tons
Ground chain to Anchor 22mm 25mm pin	=	6.5	tons
Swivel to be 22 mm Working Load Limit	=	4.5	tons

Riser to be equal to depth at H.A.T.
Ground Chain to be 2 times depth at H.A.T.

Biblography and calcs: -

Calculations derived from Aero-Dynamics of Sailing (C.A.Marchaj) Pages 168 & 178.

Bradney Mooring and Anchoring.

Anchoring and Mooring (Alain Gree) page 65.

The Ceasars Wife Mooring Explained (Alistair Parker-Rees) article from Practical Boat Owner.

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