

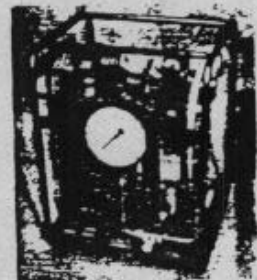
HYDRATIGHT[®]

SEA SERPENT[®] Tensioners
Ancillary Equipment

DATA SHEET HT4

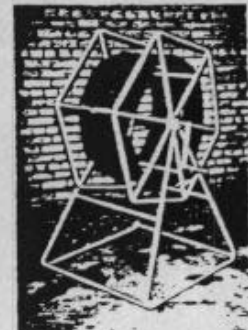
AIR DRIVEN PUMP — PART No. HTAE 42/43

Mounted in a steel transportable frame, the pump is complete with air pressure regulator, air pressure gauge, air filter, air lubricator, on/off control valve, 2 gallon oil reservoir, oil level sight gauge, diaphragm pump, oil return to tank valve, oil pressure gauge and oil outlet via quick disconnect nipple. Painted with green hammer finish enamel. Approximate weight 43 kg.



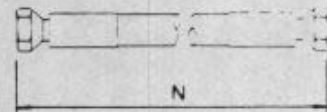
HOSE REEL & STAND — PART No. HTAE 34

Fabricated in steel, is hand operated to hold coils of hydraulic down line. Finished in yellow marine paint. Approximate weight 40 kg (empty).



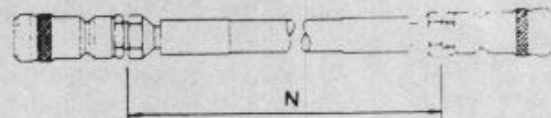
DOWN LINE — PART No. HTAE 33/N (where N = Length in Metres)

Available from stock in 30 m lengths. Other lengths available at short notice. Approximate weight 30 m length—9 kg.



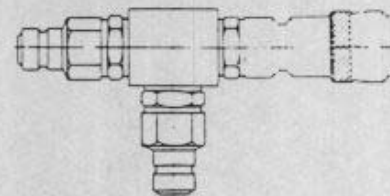
LINK PIPE — PART No. HTAE 154/N (where N = Length in Metres)

Normally supplied in 5 m length with quick disconnect coupling each end to link air driven pump to down line.



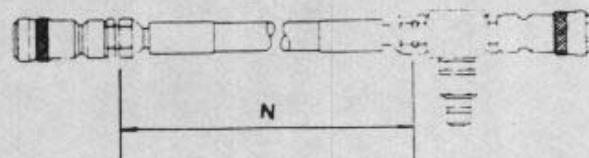
TEE BLOCK — PART No. HTAE 159

Two required, one for each ring main harness on either side of flange to be tightened. Approximate weight 0.5 kg.



INTERCONNECTING PIPE — PART No. HTAE 158/N (where N = Length in Metres)

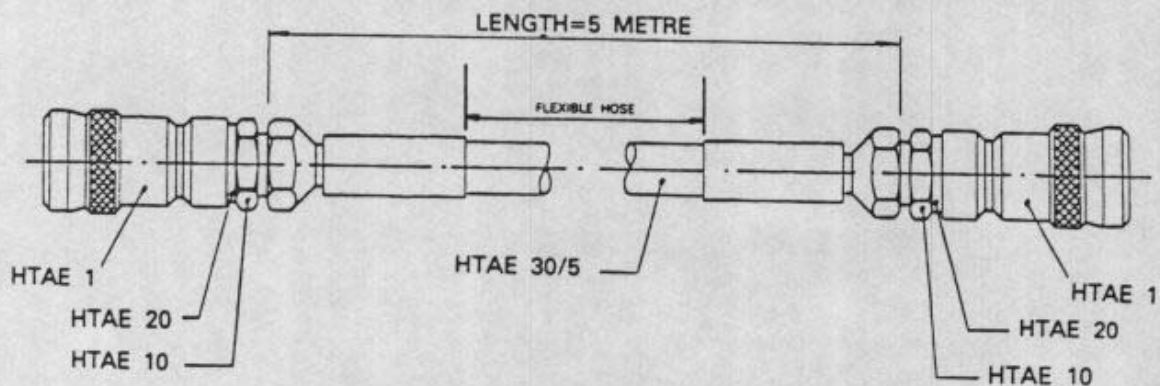
Normally supplied 1.3 m long. Comprises length of hose assembled with quick disconnect couplings and nipples. Used to construct ring main harness for simultaneously tensioning all bolts in a flange. Approximate weight 1.3 m pipe—1.4 kg.



