HARKEN®

INSTRUCTIONS

V™ Blocks

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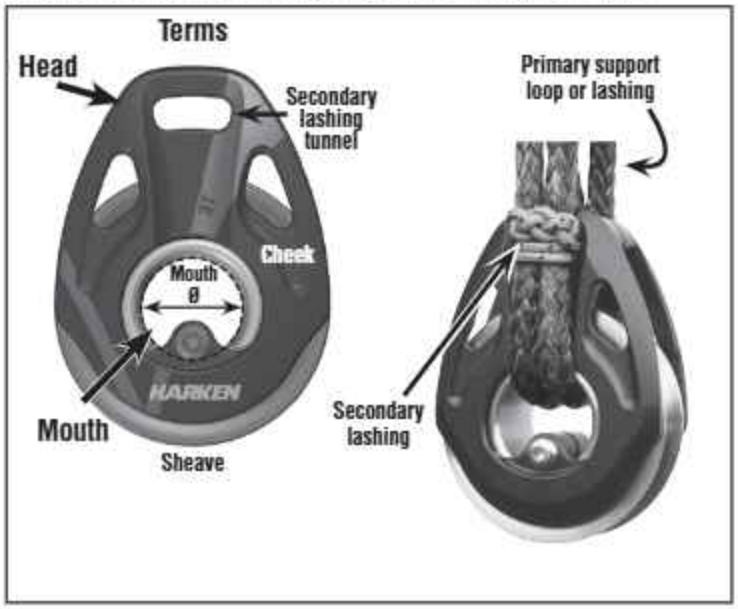
WARNING! Strictly follow all instructions to avoid an accident, damage to your vessel, personal injury or death. See www.harken.com/manuals for additional safety information.

= Incorrect. Avoid to prevent accidents.

V blocks mount using soft attachment methods. The primary support lashings or loops pass through the block's mouth. A secondary lashing keeps the block aligned. Cheeks are 3D-molded carbon or machined aluminum. The bearing system combines axial and thrust bearings into a single bearing set of angled titanium rollers.



Carbon and Aluminum V Blocks



Specifications

		Sheave diameter		Max line Ø		Mouth Ø		Maximum working load		Breaking load	
Part No.*	Description	mm	in	mm	in	mm	in	kg	lb	kg	lb
3294, 3294AL	1.5T single	47	1.85	9	11/32	15	.59	1500	3300	3000	6600
3366AL	1.5T wide	47	1.85	2x 9	2x 11/32	15	.59	1500	3300	3000	6600
3295, 3295AL	3.0T single	56	2.20	11	7/16	20	.785	3000	6600	6000	13200
3367AL	3.0T wide	56	2.20	2X 11	2X 7/16	20	.785	3000	6600	6000	13200
3296, 3296AL	5.0T single	62	2.44	13	1/2	20	.785	5000	11000	10000	22000
3362AL	5.0T wide	62	2.44	2X 14	2X 9/16	20	.785	5000	11000	10000	22000
3297, 3297AL	6.5T single	82	3.23	16	5/8	26	1.02	6500	14300	13000	28600
3368AL	6.5T wide	82	3.23	2X 16	2X 5/8	26	1.02	6500	14300	13000	28600
3363AL	8T single	104	4.09	18	11/16	42	1.67	8000	17600	16000	35200
3369AL	8T wide	104	4.09	2X 18	2X 11/16	42	1.67	8000	17600	16000	35200
3370AL	12T single	120	4.75	22	7/8	51	2.03	12000	26400	24000	52800
3371AL	16T single	140	5.5	26	1 1/16	63	2.49	16000	35200	32000	70400
3372AL	20T single	155	6.13	30	1 3/16	64	2.52	20000	44000	40000	88000

*Block cheeks are carbon or aluminum. AL signifies aluminum cheeks.

You Must Supply

1. Primary support loop or lashing line

Harken is not liable or responsible for choosing line used to secure blocks. Go to Harken Limited Warranty at www.harken.com/manuals for complete details.

Refer to the "Specifications Chart" above and use a loop/lashing with a maximum working load that meets or exceeds the maximum working load listed. If working with breaking loads, use a breaking load that is four (4) times the maximum working load listed.

Important information on choosing line, knots, and splices:
See www.harken.com/knots.

2. Secondary lashing line

Use a small diameter line for lashing the primary supporting loop or lashing near the head. Line length and diameter will vary depending on block.

WARNING! Knots weaken line considerably. Work with a qualified rigger or line manufacturer on securing line. Select high-strength loops using the instructions in "1" at left, or consult rigger for recommendations on lashing.

Attach Block

Slip primary support lashing or loop through mouth to make four (4) holding strands.

