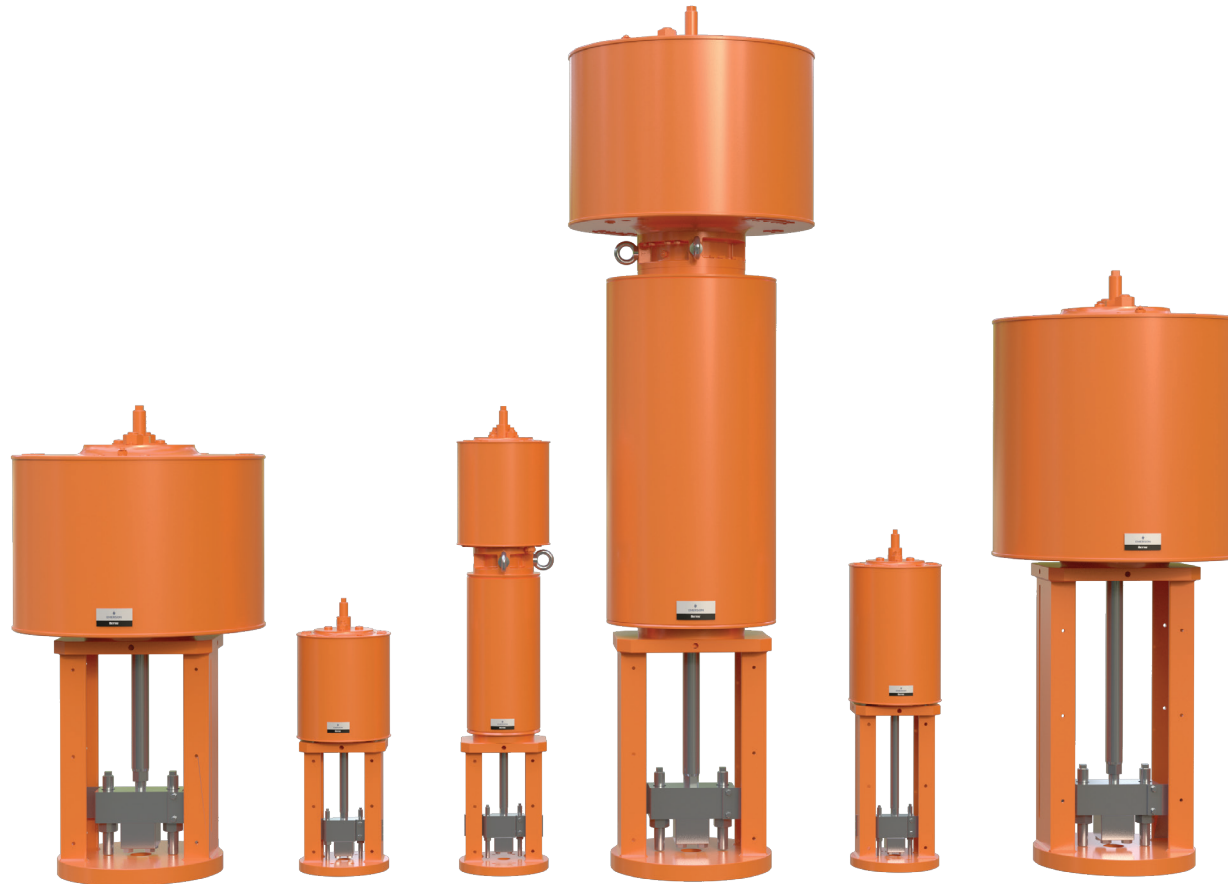


Bettis GVO-G Series

Pneumatic Double-Acting and Spring-Return Linear Actuator Thrust Chart Imperial



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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)								
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200												
			Pressure Thrust Output: Start/Mid./End (lbf)																												
GVO-G0105	Outboard	Start	643	822	1,002	1,181	1,361	1,541	1,721	1,900	2,080	2,260	2,440	2,620	2,800	2,980	3,161	3,341	3,521	40	643	200	3,521								
		Mid.	686	867	1,048	1,229	1,410	1,591	1,772	1,953	2,134	2,315	2,497	2,678	2,859	3,040	3,221	3,403	3,584					686	3,584						
		End	643	822	1,002	1,181	1,361	1,541	1,721	1,900	2,080	2,260	2,440	2,620	2,800	2,980	3,161	3,341	3,521							643	3,521				
	Inboard	Start	613	785	957	1,130	1,302	1,474	1,647	1,819	1,991	2,164	2,336	2,509	2,682	2,854	3,027	3,200	3,373									613	3,373		
		Mid.	656	830	1,004	1,177	1,351	1,524	1,698	1,872	2,045	2,219	2,393	2,567	2,740	2,914	3,088	3,262	3,436											656	3,436
		End	613	785	957	1,130	1,302	1,474	1,647	1,819	1,991	2,164	2,336	2,509	2,682	2,854	3,027	3,200	3,373												
GVO-G0107	Outboard	Start	1,326	1,683	2,040	2,397	2,754	3,112	3,469	3,826	4,183	4,541	4,898	5,256	5,614	5,971	6,329	6,687	7,045	40	1,326	200	7,045								
		Mid.	1,385	1,744	2,102	2,461	2,820	3,179	3,538	3,897	4,256	4,615	4,975	5,334	5,693	6,052	6,411	6,771	7,130					1,385	7,130						
		End	1,326	1,683	2,040	2,397	2,754	3,112	3,469	3,826	4,183	4,541	4,898	5,256	5,614	5,971	6,329	6,687	7,045							1,326	7,045				
	Inboard	Start	1,297	1,646	1,996	2,345	2,695	3,045	3,395	3,745	4,094	4,444	4,795	5,145	5,495	5,845	6,195	6,546	6,896									1,297	6,896		
		Mid.	1,355	1,706	2,058	2,409	2,761	3,113	3,464	3,816	4,167	4,519	4,871	5,223	5,574	5,926	6,278	6,630	6,982											1,355	6,982
		End	1,297	1,646	1,996	2,345	2,695	3,045	3,395	3,745	4,094	4,444	4,795	5,145	5,495	5,845	6,195	6,546	6,896												
GVO-G0108	Outboard	Start	1,729	2,192	2,654	3,117	3,580	4,042	4,505	4,968	5,431	5,894	6,357	6,820	7,284	7,747	8,210	8,674	9,138	40	1,729	200	9,138								
		Mid.	1,799	2,263	2,728	3,193	3,658	4,123	4,588	5,053	5,518	5,983	6,448	6,913	7,378	7,843	8,308	8,774	9,239					1,799	9,239						
		End	1,729	2,192	2,654	3,117	3,580	4,042	4,505	4,968	5,431	5,894	6,357	6,820	7,284	7,747	8,210	8,674	9,138							1,729	9,138				
	Inboard	Start	1,699	2,155	2,610	3,065	3,520	3,975	4,431	4,886	5,342	5,798	6,253	6,709	7,165	7,621	8,077	8,533	8,989									1,699	8,989		
		Mid.	1,769	2,226	2,684	3,141	3,598	4,056	4,513	4,971	5,429	5,886	6,344	6,801	7,259	7,717	8,175	8,633	9,090											1,769	9,090
		End	1,699	2,155	2,610	3,065	3,520	3,975	4,431	4,886	5,342	5,798	6,253	6,709	7,165	7,621	8,077	8,533	8,989												