HYDRATIGHT®

DATA SHEET HT 7/6
HARNESS COMPONENT PARTS
WITH FLEXIBLE HOSES AND QUICK
DISCONNECT COUPLINGS

LINK PIPE. PART No. HTAE 154/5



Part No.	Description	No. Off
HTAE 1	Quick Disconnect Coupling	2
HTAE 30/5	High Pressure Flexible Hose with swivel end connections	1
HTAE 10	1/4" BSP x 1/4" BSP Adaptor	2
HTAE 20	1/4" BSP Dowty Seal	2

NOTE: All quick disconnect fittings are self sealing when disconnected.
All components are oil filled, air bled and pressure tested.

Flexitallic
TURNER &
NEWALL PLC

HYDRA-TIGHT LTD.

Argyle House, Bentley Mill Way,
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Telephone: Walsall (0922) 645945 Telex: 339994

An associate company of Flexitallic Ltd., Heckmondwike, West Yorks., Glasgow, Aberdeen and Houston

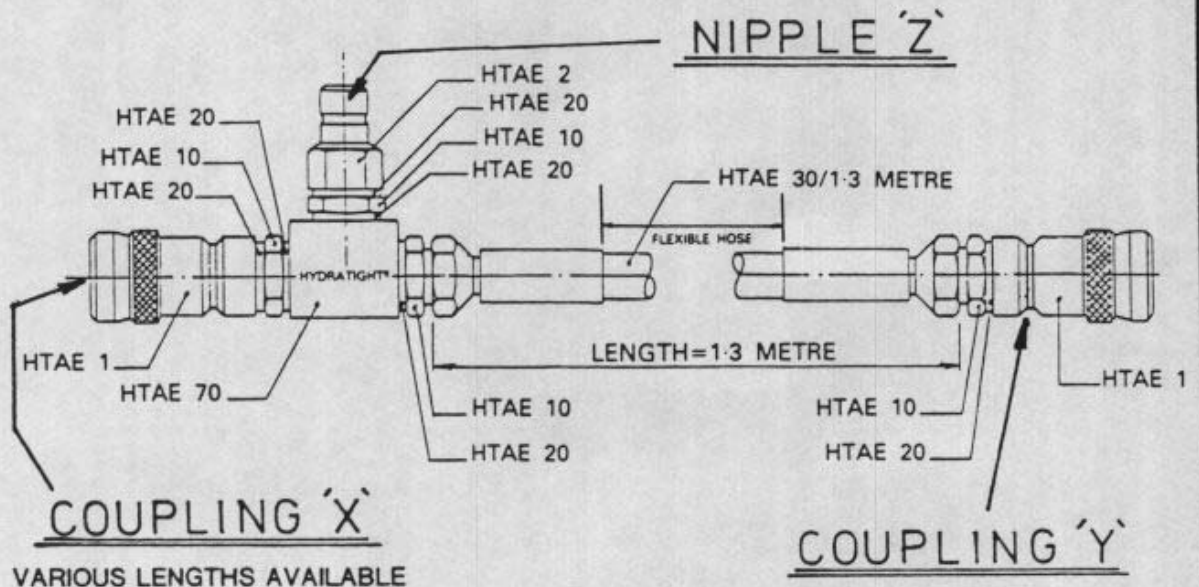
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DATA SHEET HT 7/9
HARNESS COMPONENT PARTS
WITH FLEXIBLE HOSES AND QUICK
DISCONNECT COUPLINGS

INTERCONNECTING PIPE. PART No. HTAE 158



Part No.	Description	No. Off
HTAE 1	Quick Disconnect Coupling	2
HTAE 2	Quick Disconnect Nipple	1
HTAE 10	1/4" BSP x 1/4" BSP Adaptor	4
HTAE 20	1/4" BSP Dowty Seal	6
HTAE 30/1.3	High Pressure Flexible Hose with swivel end connections	1
HTAE 70	1/4" BSP Tee Block	1

NOTE: All quick disconnect fittings are self sealing when disconnected.
All components are oil filled, air bled and pressure tested.