WARNING! Attaching line to or through block head will considerably weaken block, and it can break under low load. Attach primary support loop/lashing only through mouth of sheave.



WARNING! Using a loop in a choker style weakens the loop connection. Do not use choker style connection.



Secondary Lashing to Head

1. Wrap small line around both sides of primary support loop/ lashing by passing through the secondary lashing tunnel. Use a secure knot such as a Carrick bend to hold the primary support loop/ lashing against the cheeks. See www.harken.com/knots.



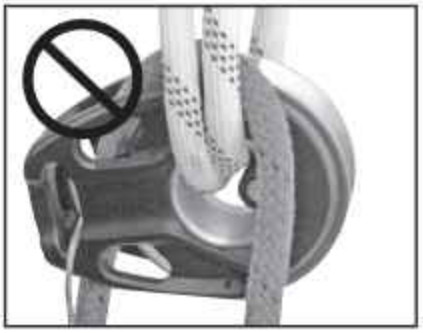
2. Shorten the secondary lashing ends and tuck them into the tunnel.



WARNING! If secondary lashing at head comes loose, block can flip and cause line to jam, resulting in loss of control. Inspect lashing often and redo if necessary.

Make sure secondary lashing at head is secure so block stays aligned.





Use as Becket/Fiddle Block



V blocks can be set up as becket or fiddle blocks. Attach becket or secondary block to anchor point. Lash to head and mouth as shown.

WARNING! Attaching becket or secondary block to primary block will weaken block, and it can break under load. Attach to anchor point.

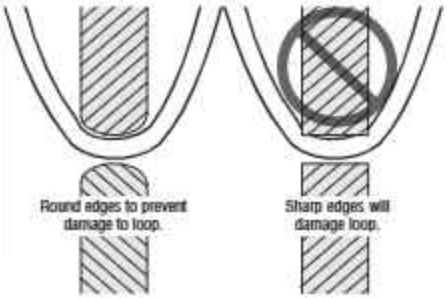
Anchor Point Chafing or Cutting

WARNING! Loops or lashings running over a sharp edge can cause part to break under load. Attach to fitting with a rounded edge.

Loops must attach to round bails such as those found on padeyes or pins. Sharp edges on many perforated toe rails will cut loop, severely weakening it. When loop is attached to a plate, it must be at least 6 mm (1/4") thick and have rounded edges to keep loop from being damaged.



Anchor point



Inspect Parts Every Time You Sail

WARNING! Failure to inspect and correct block, and loop or lashing can result in block breaking under load. Inspect parts each time you sail. If parts are under load during long passages, it is important to inspect them carefully while in use.

Replace loops or lashings if there are signs of wear or if the colored tracers fade from UV damage. Fading tracers indicate general UV degradation. Pull loop out of mouth and inspect loop/lashing carefully for any signs of wear, UV damage, fatigue, or strand separation. Replace loop if it shows signs of UV damage or wear.

WARNING! Failure to replace damaged or weakened parts can cause part to break under load. Replace all loops and lashings every year, or if there is any sign of wear, UV damage, fatigue or strand separation. If in doubt replace. Consult chart to match strength of loop/lashing to block and load.



Inspect secondary lashing at head of block to make sure knot and stop knots are holding tightly.



WARNING! If secondary lashing at head comes loose, block can flip and cause line to jam, resulting in loss of control. Inspect lashing often and redo if necessary.

Inspect screws to make sure they are tight. If loose, remove and use Loctite 222 purple thread locking solution to secure. See torque specs on last page.



Short Term Maintenance

Flush block and attachments frequently with detergent and fresh water. Clean bearings by flushing areas shown while rotating sheave.





Long Term Maintenance

Disassemble using inner race cutouts and split in cage. **IMPORTANT! Do not force bearing cage.** See last page for details.



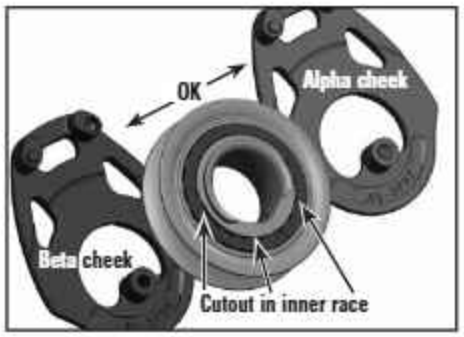


Flush with detergent and fresh water. Clean and remove grease using solvent.

Remove rollers for cleaning or replacement by pushing outward. Install from outside pushing in.



Inner race has a cutout on one side to allow removal of bearing assemblies. See last page for details. When assembling block, there is no need to match lip cutout side to Alpha or Beta cheeks.

