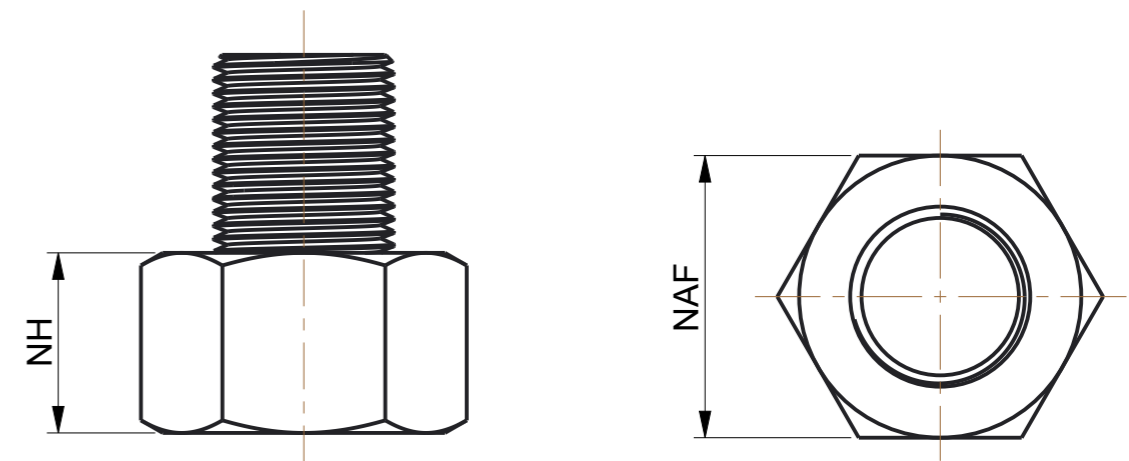
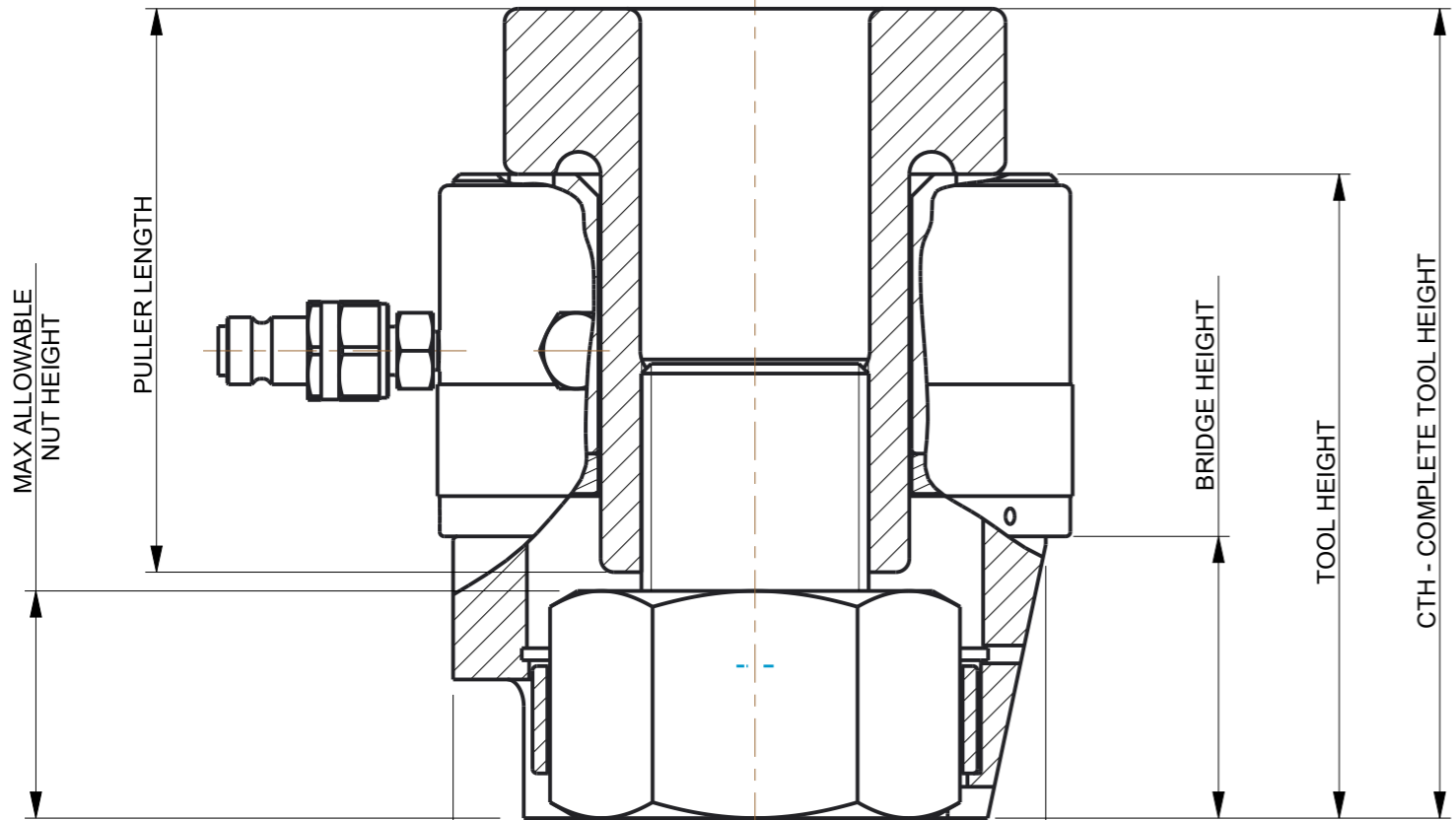


