

Data sheet

Sheet No: BH 1.200.02
Date: July 15, 2008, Page 1 of 3

Bettis BHHF

New spring selection

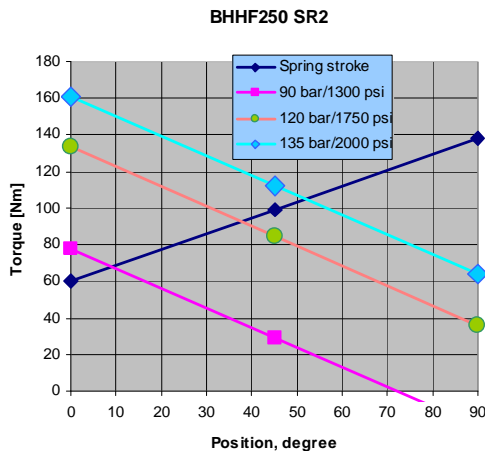
In order to provide a spring-return actuator that will cover a broader range of applications, Bettis is introducing a new spring set for the BHHF which will provide balanced torques at lower hydraulic supply pressures.

Reasoning

The native marine industry of the BHH utilizes 135bar or 2000 psi as the supply pressure, as do other industries. But a wide range of industry segments are also using 100 bar or 1500 psi as the hydraulic supply pressure to the actuator.

As the example shown in table 1, for the BHHF250 SR2 size, 135 bar or 2000 psi is sufficient to compress the springs and still generate 64Nm or 566 in-lbs of torque at the end of the opening cycle. However, 90 bar or 1300 psi of supply will NOT be sufficient to fully compress the spring and complete the full 90 degree rotation to open.

Table 1

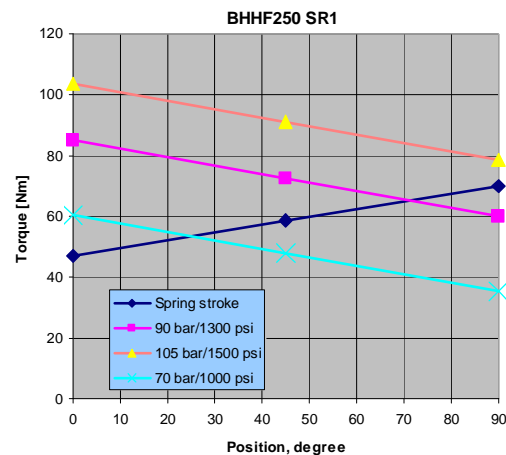


With the introduction of the BHHFXXX SR1, we are now able to provide an effective spring return

solution to the industry segment using lower supply pressures in their hydraulic systems.

As shown in table 2, the SR1 version offers less spring force, in turn allowing the modified design to provide balance torques at pressures as low as 90 bar or 1300 psi, making the unit more versatile to more industries.

Table 2



New torque charts

Attached you will find two familiar "step" charts, both in metric and imperial units, showing torque output for BHH and the BHHF SR1 and SR2 version.

Please note that the SR1 version is not available in size BHHF 8000 and BHHF 16000.

PDF versions of the torque charts are available at :

http://www.emersonprocess.com/valveautomation/Bettis/Downloads/BHH_Technical_Downloads.htm

BETTIS[®]

www.Bettis.com

Copyright © Emerson Process Management.

The information in this document is subject to change without notice.


EMERSON[™]
Process Management

Data sheet

Sheet No: BH 1.200.02
 Date: July 15, 2008, Page 2 of 3

Bettis BHHF

Torque Ratings - Bettis BHH Hydraulic (Imperial)

