

Bettis CBB-Series

Pneumatic Double-Acting and Spring-Return Actuator Torque Chart Metric

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EMERSON™



Torque - Pneumatic Double-Acting Actuator

Actuator Model	Stroke Direction Start/Min./End		Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)	
			2.5	3	3.5	3.8	4	4.5	5	5.2	5.5	6	6.2	6.5	7	7.2	7.5	8					8.2
Pressure Torque Output: Start/Min./End (Nm)																							
CBB315	Outboard	Start	77	92	101	106	121	135	141	150	164	170	179	193	199	208	222	228	2.8	8.3	72	231	
		Min	43	50	55	58	66	73	76	81	89	92	96	104	107	112	119	123			40	124	
		End	83	98	107	113	128	143	149	158	172	178	187	202	208	217	232	238			77	241	
	Inboard	Start	79	94	103	109	123	138	144	153	168	174	182	197	203	212	227	233			73	236	
		Min	43	50	55	58	66	73	76	81	89	92	96	104	107	112	119	123			40	124	
		End	81	96	105	111	125	140	146	154	169	175	184	198	204	213	227	233			75	236	
CBB420	Outboard	Start	172	203	222	234	265	296	309	327	358	371	389	421	433	452	483	495	2.8	8.3	159	501	
		Min	96	113	123	130	147	164	170	180	197	204	214	231	238	248	265	272			89	275	
		End	192	226	246	260	293	327	341	361	395	408	428	462	476	496	530	543			179	550	
	Inboard	Start	185	219	239	252	286	319	332	353	386	399	419	453	466	486	520	533			172	540	
		Min	96	113	123	130	147	164	170	180	197	204	214	231	238	248	265	272			89	275	
		End	178	210	228	241	272	303	316	335	366	379	397	429	441	460	491	504			166	510	
CBB520	Outboard	Start	275	324	353	373	422	Exceeds MOP												2.8	4.8	255	452
		Min	152	179	195	206	232															142	248
		End	304	357	388	410	463															282	495
	Inboard	Start	294	346	378	399	452															273	483
		Min	152	179	195	206	232															142	248
		End	284	333	363	383	432															264	462
CBB525	Outboard	Start	355	419	457	483	546	610	636	674	738	763	801	865	890	929	992	1,018	2.8	8.3	330	1,031	
		Min	190	223	243	256	290	323	336	356	389	403	423	456	469	489	522	536			177	542	
		End	364	427	465	491	554	618	643	681	745	770	809	872	898	936	999	1,025			338	1,037	
	Inboard	Start	352	415	453	478	542	605	630	668	731	756	794	857	883	921	984	1,009			327	1,022	
		Min	190	223	243	256	290	323	336	356	389	403	423	456	469	489	522	536			177	542	
		End	367	431	469	495	559	623	649	687	752	777	816	880	906	944	1,008	1,034			341	1,047	

