HYDRASTARK OFFICIAL ENGINEERING CATALOG (VECTOR PDF)

1500 BAR BOLT TENSIONERS & HYDRAULIC NUTS CATALOG

Single-Stage Topside Tensioners (M24-M100), Multi-Stage Tensioners & Mechanical Lock-Ring Hydraulic Nuts

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1500 Bar Tensioner Pressure Calculator ->

OEM Cross-Reference Matrix ->

FACTORY DIRECT
HANGZHOU, CHINA

- Since 2008 OEM/ODM
- 700 to 4,000 Bar Rated
- ISO 9001 & CE Certified
- 100% Proof-Load Tested

Web: www.hydrastark.com
Email: sales@hydrastark.com

INCLUDED PRODUCT SERIES DIRECTORY (4 SERIES - CLICK ANY ITEM TO OPEN LIVE DATASHEET):

01. HST-S Series Single-Stage Topside Bolt Tensioners
02. HST-M Series Multi-Stage Compact Bolt Tensioners
03. HHN-M Series Heavy Industrial Mounting Nuts
04. HHN-L Series Mechanical Lock-Ring Hydraulic Nuts

HYDRAULIC BOLT TENSIONERS | OEM CROSS-REFERENCE: ENERPAC GT1-GT4 TENSIONERS EQUIVALENT

HST-S Series Single-Stage Topside Bolt Tensioners

High-precision 1500 Bar (150 MPa) single-stage topside hydraulic bolt tensioners delivering 282 to 3216 kN pure axial pre-tension. Engineered with interchangeable threaded pullers, twin quick-connect daisy-chain couplers, and dual-window support bridges for M24 to M100 critical flange closures.



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OPERATING PRESSURE	TENSIONING FORCE	METRIC BOLT RANGE
1500 BAR HYDRAULIC TOPSIDE TENSIONING	282 to 3216 kN (28.7 to 328 Metric Tons)	M24 to M100 Standard (Custom Bolt Sizes Available)
HYDRAULIC STROKE	**MODULAR ARCHITECTURE**	**RETURN MECHANISM**
8 mm to 12 mm Axial Extension	4-Component Design with Interchangeable Threaded Sleeves	Precision Spring-Return & Rapid Load-Return Available

Model	Thread	Max Force [kN]	Eff. Area [mm²]	ØA (Cyl. OD) [mm]	ØB (Puller OD) [mm]	ØC (Bridge OD) [mm]	D (Cyl. Ht.) [mm]	E (Body Ht.) [mm]	F (Total Ht.) [mm]	G (Nut Hex AF) [mm]	Stroke [mm]
HST-S1-M24	M24	282	1885	86	68	68	54	83	103	37	8
HST-S1-M27	M27	282	1885	86	68	72	54	86	106	42	8
HST-S2-M24	M24	452	3016	112	92	75	60	89	111	37	10
HST-S2-M27	M27	452	3016	112	92	75	60	92	114	42	10
HST-S2-M30	M30	452	3016	112	92	80	60	95	117	47	10
HST-S2-M33	M33	452	3016	112	92	85	60	98	120	51	10
HST-S2-M36	M36	452	3016	112	92	90	60	101	123	56	10
HST-S3-M39	M39	671	4477	134	107	95	65	101	126	61	10
HST-S3-M42	M42	671	4477	134	107	100	65	104	129	66	10
HST-S3-M45	M45	671	4477	134	107	105	65	107	132	71	10
HST-S3-M48	M48	671	4477	134	107	110	65	111	135	76	10
HST-S4-M39	M39	1009	6730	152	114	112	65	107	129	61	10
HST-S4-M42	M42	1009	6730	152	114	115	65	110	132	66	10
HST-S4-M45	M45	1009	6730	152	114	120	65	113	135	71	10
HST-S4-M48	M48	1009	6730	152	114	125	65	116	138	76	10
HST-S5-M52	M52	1538	10254	195	147	148	69	123	155	81	10
HST-S5-M56	M56	1538	10254	195	147	153	69	127	159	86	10
HST-S5-M60	M60	1538	10254	195	147	158	69	131	163	91	10
HST-S5-M64	M64	1538	10254	195	147	163	69	135	167	96	10
HST-S5-M68	M68	1538	10254	195	147	168	69	139	171	101	10
HST-S6-M72	M72	2544	16965	255	194	191	78	156	196	106	12
HST-S6-M76	M76	2544	16965	255	194	196	78	160	200	111	12
HST-S6-M80	M80	2544	16965	255	194	200	78	164	204	116	12
HST-S6-M85	M85	2544	16965	255	194	204	78	169	209	121	12
HST-S6-M90	M90	2544	16965	255	194	214	78	174	214	131	12
HST-S7-M90	M90	3216	21441	280	213	225	82	175	209	131	12
HST-S7-M95	M95	3216	21441	280	213	235	82	180	214	136	12
HST-S7-M100	M100	3216	21441	280	213	245	82	186	220	146	12

HYDRAULIC BOLT TENSIONERS | OEM CROSS-REFERENCE: ENERPAC MULTI-STAGE TENSIONERS EQUIVALENT

HST-M Series Multi-Stage Compact Bolt Tensioners

Ultra-high-pressure 1500 Bar (150 MPa) multi-stage compact hydraulic bolt tensioners engineered for narrow radial clearance bolting. Features coaxial stacked double-cylinder architecture delivering massive pre-tensioning force for wind turbine foundation bolts, nuclear vessels, and confined flange rings.



