

# 32 mm Big Boat: End Controls

About Carbo ball bearing or ESP sleeve bearing end controls: see feature pages at beginning of this section.



*Carbo ball bearing end controls have an integrated bar for deadending control line.*



*Assemblies secure to track eliminating additional holes.*

*Tough one-piece bases and cam arms are machined from a single piece of aluminum.*



3170



3290



3168



3169



3197

## CARBO BALL BEARING END CONTROLS



3174



3173

*3173 and 3174 high-load controls allow 2:1 to 6:1 purchases on offshore boats with mainsails over 37 m<sup>2</sup> (400 ft<sup>2</sup>). Controls feature 57 mm Black Magic Big Boat ball/roller sheaves and high-load aluminum sideplates.*

## HIGH-LOAD END CONTROLS



3212



3304



3213

## PINSTOPS



E3230  
E3230.HL



E3250  
E3250.HL



E3256



E3250HB

## ESP SLEEVE BEARING END CONTROLS



*Use E3250HB double-sheave ESP end controls for cabintop travelers where lines lead to the aft edge of the cabintop.*

*Contact Harken to order special length track with mounting holes for E3250HB end controls.*

# End Controls: 32 mm Big Boat

## TECH TIP

27 mm Midrange and 32 mm Big Boat kits are available for purchase upgrades from 1:1 to 4:1.



One, Grand Soleil 50, 15.24 m (50'), Cantieri del Pardo, naval architect: Botin & Carkeek © Sea&See / Guido Cantini

Control Purchase Recommendations				
Sail area				
End-boom sheeting		Mid-boom sheeting		Purchase
ft <sup>2</sup>	m <sup>2</sup>	ft <sup>2</sup>	m <sup>2</sup>	
Under 260	Under 24	Under 240	Under 22	3:1
260-450	24-42	240-400	22-37	4:1
450-600	42-56	400-550	37-51	6:1
Over 600	Over 56	Over 550	Over 51	2:1 w/winch

Part No.	Description	Sheave Ø		Length		Width		Weight (pair)		Max line Ø		Height above track		Maximum working load		Breaking load		Purchase
		in	mm	in	mm	in	mm	oz	g	in	mm	in	mm	lb	kg	lb	kg	
<b>Performance End Controls</b>																		
3168	Single sheave (pair)***	1 <sup>9</sup> / <sub>16</sub>	40	4 <sup>13</sup> / <sub>16</sub>	122	2 <sup>1</sup> / <sub>4</sub>	57	27	767	3/8	10	1 <sup>7</sup> / <sub>16</sub>	36	450	204	1600	725	1:1/2:1
3169	Double sheave (pair)***	1 <sup>9</sup> / <sub>16</sub>	40	4 <sup>13</sup> / <sub>16</sub>	122	2 <sup>1</sup> / <sub>4</sub>	57	31	887	3/8	10	2	51	900	408	2300	1040	3:1/4:1
3170	Double sheave/150 Cam-Matic (pair)***	1 <sup>9</sup> / <sub>16</sub>	40	4 <sup>13</sup> / <sub>16</sub>	122	4 <sup>1</sup> / <sub>8</sub>	104	39	1116	3/8	10	2	51	900	408	2300	1040	3:1/4:1
3197	Triple sheave/deadend (pair)	2 <sup>1</sup> / <sub>4</sub> /1 <sup>3</sup> / <sub>8</sub>	57/35	6 <sup>3</sup> / <sub>4</sub>	171	2 <sup>1</sup> / <sub>4</sub>	57	32.4	918	3/8	10	2 <sup>1</sup> / <sub>2</sub>	64	1500	680	2500	1134	5:1/6:1
3290	Self-tacking jib controls (pair)‡	2 <sup>1</sup> / <sub>16</sub>	52	4 <sup>1</sup> / <sub>16</sub>	110	2 <sup>1</sup> / <sub>4</sub>	57	34	964	3/8	10	2 <sup>3</sup> / <sub>16</sub>	65	900	408	1800	817	1:1
<b>High-Load Performance End Controls</b>																		
3173	High-load single (pair)	2 <sup>1</sup> / <sub>4</sub>	57	6 <sup>1</sup> / <sub>16</sub>	164	2 <sup>1</sup> / <sub>4</sub>	57	35	981	7/16	12	1 <sup>1</sup> / <sub>16</sub>	28	2500	1134	5000	2268	1:1/2:1
3174	High-load double (pair)	2 <sup>1</sup> / <sub>4</sub>	57	6 <sup>1</sup> / <sub>16</sub>	164	2 <sup>1</sup> / <sub>4</sub>	57	41	1169	7/16	12	1 <sup>15</sup> / <sub>16</sub>	49	1650	750	3300	1500	3:1/4:1
<b>Pinstops</b>																		
3212	Adjustable pinstop	—	—	2 <sup>9</sup> / <sub>16</sub>	65	2 <sup>1</sup> / <sub>4</sub>	57	8**	227**	—	—	1 <sup>1</sup> / <sub>16</sub>	33	—	—	—	—	—
3213	Adjustable pinstop/shackle	—	—	4 <sup>7</sup> / <sub>16</sub>	113	2 <sup>1</sup> / <sub>4</sub>	57	15.2**	431**	—	—	1 <sup>27</sup> / <sub>32</sub>	46	3500	1588	—	—	—
3304	Adjustable pinstop	—	—	2 <sup>1</sup> / <sub>2</sub>	64	2 <sup>1</sup> / <sub>4</sub>	57	10.3**	294**	—	—	1 <sup>1</sup> / <sub>16</sub>	30	—	—	—	—	—
<b>ESP End Controls</b>																		
E3230	Single sheave/deadend (pair)	1 <sup>3</sup> / <sub>8</sub>	35	4 <sup>13</sup> / <sub>16</sub>	122	1 <sup>13</sup> / <sub>16</sub>	45	19.54	554	3/8	10	1 <sup>7</sup> / <sub>16</sub>	36	1800	816	3600	1633	2:1
E3230.HL	High-load/single sheave/deadend (pair)	1 <sup>9</sup> / <sub>16</sub>	40	4 <sup>13</sup> / <sub>16</sub>	122	1 <sup>13</sup> / <sub>16</sub>	45	23.4	642	3/8	10	1 <sup>1</sup> / <sub>2</sub>	40	2500	1134	5000	2268	2:1
E3250HB	High-beam/double sheave (pair)*	2 <sup>1</sup> / <sub>4</sub>	57	6 <sup>1</sup> / <sub>8</sub>	155	2 <sup>1</sup> / <sub>4</sub>	57	54.6	1547	3/8	10	1	25	700	318	1400	635	3:1/4:1
E3250	Double sheave/deadend (pair)	1 <sup>3</sup> / <sub>8</sub>	35	4 <sup>13</sup> / <sub>16</sub>	122	1 <sup>13</sup> / <sub>16</sub>	45	24.2	686	3/8	10	2 <sup>1</sup> / <sub>4</sub>	56	1800	816	3600	1633	3:1/4:1
E3250.HL	High-load/double sheave/deadend (pair)	1 <sup>9</sup> / <sub>16</sub>	40	4 <sup>13</sup> / <sub>16</sub>	122	1 <sup>13</sup> / <sub>16</sub>	45	27.8	788	3/8	10	2 <sup>1</sup> / <sub>2</sub>	64	2500	1134	5000	2268	3:1/4:1
E3256	Double sheave/deadend/Cam-Matic cleat (pair)‡‡	1 <sup>3</sup> / <sub>8</sub>	35	3 <sup>3</sup> / <sub>4</sub>	95	4 <sup>1</sup> / <sub>8</sub>	104	45.08	1278	3/8	10	2 <sup>1</sup> / <sub>4</sub>	56	900	408	2300	1040	4:1