GVO-G0109	Outboard	Start	2,218	2,806	3,395	3,983	4,571	5,160	5,749	6,337	6,926	7,515	8,104	8,693	9,282	9,871	10,460	11,050	11,639	40	2,218	200	11,639								
		Mid.	2,296	2,886	3,477	4,068	4,659	5,250	5,841	6,432	7,023	7,614	8,205	8,796	9,387	9,979	10,570	11,161	11,753					2,296	11,753						
		End	2,218	2,806	3,395	3,983	4,571	5,160	5,749	6,337	6,926	7,515	8,104	8,693	9,282	9,871	10,460	11,050	11,639							2,218	11,639				
	Inboard	Start	2,189	2,769	3,350	3,931	4,512	5,093	5,674	6,256	6,837	7,418	8,000	8,581	9,163	9,745	10,327	10,908	11,490									2,189	11,490		
		Mid.	2,266	2,849	3,433	4,016	4,600	5,183	5,766	6,350	6,934	7,517	8,101	8,685	9,268	9,852	10,436	11,020	11,604											2,266	11,604
		End	2,189	2,769	3,350	3,931	4,512	5,093	5,674	6,256	6,837	7,418	8,000	8,581	9,163	9,745	10,327	10,908	11,490												
GVO-G0110	Outboard	Start	2,963	3,741	4,520	5,299	6,077	6,856	7,635	8,414	9,193	9,973	10,752	11,531	12,311	13,090	13,870	Exceeds MOP	40	185	14,260										
		Mid.	3,050	3,831	4,613	5,394	6,176	6,957	7,739	8,521	9,302	10,084	10,866	11,648	12,429	13,211	13,993					3,050	14,384								
		End	2,963	3,741	4,520	5,299	6,077	6,856	7,635	8,414	9,193	9,973	10,752	11,531	12,311	13,090	13,870							2,963	14,260						
	Inboard	Start	2,933	3,704	4,475	5,247	6,018	6,789	7,561	8,332	9,104	9,876	10,648	11,420	12,192	12,964	13,736									2,933	14,123				
		Mid.	3,020	3,794	4,568	5,342	6,116	6,890	7,665	8,439	9,213	9,987	10,762	11,536	12,311	13,085	13,860											3,020	14,247		
		End	2,933	3,704	4,475	5,247	6,018	6,789	7,561	8,332	9,104	9,876	10,648	11,420	12,192	12,964	13,736													2,933	14,123
GVO-G0112	Outboard	Start	4,279	5,393	6,508	7,622	8,736	9,851	10,965	12,080	13,195	14,310	Exceeds MOP	40	130	14,310															
		Mid.	4,381	5,499	6,616	7,734	8,852	9,969	11,087	12,205	13,323	14,441					4,381	14,441													
		End	4,279	5,393	6,508	7,622	8,736	9,851	10,965	12,080	13,195	14,310							4,279	14,310											
	Inboard	Start	4,250	5,356	6,463	7,570	8,677	9,784	10,891	11,998	13,106	14,213									4,250	14,213									
		Mid.	4,352	5,462	6,572	7,682	8,792	9,903	11,013	12,123	13,234	14,344											4,352	14,344							
		End	4,250	5,356	6,463	7,570	8,677	9,784	10,891	11,998	13,106	14,213													4,250	14,213					
GVO-G0114	Outboard	Start	5,217	6,570	7,924	9,278	10,632	11,986	13,341	Exceeds MOP	40	105	14,018																		
		Mid.	5,331	6,689	8,047	9,404	10,762	12,120	13,478					5,331	14,157																
		End	5,217	6,570	7,924	9,278	10,632	11,986	13,341							5,217	14,018														
	Inboard	Start	5,187	6,533	7,880	9,226	10,573	11,919	13,266									5,187	13,940												
		Mid.	5,302	6,652	8,002	9,352	10,703	12,053	13,403											5,302	14,079										
		End	5,187	6,533	7,880	9,226	10,573	11,919	13,266													5,187	13,940								