Note: All Published Torques are Guaranteed Minimum Values. Units are Metric

Torque - Pneumatic Double-Acting Actuator

Actuator Model	Stroke Direction Start/Min./End		Operating Pressure, (barg)															MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)	
			2.5	3	3.5	3.8	4	4.5	5	5.2	5.5	6	6.2	6.5	7	7.2	7.5					8
Pressure Torque Output: Start/Min./End (Nm)																						
CBB725	Start	Outboard	Please consult factory	724	850	926	977	1,104	1,230	1,281	1,357	Exceeds MOP							2.8	673	5.5	1,357
	Min			383	449	489	515	581	647	674	713		357	713								
	End			733	860	935	986	1,112	1,239	1,289	1,365		683	1,365								
	Start	Inboard		717	843	918	968	1,094	1,219	1,270	1,345		667	1,345								
	Min			383	449	489	515	581	647	674	713		357	713								
	End			740	867	944	995	1,122	1,250	1,301	1,377		689	1,377								
CBA730	Start	Outboard	Please consult factory	884	1,039	1,132	1,194	1,349	1,505	1,567	1,660	1,815	1,877	1,970	2,125	2,187	Exceeds MOP	2.8	822	7.2	2,187	
	Min			470	551	599	632	713	794	826	875	956	988	1,037	1,118	1,150			437		1,150	
	End			899	1,054	1,147	1,209	1,364	1,519	1,581	1,674	1,829	1,891	1,984	2,139	2,201			837		2,201	
	Start	Inboard		879	1,033	1,125	1,187	1,341	1,495	1,557	1,650	1,804	1,866	1,958	2,112	2,174			817		2,174	
	Min			470	551	599	632	713	794	826	875	956	988	1,037	1,118	1,150			437		1,150	
	End			904	1,060	1,154	1,216	1,372	1,528	1,590	1,684	1,840	1,902	1,996	2,152	2,214			842		2,214	
CBA830	Start	Outboard	Please consult factory	1,170	1,374	1,496	1,578	1,782	1,986	2,067	2,189	Exceeds MOP							2.8	1,089	5.5	2,189
	Min			620	726	790	833	939	1,045	1,088	1,152		577	1,152								
	End			1,186	1,390	1,512	1,593	1,797	2,001	2,082	2,204		1,105	2,204								
	Start	Inboard		1,163	1,366	1,487	1,568	1,771	1,974	2,055	2,176		1,082	2,176								
	Min			620	726	790	833	939	1,045	1,088	1,152		577	1,152								
	End			1,194	1,398	1,521	1,603	1,808	2,013	2,095	2,218		1,112	2,218								
CBA930	Start	Outboard	Please consult factory	1,496	1,755	1,910	2,014	2,273	Exceeds MOP										2.8	1,392	4.5	2,273
	Min			790	926	1,007	1,061	1,196		736	1,196											
	End			1,513	1,771	1,927	2,030	2,289		1,409	2,289											
	Start	Inboard		1,487	1,744	1,898	2,001	2,259		1,384	2,259											
	Min			790	926	1,007	1,061	1,196		736	1,196											
	End			1,522	1,782	1,938	2,042	2,303		1,418	2,303											
CBA1030	Start	Outboard	Please consult factory	1,989	Exceeds MOP													2.8	1,852	3.4	2,263	
	Min			1,049		977	1,192															
	End			2,007		1,871	2,281															
	Start	Inboard		1,977		1,841	2,249															
	Min			1,049		977	1,192															
	End			2,020		1,882	2,295															

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Torque - Pneumatic Spring-Return Actuator

Actuator Model	Spring Torque Start/Min./End (Nm)	Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)			
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9	10	10.5	11					11.5		
Pressure Torque Output: Start/Min./End (Nm)																								
CBB315-SR40	Start	35	30	43	57	65	70	84	98	111	125	152	166	193	206	233	247	Exceeds MOP	2.4	27	10.7	252		
	Min.	15	12	19	26	31	34	41	48	55	62	76	83	97	104	118	125						11	128
	End	21	15	28	42	50	55	69	82	95	109	136	149	176	189	216	230						12	235
CBB315-SR60	Start	57			Please consult factory	51	56	70	84	97	111	138	151	179	192	219	233	Exceeds MOP	3.6	46	10.5	233		
	Min.	25				21	24	31	38	45	52	66	73	87	94	109	116						18	116
	End	35				27	33	46	59	73	86	113	126	153	167	194	207						22	207
CBB315-SR80	Start	80			Please consult factory				69	83	97	124	137	164	178	205	Exceeds MOP	4.8	64	10.3	213			
	Min.	34				28	35	42	56	63	78	85	99	25	103									
	End	49				37	50	64	90	104	131	144	171	31	179									
CBB315-SR100	Start	103			Please consult factory					83	110	123	151	164	191	205	219	Exceeds MOP	6.0	83	11.3	227		
	Min.	43				32	46	54	68	75	89	96	103	32	108									
	End	63				41	68	81	108	121	148	162	175	41	183									
CBB415-SR40	Start	72	59	84	108	123	133	158	182	207	231	Exceeds MOP						2.5	59	6.9	275			
	Min.	30	23	36	49	56	62	74	87	100	113		23	136										
	End	41	28	52	76	91	100	124	149	173	197		28	241										
CBB415-SR60	Start	110			Please consult factory	96	106	131	155	180	204	253	278	Exceeds MOP					3.7	91	7.7	288		
	Min.	47				38	44	57	70	82	95	121	134		36	139								
	End	68				52	61	85	110	134	158	207	231		47	241								
CBB415-SR80	Start	149			Please consult factory				132	156	181	230	255	Exceeds MOP					4.8	122	8.1	284		
	Min.	63				52	65	78	104	117	47	132												
	End	92				71	95	119	168	192	61	221												
CBB415-SR100	Start	204			Please consult factory						224	248	Exceeds MOP					6.4	194	7.9	268			
	Min.	77				86	99	69	109															
	End	98				112	136	83	156															