June /08

Double Acting

Actuator model	Stroke Position	Operating pressure (PSIG)								
		500	750	1000	1250	1500	1750	2000	2500	3000
		Hydraulic Torque Output (in-lbs)								
BHH125	Start/Min/End	283	407	575	735	859	982	1106	1390	1699
BHH250	Start/Min/End	575	814	1142	1469	1717	1965	2213	2779	3390
BHH500	Start/Min/End	1142	1637	2292	2947	3434	3930	4425	5567	6780
BHH1000	Start/Min/End	1965	3275	4585	5895	6877	7859	8851	11143	13568
BHH2000	Start/Min/End	4585	6550	9178	11798	13763	15728	17701	22286	27136
BHH4000	Start/Min/End	9178	13108	18356	23596	27535	31464	35403	44581	54282
BHH8000	Start/Min/End	18356	26216	36713	47201	55069	62938	70806	89162	108563
BHH16000	Start/Min/End	36713	52441	73426	94402	110139	125875	141612	178325	217135

Single Acting

Actuator model	Spring Torque (in-lbs)	Operating pressure (PSIG)								
		500	750	1000	1250	1500	1750	2000	2500	3000
		Hydraulic Torque Output (in-lbs)								
BHHF 125-SR1	Start	336		292	398	478	558	637		
	Min	266		186	301	381	460	540		
	End	186		89	195	274	354	434		
BHHF 125 - SR2	Start	549			416	522	664	788	991	1381
	Min	398			266	389	513	637	797	1186
	End	257			106	230	354	478	602	991
BHHF 250-SR1	Start	620	310	531	752	920	1089	1257		
	Min	522	204	425	646	805	965	1124		
	End	416	89	310	531	699	867	1036		
BHHF 250 - SR2	Start	1354				929	1177	1425	1788	2567
	Min	876				504	752	1000	1257	2036
	End	531				71	319	566	708	1487
BHHF 500-SR1	Start	1319	735	1168	1602	1929	2257	2584		
	Min	1115	504	938	1372	1699	2027	2354		
	End	903	274	708	1142	1469	1797	2124		
BHHF 500 - SR2	Start	2611				1699	2195	2691	3381	5133
	Min	1921				1044	1540	2036	2558	4310
	End	1239				381	876	1372	1726	3478
BHHF 1000-SR1	Start	2797	1478	2354	3231	3885	4540	5195		
	Min	2319	965	1841	2717	3372	4027	4682		
	End	1841	443	1319	2195	2850	3505	4160		
BHHF 1000 - SR2	Start	5372			2788	3770	4753	5735	7222	10453
	Min	4045			1558	2540	3523	4478	5638	8668
	End	2832			327	1310	2292	3275	4116	7346
BHHF 2000-SR1	Start	5585	2938	4691	6443	7753	9063	10373		
	Min	4478	1983	3735	5487	6797	8107	9417		
	End	3363	1018	2770	4523	5833	7143	8452		
BHHF 2000-SR2	Start	8922			4806	6780	8745	10709	13480	20153
	Min	7293			2992	4965	6930	8895	11196	17817
	End	5355			1177	3151	5116	7081	8913	15586
BHHF 4000-SR1	Start	11134	6620	10116	13612	16232	19118	22003		
	Min	9134	4452	7948	11444	14064	16684	19303		
	End	7125	2283	5780	9276	11895	14515	17135		
BHHF 4000 - SR2	Start	27880				12409	16338	20268	25517	39147
	Min	17038				6479	10408	14338	18056	31686
	End	11949				549	4478	8408	10585	24216
BHHF 8000 - SR2	Start	42484	11010	15728	22021	28322	33040	37757	42484	80250
	Min	31863	8258	11798	16515	21242	24782	28322	31863	50741
	End	21242	5805	7859	11010	14161	16515	18879	21242	40120
BHHF 16000 - SR2	Start	73461	22021	31464	44050	56645	66080	75523	84967	106988
	Min	57972	16515	23596	33040	42484	49564	56645	63725	80241
	End	42484	11010	15728	22021	28322	33040	37757	42484	53494



Data sheet

Sheet No: BH 1.200.02
 Date: July 15, 2008, Page 3 of 3

Bettis BHHF

Torque Ratings - Bettis BHH Hydraulic (Metric)