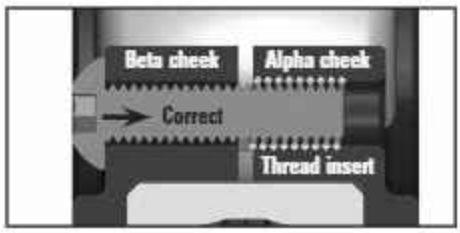


Lightly grease inner ring of sheave as shown at right.



IMPORTANT!

When assembling:
3294AL - 1.5T block
3295AL - 3.0T block
Start fastener from Beta cheek. DO NOT insert from outside of Alpha cheek.

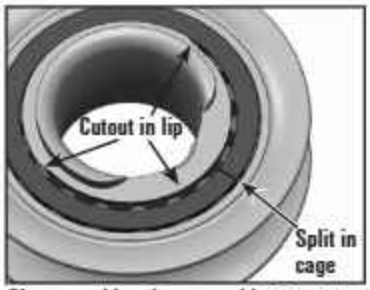


All blocks: Secure screw using Loctite® 222 purple thread locking solution. Use Mylar washer. See torque specifications on last page.



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Assembly Notes, Torque Specifications, and Reorder Parts



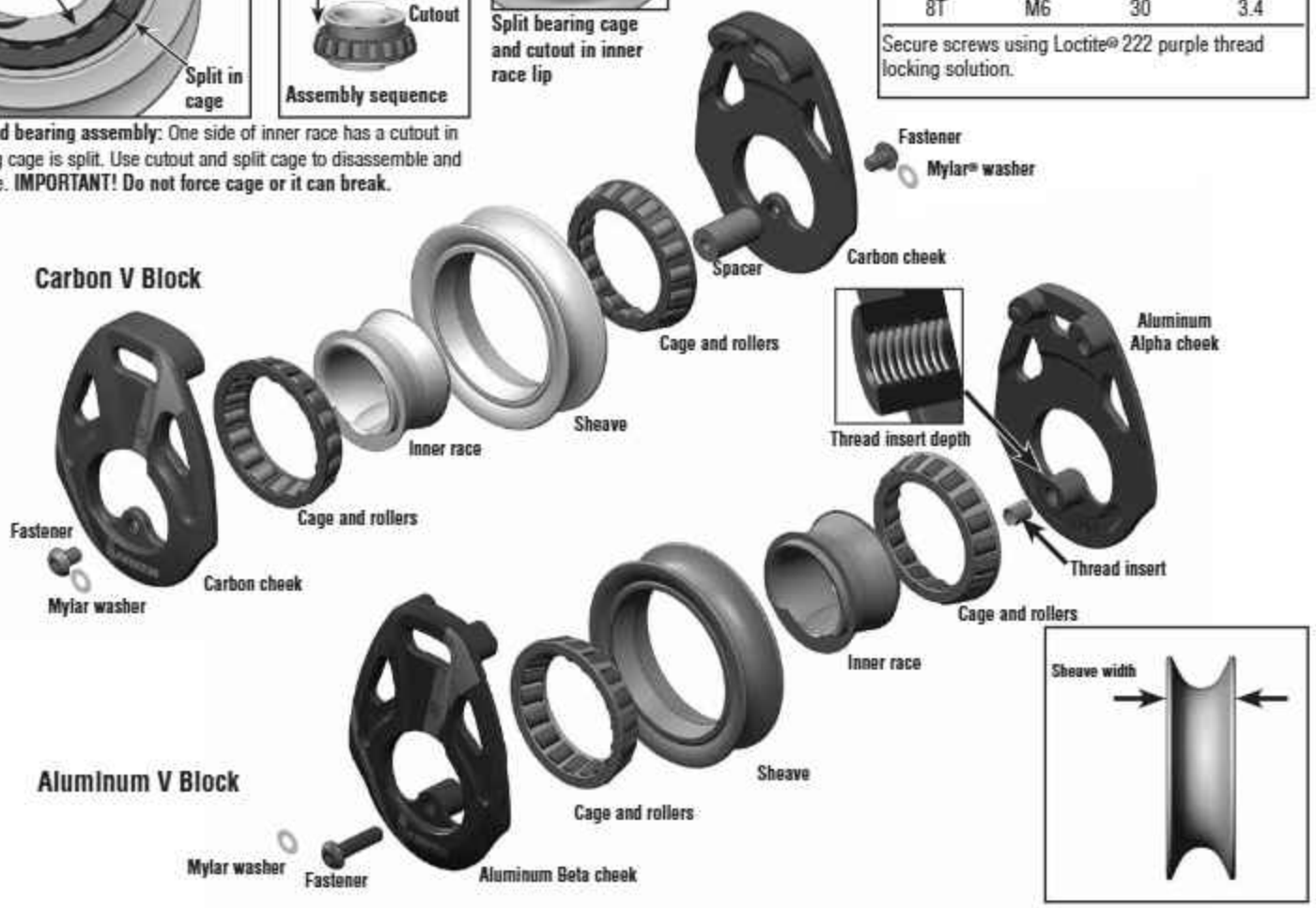



Split bearing cage and cutout in inner race lip

Block	Fastener	Max torque (Carbon/Al) in-lb	Nm
1.5T, 3T, 5T	M4	15	1.7
6.5T	M5	25	2.8
8T	M6	30	3.4

Secure screws using Loctite® 222 purple thread locking solution.

Sheave and bearing assembly: One side of inner race has a cutout in lip. Bearing cage is split. Use cutout and split cage to disassemble and reassemble. **IMPORTANT! Do not force cage or it can break.**



V-Block replacement part numbers

Part No.	Desc.	Sheave Ø (mm)	Sheave width (mm)	Maximum working load (MWL) kg	Cheek: Carbon/Aluminum Alpha	Spacer/ Thread insert	Beta	Mylar washer	Sheave	Inner race	Cage	Rollers Order	Rollers Qty	Fastener BHCS	Fastener Size (mm)
3294	1.5T	47	14	1500	H-71542*	H-71224/	–	H-46397*	MS-524	MS-539	H-73941*	MS-525	30	HFS1360.SATIN*	4X.7X6
3295	3T	56	14	3000	H-71221*	H-71224/	–	H-46397*	MS-531	MS-540	H-73780*	MS-525	36	HFS1360.SATIN*	4X.7X6
3296	5T	62	19	5000	H-71575*	H-71577/	–	H-46397*	MS-528	MS-541	H-73939*	MS-535	38	HFS1359.SATIN*	4X.7X10
3297	6.5T	82	24	6500	H-71590*	H-71591/	–	H-46398*	MS-534	MS-542	H-73977*	MS-536	40	HFS1369.SATIN*	5X.8X12