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OPERATING PRESSURE **1500 BAR HYDRAULIC TOPSIDE TENSIONING**	CYLINDER ARCHITECTURE **Coaxial Multi-Stage Stacked Piston (Double Force Envelope)**	APPLICATION TARGET **Wind Turbine Foundation Anchors, Narrow Flanges & Nuclear Vessels**
THREAD PROFILE **Custom Engineered per Flange Envelope**	DRIVE MECHANISM **80° Hexagon Drive Window with Tommy Bar Engagement**	RIGGING INTERFACE **Top Puller Hoisting Eyebolt & Heavy-Duty Woven Carrying Strap**

Custom-Engineered Series: HST-M Series Multi-Stage Compact Bolt Tensioners is built to customer bolt/flange drawings. Click here (https://www.hydrastark.com/product/hst-m-series-multi-stage-compact-bolt-tensioners) to submit your dimensional parameters for a dedicated engineering drawing & factory quote.

HHN-M Series Heavy Industrial Mounting Nuts

High-thrust hydraulic mounting and dismounting nuts rated for 700 to 800 Bar (70-80 MPa), engineered for smooth non-impact installation and removal of tapered-bore bearings, flywheels, and marine propellers across M50 to Tr900 threads.



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MAX PRESSURE	SHAFT THREAD ENVELOPE	AXIAL HYDRAULIC STROKE
70-80 MPa (700-800 Bar)	M50 to Tr900 (Metric & Trapezoidal)	5 mm to 25 mm Axial Travel
EFFECTIVE AREA	**HYDRAULIC PORTING**	**CORE APPLICATION**
3,376 mm² to 32,848 mm² Massive Thrust	High-Pressure Hydraulic Port	Smooth Non-Impact Drive-Up

Model Number	Thread (M)	Dimensions (mm)					Stroke [mm]	Effective Area [mm²]	Weight [kg]
		Outside Diam. (D) [mm]	Inner Diam. (d1) [mm]	Piston Diam. (D2) [mm]	Height (H) [mm]	B1 [mm]			
HHN-M50	M50x1.5	114	50.5	104	38	4	5	3376	2.7
HHN-M60	M60x2	125	60.5	115	38	5	5	4239	2.8
HHN-M70	M70x2	135	70.5	127	38	5	5	4710	3.2
HHN-M80	M80x2	146	80.5	137	38	5	5	5181	3.7
HHN-M90	M90x2	156	90.5	147	38	5	5	5652	4
HHN-M100	M100x2	166	100.5	158	38	6	5	5987	4.4
HHN-M110	M110x2	178	110.5	169	38	6	5	6286	4.95
HHN-M120	M120x2	188	120.5	179	38	6	5	6726	5.25
HHN-M130	M130x2	198	130.5	190	38	6	5	7165	5.65
HHN-M140	M140x2	208	140.5	200	39	7	5	7605	6
HHN-M150	M150x2	220	150.5	211	39	7	6	7736	6.6
HHN-M160	M160x3	232	160.5	224	40	7	6	8002	7.6
HHN-M170	M170x3	244	170.5	235	41	7	6	8669	8.4
HHN-M190	M190x3	270	191	259	42	8	8	9266	10.5
HHN-M200	M200x3	282	201	271	43	8	8	8612	11.5
HHN-M210	Tr210x4	294	212	282	44	8	9	11728	12.5
HHN-M220	Tr220x4	306	222	293	44	8	9	11815	13.5
HHN-M230	Tr230x4	318	232	305	45	8	9	12270	15
HHN-M250	Tr250x4	342	252	329	46	9	10	13317	17
HHN-M280	Tr280x4	380	282	363	49	9	12	14683	22
HHN-M300	Tr300x4	404	302	386	51	10	13	15640	25
HHN-M400	Tr400x4	522	402	499	60	11	17	20602	45.5
HHN-M500	Tr500x4	636	502	609	67	12	19	24337	70
HHN-M600	Tr600x4	748	602	721	73	13	23	28274	100
HHN-M710	Tr710x4	870	712	840	78	15	20	30730	135
HHN-M800	Tr800x4	965	802	936	80	16	20	31770	161
HHN-M900	Tr900x4	1075	902	1043	86	17	25	32848	205

HYDRAULIC NUTS & SELF-LOCK NUTS | OEM CROSS-REFERENCE: ENERPAC HHL LOCK NUTS EQUIVALENT

HHN-L Series Mechanical Lock-Ring Hydraulic Nuts

Ultra-high pressure 1500 Bar (150 MPa) mechanical lock-ring hydraulic nuts delivering 226 to 3864 kN pure axial bolt elongation. Eliminates thread galling and friction while integral knurled lock rings permanently preserve bolt pre-tension across M27 to M125 critical flanges.