June /08

Double Acting

Actuator model	Stroke Position	Operating pressure (Bar)								
		35	50	70	90	105	120	135	170	207
		Hydraulic Torque Output (Nm)								
BHH125	Start/Min/End	32	46	65	83	97	111	125	157	192
BHH250	Start/Min/End	65	92	129	166	194	222	250	314	383
BHH500	Start/Min/End	129	185	259	333	388	444	500	629	766
BHH1000	Start/Min/End	222	370	518	666	777	888	1000	1259	1533
BHH2000	Start/Min/End	518	740	1037	1333	1555	1777	2000	2518	3066
BHH4000	Start/Min/End	1037	1481	2074	2666	3111	3555	4000	5037	6133
BHH8000	Start/Min/End	2074	2962	4148	5333	6222	7111	8000	10074	12266
BHH16000	Start/Min/End	4148	5925	8296	10666	12444	14222	16000	20148	24533

Single Acting

Actuator model	Spring Torque (Nm)	Operating pressure (Bar)								
		35	50	70	90	105	120	135	170	207
		Hydraulic Torque Output (Nm)								
BHHF 125 - 8R1	Start	38		33	45	54	63	72		
	Min	30		21	34	43	52	61		
	End	21		10	22	31	40	49		
BHHF 125 - 8R2	Start	62			47	59	75	89	112	156
	Min	45			30	44	58	72	90	134
	End	29			12	26	40	54	68	112
BHHF 250 - 8R1	Start	70	35	60	85	104	123	142		
	Min	59	23	48	73	91	109	127		
	End	47	10	35	60	79	98	117		
BHHF 250 - 8R2	Start	153				105	133	161	202	290
	Min	99				57	85	113	142	230
	End	60				8	36	64	80	168
BHHF 500 - 8R1	Start	149	83	132	181	218	255	292		
	Min	126	57	106	155	192	229	266		
	End	102	31	80	129	166	203	240		
BHHF 500 - 8R2	Start	295				192	248	304	382	580
	Min	217				118	174	230	289	487
	End	140				43	99	155	195	393
BHHF 1000 - 8R1	Start	316	167	266	365	439	513	587		
	Min	262	109	208	307	381	455	529		
	End	208	50	149	248	322	396	470		
BHHF 1000 - 8R2	Start	607				315	426	537	648	816
	Min	457				176	287	398	506	637
	End	320				37	148	259	370	465
BHHF 2000 - 8R1	Start	631	332	530	728	876	1024	1172		
	Min	506	224	422	620	768	916	1064		
	End	380	115	313	511	659	807	955		
BHHF 2000 - 8R2	Start	1008				543	766	988	1210	1523
	Min	824				338	561	783	1005	1265
	End	605				133	356	578	800	1007
BHHF 4000 - 8R1	Start	1258	748	1143	1538	1834	2160	2486		
	Min	1032	503	898	1293	1589	1885	2181		
	End	805	258	653	1048	1344	1640	1936		
BHHF 4000 - 8R2	Start	3150				1402	1846	2290	2883	4423
	Min	1925				732	1176	1620	2040	3580
	End	1350				62	506	950	1196	2736
BHHF 8000 - 8R2	Start	4800	1244	1777	2488	3200	3733	4266	4800	6933
	Min	3600	933	1333	1866	2400	2800	3200	3600	5733
	End	2400	622	888	1244	1600	1866	2133	2400	4533
BHHF 16000 - 8R2	Start	8300	2488	3555	4977	6400	7466	8533	9600	12088
	Min	6550	1866	2666	3733	4800	5600	6400	7200	9066
	End	4800	1244	1777	2488	3200	3733	4266	4800	6044



Data sheet

Sheet No: BH 1.200.02

Date: July 15, 2008, Page 4 of 3

Bettis BHHF

Empty page.

BETTIS[®]

www.Bettis.com

Copyright © Emerson Process Management.

The information in this document is subject to change without notice.


EMERSON[™]
Process Management