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ALL DIMS MM U.S.O.  
  
 DO NOT SCALE

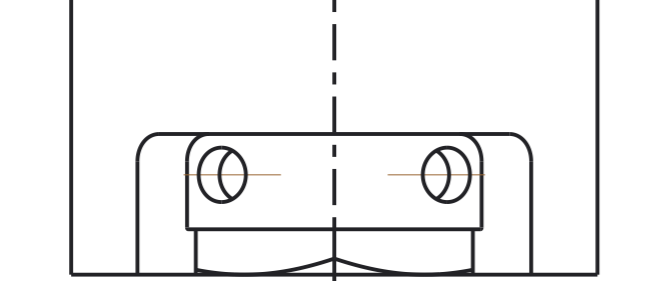
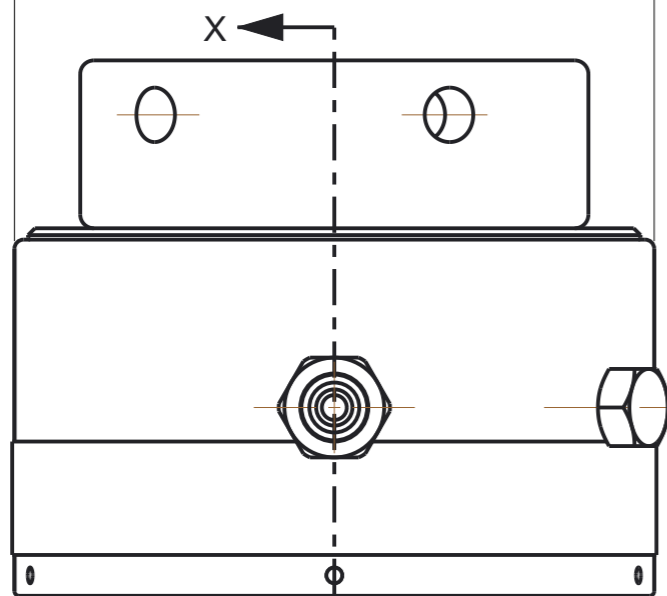
**WARNING:**  
 DO NOT USE AN OIL PRESSURE WHICH WILL RESULT IN AN INITIAL BOLT STRESS IN EXCESS OF 95% OF THE MINIMUM YIELD STRESS OF THE BOLT MATERIAL



SECTION X-X

BOD - BRIDGE OD

TOD - TOOL OUTSIDE DIA



BAF - BRIDGE A/F

\*\*REFER TO SHEET 2 & 3 FOR SPECIFIC TOOLING SPEC & DIMENSIONS\*\*

HTSR+ tools are designed to following Metric Nut Dimensions

Metric Thread Sizes	NAF		NH	
	mm	inch	mm	inch
M100	145	5.71	100	3.94
M95	135	5.31	95	3.74
M90	130	5.12	90	3.54
M85	120	4.72	85	3.35
M80	115	4.53	80	3.15
M76	110	4.33	76	2.99
M72	105	4.13	72	2.83
M68	100	3.94	68	2.68
M64	95	3.74	64	2.52
M60	90	3.54	60	2.36
M56	85	3.35	56	2.20
M52	80	3.15	52	2.05
M48	75	2.95	48	1.89
M45	70	2.76	45	1.77
M42	65	2.56	42	1.65
M39	60	2.36	39	1.54
M36	55	2.17	36	1.42
M33	50	1.97	33	1.30
M30	46	1.81	30	1.18
M27	41	1.61	27	1.06
M24	36	1.42	24	0.94
M22	32	1.26	22	0.87
M20	30	1.18	20	0.79