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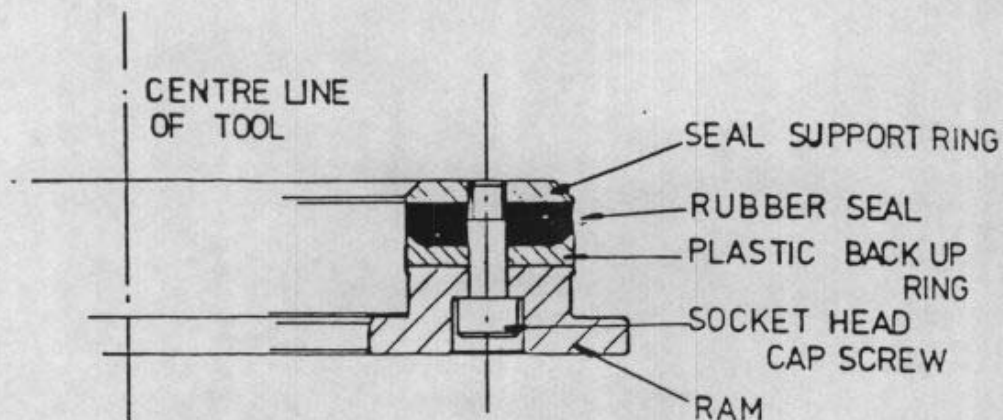
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INSTRUCTIONS FOR CHANGING OIL SEALS

FOR REF Y, Z, E P G H AND I SEA SERPENT TOOLS



The sealing system is very simple and the seals are easily replaced. It consists of a rubber moulding and a plastic back up ring held in place by a steel support ring and six socket head screws, as shown in the diagram above. When the complete ram assembly is placed into the hydraulic head, the six socket screws are tightened, thus compressing the rubber seal against the walls of the chamber and preventing oil leakage.

If an oil leak develops within the tool the first thing to check is that the six socket screws have not come loose. If the socket screws are tight and the leak persists the seal should be changed. To change the seal proceed as follows :-

1. Connect an open ended snap coupling to the tool connection.
2. Remove the ram by applying a screwdriver between the ram flange and the hydraulic head and levering the ram from the head.
NOTE : This step is made easier if the socket screws are slackened.
3. Remove the socket screws and replace the rubber seal, taking care not to damage the "feather edge" on the plastic back up ring. When replacing the screws, leave the slack to assist reassembly into the hydraulic head.
4. Assemble the ram into the hydraulic head, taking care not to pinch the rubber seal.
5. Tighten the screws.

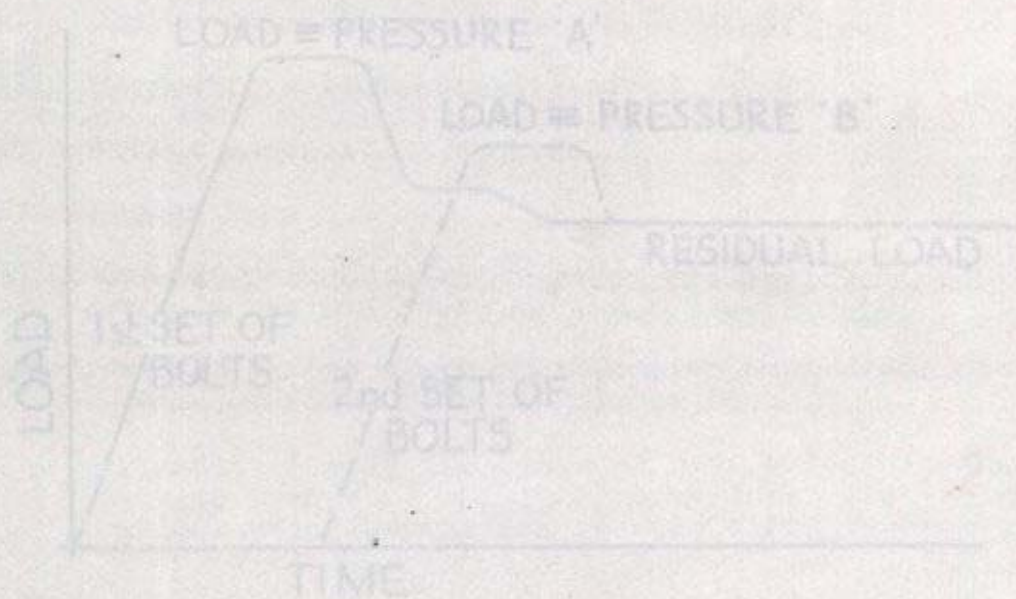
NOTE : Screws should be only lightly tightened. Excess pressure on the rubber will cause unnecessary friction in the chamber thereby making it more difficult to manually push back the rams when using the tools.