\*Requires high-beam track. \*\*Weight each. \*\*\*Includes 10 mm RH fasteners. †Includes 3/8" RH fastener(s).

136 ‡‡Maximum working loads and breaking loads based on cam strengths.



# 32 mm Big Boat: Car Accessories

## Stand-Up Toggles

Stand-up toggles hold blocks upright on travelers. Stand-up toggles with control tangs allow attachment of ball bearing Carbo control blocks.

Refer to chart below for mainsheet block compatibility. See page 138 for control block purchase selection guide.

## Couplers

Big Boat couplers join two cars to form high-load assemblies. The high-load 580 and 752 couplers fit T3201B and T3201B.HL cars. Use 580 and 752 couplers for single-point attachments. Use single, double, or triple Black Magic with the 752 coupler.

## Control Block Kits

Kits are available for Big Boat cars to add ESP sleeve-bearing control systems for up to 6:1 purchases. Combine with ESP end controls.



1896  
1994



598  
669



1966



Control blocks attach to ears to reduce load on car.



Toggles have a low pivot point to handle mainsheet loads up to 40 degrees from vertical, while allowing cars to roll freely.



752



3225



580



T32KIT  
T32KIT.HL

## Stand-Up Toggles

Part No.	Description	Mainsheet block pin Ø		Control block pin Ø		Height		Weight		Maximum working load		Accepts mainsheet blocks
		in	mm	in	mm	in	mm	oz	g	lb	kg	
598	Stand-up toggle/control tangs	5/16	8	1/4	6	2 3/16	56	8.2	231.3	4500	2041	Midrange blocks, 57 mm double & triple Black Magic, 75 mm single Black Magic
669	Stand-up toggle/high load/control tangs*	5/16	8	1/4	6	2 3/16	56	10.9	308.4	7500	3401	75 mm double Black Magic, 100 mm single Black Magic
1896	Stand-up toggle	5/16	8	—	—	1 5/8	41	5.8	163.3	4500	2041	Midrange blocks, 57 mm double & triple Black Magic, 75 mm single Black Magic
1994	Stand-up toggle/high load*	5/16	8	—	—	1 5/8	41	9.1	258.6	7500	3401	75 mm double Black Magic, 100 mm single Black Magic
1966	Stand-up toggle/1 control tang	5/16	8	1/4	6	2 3/16	56	7.74	219.4	4500	2041	Midrange blocks, 57 mm double & triple Black Magic, 75 mm single Black Magic

\*Includes a replacement headpost for 3233 75 mm Black Magic and 3246 and 3427 100 mm Black Magic.

## Couplers & Control Block Kits

Part No.	Description	Sheave Ø		Length		Width		Weight		Max line Ø		Maximum working load		Breaking load	
		in	mm	in	mm	in	mm	oz	g	in	mm	lb	kg	lb	kg
580	Coupler	—	—	7 1/4	184	1 1/2	38	21	595	—	—	6000	2722	12000	5443
752	Coupler	—	—	10 3/4	273	1 1/2	38	28	794	—	—	9000	4082	18000	8165
3225	2-sheave control block*	2 1/4	57	5 5/8	143	—	—	8.8	249	1/2	12	2500	1134	5000	2268
T32KIT	ESP purchase upgrade kit	Kit includes (4) 35 mm control blocks, (2) Midrange/Big Boat deadends, (8) M6 fasteners													
T32KIT.HL	ESP purchase upgrade kit/high-load	Kit includes (4) 40 mm control blocks, (2) Big Boat deadends, (8) M8 fasteners													

\*Fits T32x4B.HL cars.