HTSR+ tools are designed to following Imperial Nut Dimensions

Imperial Thread Sizes	NAF		NH	
	mm	inch	mm	inch
4in	155.6	6.125	101.6	4
3-3/4in	146.1	5.75	95.3	3.75
3-1/2in	136.5	5.375	88.9	3.5
3-1/4in	127.0	5	82.6	3.25
3in	117.5	4.625	76.2	3
2-3/4in	108.0	4.25	69.9	2.75
2-1/2in	98.4	3.875	63.5	2.5
2-1/4in	88.9	3.5	57.2	2.25
2in	79.4	3.125	50.8	2
1-7/8in	74.6	2.938	47.6	1.875
1-3/4in	69.9	2.75	44.5	1.75
1-5/8in	66.5	2.62	41.3	1.625
1-1/2in	60.3	2.375	38.1	1.5
1-3/8in	55.6	2.188	34.9	1.375
1-1/4in	50.8	2	31.8	1.25
1-1/8in	46.0	1.812	28.6	1.125
1in	41.3	1.625	25.4	1
7-8in	36.5	1.438	22.2	0.875
3/4in	31.8	1.25	19.1	0.75

NOTES - HYTORC ALWAYS RECOMMEND TO HAVE AT LEAST 1xTHD STUD PROTRUSION ABOVE THE NUT. IF NOT PLEASE MAKE SURE THE CORRECT AMOUNT OF THREAD ENGAGEMENT IS ACHIEVED BEFORE OPERATING.

MATERIAL						
FINISH						
SURFACE FINISH						
LIMITS U.S.O.						
SIZE	A3	SCALE	0.600	A	-	SL LC 311019
REV	CNN	DRAWN	CHECKED	DATE		