3294AL	1.5T	47	14	1500	AL-3795	/MS-210**	AL-3796	H-46397	MS-524	MS-539	H-73941*	MS-525	30	HFS1370	4X.7X16
3366AL	1.5TW	47	23	1500	H-78676	/MS-210**	H-78677	H-46397	H-78674	H-78675	H-73941*	MS-525	30	HFS1371	4X.7X20
3295AL	3T	56	14	3000	AL-3797	/MS-210**	AL-3798	H-46397	MS-531	MS-540	H-73780*	MS-525	36	HFS1370	4X.7X16
3367AL	3W	56	14	3000	H-78326	/MS-210**	H-78327	H-46397	MS-562	MS-561	H-73780*	MS-525	36	HFS1371	4X.7X16
3296AL	5T	62	19	5000	AL-3799	/MS-210**	AL-3851	H-46397	MS-528	MS-541	H-73939*	MS-535	38	HFS1371	4X.7X20
3362AL	5TW	62	27	5000	AL-4099	/MS-210**	AL-4098	H-46397	MS-550	MS-551	H-73939*	MS-535	38	HFS446	4X.7X25
3297AL	6.5T	82	24	6500	AL-3852	/MS-220**	AL-3853	H-46398	MS-534	MS-542	H-73977*	MS-536	40	HFS1147	5X.8X20
3368AL	6.5W	82	46	6500	AL-3858	/MS-220**	AL-3859	–	H-81835	H-81834	H-73977*	MS-536	40	H-81830	5X.8X35
3363AL	8T	104	27	8000	AL-4097	/MS-251**	AL-4096	–	MS-553	MS-552	H-74985*	MS-554	46	HFS435	6X1X25
3369AL	8W	104	51	8000	AL-3856	/MS-251**	AL-3857	–	H-81791	H-81790	H-74985*	MS-554	46	H-81789	6X1X40
3370AL	12T	120	29	12000	AL-3854	/MS-253**	AL-3855	–	H-81306	H-81679	H-81308*	MS-554	54	HFS435	6X1X25
3371AL	16T	135	34	16000	H-81768	/MS-253**	H-81769	–	H-81765	H-81766	H-81767*	MS-554	64	HFS436	6X1X30
3372AL	20T	155	36	20000	H-81740	/MS-253**	H-81739	–	H-81061	H-81738	H-81064*	H-81062	66	HFS436	6X1X30

*Two required per block. **Aluminum Alpha cheek includes thread insert.w

Warranty

For additional safety, maintenance, and warranty information; www.harken.com/manuals or the Harken catalog.

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