6. Remove the snap coupling. The tool is now ready for use.

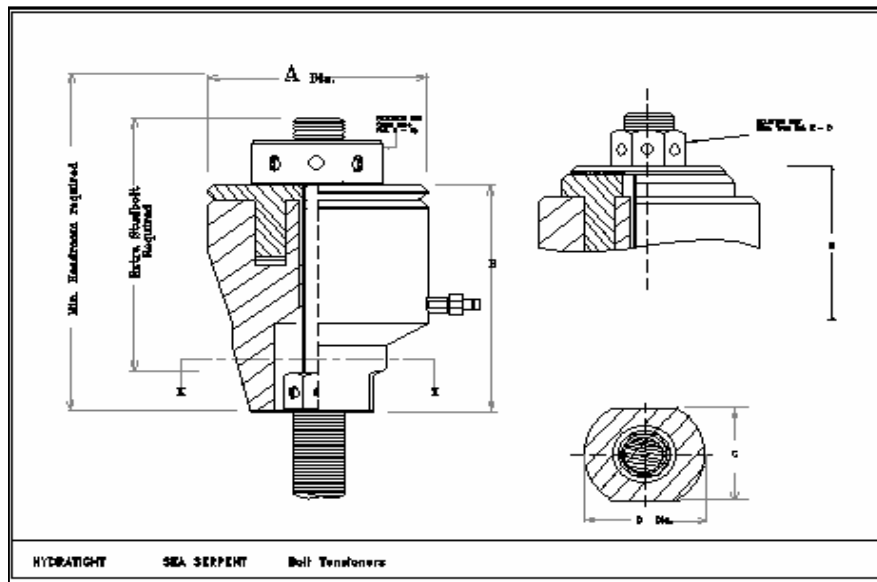
EXPLANATION OF 50 % TENSIONING

NOTES

- (1) Because of the long distance that the oil has to travel to the system there is a short time lag resulting in a difference between the oil pressure reading in the gauge and the actual pressure at the tools. This means that as the pressure is increased the gauge always reads a higher pressure than that which is present at the tools. To obtain a true reading of the value of pressure, the pump must be stopped intermittently and the gauge needle allowed to settle back. When nearing the final operating pressure for the flange being tightened the gauge reading can be taken up to 2,000 p.s.i. over this final operating pressure to allow for setting effect provided the initial pressure does not exceed 15,000 p.s.i., which is the MAXIMUM allowable pressure for the system is reached when the pump is stopped and the gauge needle settles back to a static position corresponding to this pressure.

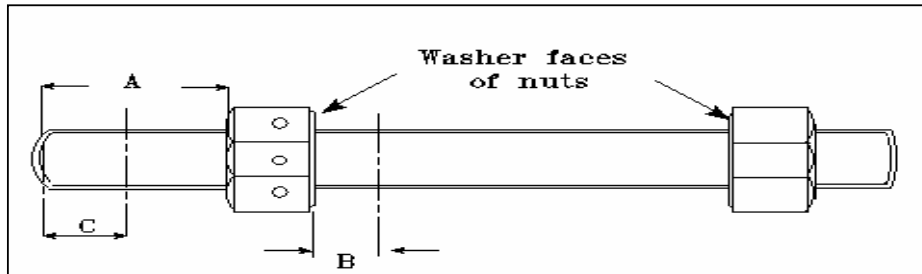


Bolt Tensioners



<i>T_{bol}</i>	Bolt Dia (imp)	Bolt Dia (m)	A (mm)	B (mm)	C (mm)	D (mm)	Hyd. press' Area-mm ²	Max Load (kN)	Min Head room - (mm)	Extra Stud Lgth Rqd (mm)	App'x Weight (kg)
Y	¾	M20	72	115	—	62	1677	173	292	135	3
	7/8	M22									
Z	1"	M24	88	115	—	74	2277	235	319	135	4
	1 1/8	M27 M30									
A	1 ¼	M33	113	122	—	86	3432	355	339	142	5.5
	1 3/8	M36									
B	1 ½	M39	129	130	—	96	4748	491	361	150	7.5
	1 5/8	M42									
C	1 ¾	M45	150	134	106	110	6361	658	373	154	10
D	1 7/8	M48	160	140	110	126	6793	703	390	160	11.5
	2"	M52									
E	2 ¼	M56	174	161	—	134	10064	1041	431	181	13.5
F	2 ½	M60	197	168	—	144	12258	1269	452	188	17.5
		M64									
G	2 ¾	M68	211	171	—	158	14967	1549	464	191	21.5
		M72									
H	3"	M76	220	196	176	186	18064	1869	517	216	26
I	3 ¾	M80	257	205	—	200	23935	2477	550	225	35
	3 ½	M85 M90									