**HYTORC**<sup>®</sup>

TITLE  
 HTSR+ TOOL SPEC AND DIMENSIONS  
 SHEET 1 OF 3


DRAWING NO. **GENERIC-HTSRP-GA** ISSUE **A**

FTSR+ TOOL SPEC AND DIMENSIONS FOR METRIC BOLT SIZES

Tool No.	Bolt Diameter	Hydraulic Area	Max. Stroke	Max. Load		TOD		TH		CTH		BOD		BH		BAF		PL		MXNH (Inc. 2mm clearance)	
				mm <sup>2</sup>	mm	kN	Lbf	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
HTSR+ 0	M20	1070	8	160	35970	66	2.60	93	3.66	119	4.69	62.5	2.46	36	1.42	62.5	2.46	96	3.82	21	0.83
	M22							93	3.66	119	4.69	62.5	2.46	36	1.42	62.5	2.46	95	3.74	22	0.87
HTSR+ 1	M24	1870	10	280	62950	87	3.43	117	4.61	145	5.71	68	2.68	38	1.50	68	2.68	119	4.69	24	0.94
	M27							117	4.61	145	5.71	68	2.68	38	1.50	68	2.68	116	4.57	27	1.06
HTSR+ 2	M24	3000	10	450	101160	103	4.06	114	4.49	142	5.59	75	2.95	38	1.50	75	2.95	115	4.53	25	0.98
	M27							117	4.61	145	5.71	75	2.95	38	1.50	75	2.95	115	4.53	28	1.10
	M30							120	4.72	148	5.83	80	3.15	41	1.61	80	3.15	115	4.53	31	1.22
	M33							123	4.84	151	5.94	87	3.43	44	1.73	79	3.11	115	4.53	34	1.34
	M36							126	4.96	154	6.06	92.5	3.64	47	1.85	82	3.23	115	4.53	37	1.46
HTSR+ 3	M33	4400	10	660	148370	118	4.65	123	4.84	153	6.02	98	3.86	44	1.73	88	3.46	116.5	4.59	34.5	1.36
	M36							126	4.96	156	6.14	107	4.21	47	1.85	88	3.46	116.5	4.59	37.5	1.48
	M39							129.5	5.10	159.5	6.28	107	4.21	51	2.01	95	3.74	116.5	4.59	41	1.61
	M42							133	5.24	163	6.42	107	4.21	54	2.13	102	4.02	116.5	4.59	44.5	1.75
HTSR+ 4	M39	6670	10	1000	224810	141	5.55	132	5.20	169	6.65	120	4.72	51	2.01	112	4.41	126	4.96	41	1.61
	M42							135	5.31	172	6.77	120	4.72	54	2.13	102	4.02	126	4.96	44	1.73
	M45							138	5.43	175	6.89	126	4.96	57	2.24	105	4.13	126	4.96	47	1.85
	M48							141	5.55	178	7.01	129.6	5.10	60	2.36	111	4.37	126	4.96	50	1.97
HTSR+ 5	M52	10000	10	1500	337210	176	6.93	148	5.83	190	7.48	150	5.91	63	2.48	134	5.28	135	5.31	53	2.09
	M56							154.5	6.08	196.5	7.74	158	6.22	69.5	2.74	135	5.31	135	5.31	59.5	2.34
	M60							155	6.10	197	7.76	162	6.38	70	2.76	142	5.59	135	5.31	60	2.36
	M64							161	6.34	203	7.99	162	6.38	76	2.99	142	5.59	135	5.31	66	2.60
	M68							167	6.57	209	8.23	176	6.93	82	3.23	156	6.14	135	5.31	72	2.83
HTSR+ 6	M72	16670	10	2500	562020	219	8.62	167	6.57	220	8.66	190	7.48	82	3.23	170*	6.69*	146	5.75	72	2.83
	M76							171	6.73	224	8.82	200	7.87	86	3.39	181*	7.13*	146	5.75	76	2.99
	M80							176	6.93	229	9.02	200	7.87	91	3.58	181*	7.13*	146	5.75	81	3.19
	M85							180	7.09	233	9.17	208	8.19	95	3.74	191*	7.52*	146	5.75	85	3.35
	M90							186	7.32	239	9.41	218	8.58	101	3.98	201*	7.91*	146	5.75	91	3.58
HTSR+ 7	M90	21340	10	3200	719390	252	9.92	186	7.32	246	9.69	225	8.86	101	3.98	200	7.87	153	6.02	91	3.58
	M95							192	7.56	252	9.92	235	9.25	107	4.21	208	8.19	153	6.02	97	3.82
	M100							192	7.56	252	9.92	235	9.25	107	4.21	208	8.19	148	5.83	102	4.02

BAF\* - THESE BRIDGE ACROSS FLATS ARE DESIGNED WITH ACROSS FLATS SET AT AN ANGLE. THE DIMENSION GIVEN IS THE WIDEST DISTANCE BETWEEN THE ANGLED ACROSS FLATS.

\*\* ABOVE DIMENSIONS & SPEC REFER TO TOOL DRAWING ON SHEET 1\*\*

MATERIAL					
FINISH					
SURFACE FINISH					
LIMITS U.S.O.	±0.25	±0.25°			
SIZE	A3	SCALE	0.600	A	-
				SL	LC
				311019	
REV	CNN	DRAWN	CHECKED	DATE	