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Torque - Pneumatic Spring-Return Actuator

Actuator Model	Spring Torque Start/Min./End (Nm)	Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)	
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9	10	10.5	11					11.5
		Pressure Torque Output: Start/Min./End (Nm)																				
CBB420-SR40	Start	86	Please consult factory	112	143	161	173	204	235	266	296	358	389	450	481	543	573	Exceeds MOP	2.6	87	10.8	592
	Min	34		44	60	70	76	92	107	123	138	169	185	216	232	263	278			31		288
	End	44		60	89	106	118	146	175	204	233	290	319	377	405	463	492			37		509
CBB420-SR60	Start	137	Please consult factory	130	143	173	204	235	266	327	358	419	450	512	543	Exceeds MOP	3.8	130	10.8	561		
	Min	56		46	53	69	84	100	116	147	163	194	209	241	256			46		266		
	End	75		54	66	95	123	152	181	239	267	325	354	411	440			54		457		
CBB420-SR80	Start	187	Please consult factory	178	209	239	301	332	393	424	486	516	547	Exceeds MOP	5.0	178	11.1	553				
	Min	75		62	79	95	126	142	173	189	220	236	251			62		254				
	End	102		73	102	131	189	217	275	304	361	390	419			73		425				
CBB420-SR100	Start	243	Please consult factory	274	304	366	397	458	489	520	Exceeds MOP	6.3	231	11.4	545							
	Min	97		102	118	150	166	197	213	228			79		241							
	End	129		132	161	219	248	305	334	363			92		386							
CBB520-SR40	Start	143	Please consult factory	184	232	261	281	329	377	426	474	571	619	Exceeds MOP	2.6	145	7.6	629				
	Min	55		71	96	111	121	146	170	195	219	269	293			51		298				
	End	68		94	139	167	185	230	276	322	367	458	504			57		513				
CBB520-SR60	Start	217	Please consult factory	204	224	272	320	368	417	513	562	Exceeds MOP	3.7	195	8.0	610						
	Min	90		75	85	110	135	160	184	233	258			69		283						
	End	125		92	110	156	201	247	292	383	429			83		474						
CBB520-SR80	Start	298	Please consult factory	280	328	377	473	522	Exceeds MOP	5.0	280	8.3	599									
	Min	121		100	125	150	200	225			100		264									
	End	165		120	165	211	302	348			120		421									
CBB520-SR100	Start	408	Please consult factory	394	442	539	587	Exceeds MOP	6.7	365	9.1	597										
	Min	170		147	173	223	247			132		252										
	End	245		192	237	328	374			164		383										

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Torque - Pneumatic Spring-Return Actuator