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RATED PRESSURE	PRELOAD CAPACITY	METRIC THREAD RANGE
1500 BAR ULTRA-HIGH PRESSURE	226 to 3864 kN (23 to 394 Metric Tons)	M27 to M125 Standard (Custom M22-M600 Available)
AXIAL STROKE	**PRELOAD RETENTION**	**TIGHTENING ACCURACY**
6 to 20 mm Pure Axial Hydraulic Extension	Mechanical Lock-Ring for Permanent Clamping	Friction-Free Pure Axial Tensioning

Model	Thread Size	Outside Diam. [mm]	Max Tension Force [kN]	Effective Area [mm²]	Thickness [mm]	Stroke [mm]	Weight [kg]
HHN-L-1-M27	27	75	226	1571	66	6	2.1
HHN-L-1-M30	30	75	226	1571	66	6	2.1
HHN-L-1-M33	33	83	268	1571	66	6	3.3
HHN-L-2-M36	36	90	333	2534	66	8	3.3
HHN-L-2-M39	39	95	373	2534	66	8	3.3
HHN-L-3-M42	42	101	428	3195	74	8	4.4
HHN-L-3-M45	45	105	447	3195	74	8	4.4
HHN-L-3-M48	48	113	521	3195	74	8	4.4
HHN-L-3-M52	52	122	624	3195	74	10	4.4
HHN-L-4-M56	56	136	787	4006	78	10	5.1
HHN-L-5-M64	64	150	931	4477	84	10	6.4
HHN-L-6-M68	68	160	1046	5635	84	10	8.0
HHN-L-7-M72	72	170	1256	7540	92	15	11.6
HHN-L-7-M80	80	192	1667	7540	112	15	11.6
HHN-L-8-M90	90	210	2022	10603	112	15	24.0
HHN-L-8-M95	95	220	2177	10603	122	15	24.0
HHN-L-9-M100	100	235	2488	15080	137	20	31.0
HHN-L-10-M110	110	255	2864	16022	137	20	33.6
HHN-L-11-M125	125	290	3864	16965	143	20	36.5

APPENDIX: ASTM A193 GRADE B7 STUD BOLT TORQUE & 1500 BAR TENSIONER SIZING REFERENCE CHART (M24 - M100)

Basis: 50% Yield Target Preload (Rp0.2 = 725 MPa for <=M64; 655 MPa for >M64), Copper/Graphite Lubricant (u = 0.12), Tensioner Load Loss Factor = 1.18x.

Stud Size	Pitch [mm]	Heavy Hex AF [mm]	Stress Area [mm2]	Yield [MPa]	Preload @50% [kN]	Target Torque [N.m]	Matched 700 Bar Wrench	Pull Force +18% [kN]	Matched 1500 Bar Tensioner
M24	3.0	36	353	725	128	**485**	HSW-1 / HHW-2	151	HST-S1-M24 (801 Bar)
M27	3.0	41	459	725	166	**706**	HSW-1 / HHW-2	196	HST-S1-M27 (1042 Bar)
M30	3.5	46	561	725	203	**962**	HSW-3 / HHW-2	240	HST-S2-M30 (796 Bar)
M33	3.5	50	694	725	252	**1,302**	HSW-3 / HHW-2	297	HST-S2-M33 (984 Bar)
M36	4.0	55	817	725	296	**1,674**	HSW-3 / HHW-2	349	HST-S3-M36 (725 Bar)
M39	4.0	60	976	725	354	**2,155**	HSW-3 / HHW-4	418	HST-S3-M39 (867 Bar)
M42	4.5	65	1121	725	406	**2,668**	HSW-3 / HHW-4	479	HST-S3-M42 (995 Bar)
M45	4.5	70	1306	725	473	**3,322**	HSW-5 / HHW-4	559	HST-S4-M45 (756 Bar)
M48	5.0	75	1473	725	534	**3,998**	HSW-5 / HHW-4	630	HST-S4-M48 (852 Bar)
M52	5.0	80	1758	725	637	**5,134**	HSW-5 / HHW-8	752	HST-S4-M52 (1017 Bar)
M56	5.5	85	2030	725	736	**6,371**	HSW-8 / HHW-8	868	HST-S5-M56 (804 Bar)
M64	6.0	95	2676	725	970	**9,544**	HSW-10 / HHW-8	1,145	HST-S5-M64 (1060 Bar)
M72	6.0	105	3460	655	1,133	**12,462**	HSW-10 / HHW-14	1,337	HST-S6-M72 (864 Bar)
M80	6.0	115	4344	655	1,423	**17,298**	HSW-20 / HHW-18	1,679	HST-S6-M80 (1085 Bar)
M90	6.0	130	5591	655	1,831	**24,965**	HSW-20 / HHW-18	2,161	HST-S7-M90 (1008 Bar)
M100	6.0	145	6995	655	2,291	**34,620**	HSW-35 / HHW-30	2,703	HST-S7-M100 (1261 Bar)