**HYTORC**®

TITLE  
 HTSR+ TOOL SPEC AND DIMENSIONS  
 SHEET 2 OF 3

DRAWING NO. **GENERIC-HTSRP-GA** ISSUE **A**

**FTSR+ TOOL SPEC AND DIMENSIONS FOR IMPERIAL BOLT SIZES**

Tool No.	Bolt Diameter	Hydraulic Area	Max. Stroke	Max. Load		TOD		TH		CTH		BOD		BH		BAF		PL		MXNH (Inc. 2mm clearance)	
		mm2	mm	kN	Lbf	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch	mm	inch
HTSR+ 0	3/4	1070	8	160	35970	66	2.60	93	3.66	119	4.69	62.5	2.46	36	1.42	62.5	2.46	98	3.86	19	0.75
	7/8							93	3.66	119	4.69	62.5	2.46	36	1.42	62.5	2.46	95	3.74	22	0.87
HTSR+ 1	1	1870	10	280	62950	87	3.43	117	4.61	145	5.71	68	2.68	38	1.50	68	2.68	117	4.61	26	1.02
	1-1/8							120	4.72	148	5.83	77.5	3.05	41	1.61	77.5	3.05	117	4.61	29	1.14
HTSR+ 2	1	3000	10	450	101160	103	4.06	117	4.61	145	5.71	75	2.95	38	1.50	75	2.95	115	4.53	28	1.10
	1-1/8							120	4.72	148	5.83	80	3.15	41	1.61	80	3.15	115	4.53	31	1.22
	1-1/4							123	4.84	151	5.94	87	3.43	44	1.73	79	3.11	115	4.53	34	1.34
	1-3/8							126	4.96	154	6.06	92.5	3.64	47	1.85	82	3.23	115	4.53	37	1.46
HTSR+ 3	1-1/4	4400	10	660	148370	118	4.65	123	4.84	153	6.02	98	3.86	44	1.73	88	3.46	116.5	4.59	34.5	1.36
	1-3/8							126	4.96	156	6.14	107	4.21	47	1.85	88	3.46	116.5	4.59	37.5	1.48
	1-1/2							129.5	5.10	159.5	6.28	107	4.21	51	2.01	95	3.74	116.5	4.59	41	1.61
	1-5/8							133	5.24	163	6.42	107	4.21	54	2.13	102	4.02	116.5	4.59	44.5	1.75
HTSR+ 4	1-1/2	6670	10	1000	224810	141	5.55	132	5.20	169	6.65	120	4.72	51	2.01	112	4.41	126	4.96	41	1.61
	1-5/8							135	5.31	172	6.77	120	4.72	54	2.13	102	4.02	126	4.96	44	1.73
	1-3/4							138	5.43	175	6.89	126	4.96	57	2.24	105	4.13	126	4.96	47	1.85
	1-7/8							141	5.55	178	7.01	129.6	5.10	60	2.36	111	4.37	126	4.96	50	1.97
	2							144	5.67	181	7.13	135	5.31	63	2.48	116	4.57	126	4.96	53	2.09
HTSR+ 5	2	10000	10	1500	337210	176	6.93	148	5.83	190	7.48	150	5.91	63	2.48	134	5.28	135	5.31	53	2.09
	2-1/4							154.5	6.08	196.5	7.74	158	6.22	69.5	2.74	135	5.31	135	5.31	59.5	2.34
	2-1/2							161	6.34	203	7.99	162	6.38	76	2.99	142	5.59	135	5.31	66	2.60
	2-3/4							167	6.57	209	8.23	176	6.93	82	3.23	156	6.14	135	5.31	72	2.83
HTSR+ 6	2-3/4	16670	10	2500	562020	219	8.62	167	6.57	220	8.66	190	7.48	82	3.23	170*	6.69*	146	5.75	72	2.83
	3							171	6.73	224	8.82	200	7.87	86	3.39	181*	7.13*	146	5.75	76	2.99
	3-1/4							180	7.09	233	9.17	208	8.19	95	3.74	191*	7.52*	146	5.75	85	3.35
	3-1/2							186	7.32	239	9.41	218	8.58	101	3.98	201*	7.91*	146	5.75	91	3.58
HTSR+ 7	3-1/2	21340	10	3200	719390	252	9.92	186	7.32	246	9.69	225	8.86	101	3.98	200	7.87	153	6.02	91	3.58
	3-3/4							192	7.56	252	9.92	235	9.25	107	4.21	208	8.19	153	6.02	97	3.82
	4							199	7.83	259	10.20	245	9.65	114	4.49	210	8.27	153	6.02	104	4.09

BAF\* - THESE BRIDGE ACROSS FLATS ARE DESIGNED WITH ACROSS FLATS SET AT AN ANGLE. THE DIMENSION GIVEN IS THE WIDEST DISTANCE BETWEEN THE ANGLED ACROSS FLATS.

\*\* ABOVE DIMENSIONS & SPEC REFER TO TOOL DRAWING ON SHEET 1\*\*

MATERIAL							
FINISH							
SURFACE FINISH							
LIMITS U.S.O.							
SIZE	A3	SCALE	0.600	A	-	SL	LC
				REV	CNN	DRAWN	CHECKED
						311019	DATE

**HYTORC**®

TITLE  
**HTSR+ TOOL SPEC AND DIMENSIONS SHEET 3 OF 3**

DRAWING NO. **GENERIC-HTSRP-GA** ISSUE **A**