Actuator Model	Spring Torque Start/Min./End (Nm)	Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)		
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9	10	10.5	11					11.5	
		Pressure Torque Output: Start/Min./End (Nm)																					
CBB525-SR40	Start	167	140	198	256	291	314	372	430	488	546	662	720	836	894	1,010	Exceeds MOP			2.4	128	10.1	1,022
	Min.	71	58	89	120	139	151	182	212	243	273	335	365	426	457	518					52		524
	End	103	80	139	197	233	256	315	374	433	492	610	669	787	846	964					68		976
CBB525-SR60	Start	270			Please consult factory	239	262	320	378	436	494	610	668	784	842	958	Exceeds MOP		3.7	227	10.4	1,005	
	Min.	110		96		108	140	171	201	232	293	324	385	416	477	90				502			
	End	155		129		153	212	271	329	388	506	565	683	742	860	117				907			
CBB525-SR80	Start	376			Please consult factory				324	382	440	556	614	730	788	904	962	1,020	Exceeds MOP	4.9	312	11.0	1,020
	Min.	151				126	157	188	250	281	343	373	435	465	496	119	496						
	End	210				164	223	282	400	459	577	636	754	813	872	153	872						
CBB525-SR100	Start	473			Please consult factory						497	555	671	729	846	904	962	Exceeds MOP	6.1	393	11.2	985	
	Min.	191				208	239	301	332	393	424	455	151	467									
	End	269				302	361	479	538	656	715	774	196	798									
CBB725-SR40	Start	363	298	413	528	598	644	759	874	990	1,105	1,336	Exceeds MOP					2.5	298	7.0	1,336		
	Min.	151	118	180	241	278	302	363	424	485	546	667							118		667		
	End	215	156	273	390	460	507	624	741	858	975	1,209							156		1,209		
CBB725-SR60	Start	574			Please consult factory	483	530	645	760	876	991	1,222	1,337	Exceeds MOP				3.8	483	7.9	1,430		
	Min.	233				188	214	276	337	398	459	581	642						188		691		
	End	330				249	296	413	530	647	764	998	1,115						249		1,209		
CBB725-SR80	Start	771			Please consult factory				649	764	880	1,111	1,226	1,457	Exceeds MOP			5.0	649	8.5	1,457		
	Min.	312				251	314	376	499	560	682	251	682										
	End	441				332	449	566	800	917	1,151	332	1,151										
CBB725-SR100	Start	1,016			Please consult factory						1,029	1,144	1,375	Exceeds MOP			6.5	913	8.5	1,375			
	Min.	391				406	468	592	406	468	592	343	592										
	End	524				555	672	906	555	672	906	438	906										

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Torque - Pneumatic Spring-Return Actuator

Actuator Model	Spring Torque Start/Min./End (Nm)	Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)			
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9	10	10.5	11					11.5		
		Pressure Torque Output: Start/Min./End (Nm)																						
CBA730-SR40	Start	459	385	531	677	765	823	969	1,115	1,260	1,406	1,698	1,844	2,136	2,282	Exceeds MOP				2.4	356	9.3	2,370	
	Min	187	150	228	306	352	383	460	537	614	691	844	921	1,074	1,151		134	1,197						
	End	259	192	339	487	575	634	782	929	1,077	1,224	1,519	1,667	1,962	2,110		162	2,198						
CBA730-SR60	Start	724			Please consult factory	631	689	835	981	1,127	1,273	1,565	1,711	2,003	2,149	Exceeds MOP				3.6	573	9.7	2,353	
	Min	287				241	273	352	429	507	584	738	815	969	1,046		209	1,153						
	End	393				309	368	516	663	811	958	1,254	1,401	1,696	1,844		250	2,050						
CBA730-SR80	Start	1,022			Please consult factory				885	1,031	1,177	1,469	1,615	1,906	2,052	2,344	Exceeds MOP				5.0	885	10.0	2,344
	Min	382				313	394	473	629	707	862	939	1,093	313	1,093									
	End	489				365	513	660	955	1,103	1,398	1,545	1,841	365	1,841									
CBA730-SR100	Start	1,282			Please consult factory						1,338	1,484	1,776	1,922	2,214	Exceeds MOP				6.2	1,104	10.3	2,301	
	Min	481				519	598	755	832	987	390	1,034												
	End	620				694	841	1,136	1,284	1,579	458	1,668												
CBA830-SR40	Start	609	517	708	900	1,015	1,092	1,283	1,475	1,667	1,858	2,242	Exceeds MOP						2.4	478	7.2	2,318		
	Min	248	201	304	406	467	508	609	710	811	911	1,113		180	1,153									
	End	346	261	454	648	764	842	1,036	1,229	1,423	1,617	2,004		222	2,082									
CBA830-SR60	Start	989			Please consult factory	876	952	1,144	1,336	1,527	1,719	2,102	2,294	Exceeds MOP						3.7	837	7.6	2,333	
	Min	375				318	360	465	567	669	771	974	1,075		296	1,095								
	End	486				384	461	655	849	1,043	1,236	1,624	1,818		345	1,856								
CBA830-SR80	Start	1,357			Please consult factory				1,184	1,376	1,568	1,951	2,143	Exceeds MOP						5.0	1,184	7.9	2,296	
	Min	503				414	521	625	831	933	414	1,014												
	End	637				479	673	867	1,254	1,448	479	1,603												
CBA830-SR100	Start	1,737			Please consult factory						1,811	2,003	Exceeds MOP						6.3	1,543	8.3	2,310		
	Min	629				680	785	531	950															
	End	777				874	1,067	602	1,377															