Studbolt and Hexagon Nut preparation



Tool Ref	Z	A	B	C	D	E	F	G	H
Length A (mm)	115	122	130	134	140	153	160	163	186

Notes

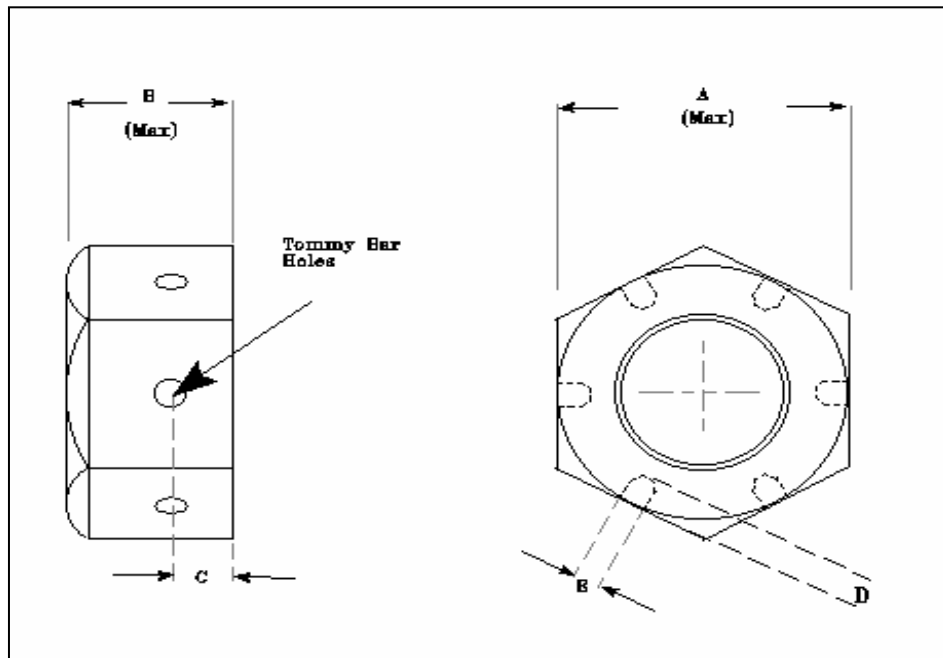
1. Drilling details of the hexagon nuts are shown on Data Sheet HT 5
2. Studbolts are assembled with one plain hex nut and one drilled hex nut.
The Stud protrudes through the drilled nut
3. It is recommended that length A is pre-set before the bolts are lowered to the diver
It is most important that the drilled hex nut is free running on the bolts particularly over length A and ½ins length B.
4. A reaction nut of the hydraulic tools should be assembled to random bolts along length C (equal to approx. one diameter D) to check free running.
5. It is important that the nuts are assembled the correct way round i.e. washer faces pointing inv
6. The nuts should be visibly checked to make sure the Tommy bar holes are in the correct posit i.e. nearer the washer face of the nut.
7. It is recommended that the protruding portion of thread is protected by P.V.C. adhesive tape which can be removed by the divers once the bolts are assembled to the flange.

Tool Pressures

Tool Pressures

Tool .@ 15000 psi	Load Capacity (Tons)	Area (in²)
Y		
Z	23.6	3.53
A: 1-3/8"	35.6	5.32
A: 1-1/4"	35.6	5.32
B: 1-1/2"	49.3	7.36
B: 1-5/8"	49.3	7.36
C		
D: 1-7/8"	70.5	10.53
D: 2"	70.5	10.53
E: 2-1/4"	104	15.6
F: 2-1/2"	127	19
G: 2-3/4"	155	23.2
H: 3"	187	28
I: 3-1/4"	248	37.1
I: 3-1/2"	248	37.1

Drilled Nuts - HT5



Nominal Thread diameter		A inches	B inches	C mm	D mm	E mm	Tommy Bar
3/4"		1.25	0.758	9	5	6.2	6
	7/8"	1.437	0.885	9	5	6.2	6
1"		1.625	1.012	9	6	6.2	6
	1-1/8"	1.812	1.139	9	6	6.2	6
1 1/4"		2.000	1.251	12	8	8.2	8
	1-3/8"	2.187	1.378	12	8	8.2	8
1 1/2"		2.375	1.505	15	9	10.2	10
	1-5/8"	2.562	1.632	15	9	10.2	10
1 3/4"		2.750	1.759	15	10	10.2	10
	1-7/8"	2.937	1.886	15	10	10.2	10
2"		3.125	2.013	18	12	12.4	12
	2-1/4"	3.500	2.251	18	12	12.4	12
2 1/2"		3.875	2.505	21	14	14.4	14
	2-3/4"	4.250	2.759	21	14	14.4	14
3"		4.625	3.103	24	16	16.4	16
	3-1/4"	5.000	3.251	24	17	16.4	16
3 1/2"		5.375	3.506	24	18	16.4	16
	3-3/4"	5.750	3.759	24	18	16.4	16
4"		6.125	4.013	24	18	16.4	16