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Torque - Pneumatic Spring-Return Actuator

Actuator Model	Spring Torque Start/Min./End (Nm)	Operating Pressure, (barg)																MinOP (barg)	Torque @ MinOP (Nm)	MOP (barg)	Torque @ MOP (Nm)		
		2.5	3	3.5	3.8	4	4.5	5	5.5	6	7	7.5	8.5	9	10	10.5	11					11.5	
		Pressure Torque Output: Start/Min./End (Nm)																					
CBA930-SR40	Start	783	666	910	1,153	1,300	1,397	1,641	1,884	2,128	Exceeds MOP									2.4	618	5.9	2,323
	Min	318	259	390	519	597	648	777	905	1,033		232	1,136										
	End	445	338	584	830	977	1,076	1,322	1,568	1,814		288	2,011										
CBA930-SR60	Start	1,290			Please consult factory	1,156	1,254	1,497	1,741	1,985	2,228	Exceeds MOP								3.8	1,156	6.2	2,326
	Min	473				405	460	593	724	854	984		405	1,035									
	End	588				469	567	814	1,060	1,306	1,552		469	1,651									
CBA930-SR80	Start	1,736			Please consult factory				1,523	1,766	2,010	Exceeds MOP								5.0	1,523	6.6	2,302
	Min	640				531	666	799	531	666	799		531	956									
	End	807				613	859	1,105	613	859	1,105		613	1,400									
CBA930-SR100	Start	2,184			Please consult factory							2,275	Exceeds MOP							6.3	1,933	7.2	2,372
	Min	809				870	682	923															
	End	1,030				1,148	803	1,247															
CBA1030-SR40	Start	1,053	902	1,224	1,546	1,740	1,868	2,191	Exceeds MOP											2.4	838	4.8	2,384
	Min	423	346	520	691	794	862	1,032		311	1,133												
	End	587	449	774	1,099	1,295	1,425	1,750		383	1,945												
CBA1030-SR60	Start	1,733			Please consult factory	1,573	1,702	2,024	2,346	Exceeds MOP										3.8	1,573	5.2	2,475
	Min	622				541	614	790	964		541	1,033											
	End	755				612	743	1,068	1,393		612	1,524											
CBA1030-SR80	Start	2,261			Please consult factory				1,968	2,291	Exceeds MOP									4.9	1,904	5.5	2,291
	Min	860				711	888	711	888	711		888	675	888									
	End	1,133				864	1,189	864	1,189	864		1,189	799	1,189									

Note: All Published Torques are Guaranteed Minimum Values. Units are Metric



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