Notes:

All Published Thrusts are Guaranteed Minimum Values.

MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G0209	Outboard	Start	2,218	2,806	3,395	3,983	4,571	5,160	5,749	6,337	6,926	7,515	8,104	8,693	9,282	9,871	10,460	11,050	11,639	40	2,218	200	11,639
		Mid.	2,296	2,886	3,477	4,068	4,659	5,250	5,841	6,432	7,023	7,614	8,205	8,796	9,387	9,979	10,570	11,161	11,753				
		End	2,218	2,806	3,395	3,983	4,571	5,160	5,749	6,337	6,926	7,515	8,104	8,693	9,282	9,871	10,460	11,050	11,639				
	Inboard	Start	2,189	2,769	3,350	3,931	4,512	5,093	5,674	6,256	6,837	7,418	8,000	8,581	9,163	9,745	10,327	10,908	11,490				
		Mid.	2,266	2,849	3,433	4,016	4,600	5,183	5,766	6,350	6,934	7,517	8,101	8,685	9,268	9,852	10,436	11,020	11,604				
		End	2,189	2,769	3,350	3,931	4,512	5,093	5,674	6,256	6,837	7,418	8,000	8,581	9,163	9,745	10,327	10,908	11,490				
GVO-G0210	Outboard	Start	2,963	3,741	4,520	5,299	6,077	6,856	7,635	8,414	9,193	9,973	10,752	11,531	12,311	13,090	13,870	40	2,963	185	14,260		
		Mid.	3,050	3,831	4,613	5,394	6,176	6,957	7,739	8,521	9,302	10,084	10,866	11,648	12,429	13,211	13,993						
		End	2,963	3,741	4,520	5,299	6,077	6,856	7,635	8,414	9,193	9,973	10,752	11,531	12,311	13,090	13,870						
	Inboard	Start	2,933	3,704	4,475	5,247	6,018	6,789	7,561	8,332	9,104	9,876	10,648	11,420	12,192	12,964	13,736					Exceeds MOP	
		Mid.	3,020	3,794	4,568	5,342	6,116	6,890	7,665	8,439	9,213	9,987	10,762	11,536	12,311	13,085	13,860						
		End	2,933	3,704	4,475	5,247	6,018	6,789	7,561	8,332	9,104	9,876	10,648	11,420	12,192	12,964	13,736						
GVO-G0212	Outboard	Start	4,279	5,393	6,507	7,622	8,736	9,851	10,965	12,080	13,195	14,310	40	4,279	130	14,310							
		Mid.	4,381	5,499	6,616	7,734	8,852	9,969	11,087	12,205	13,323	14,441											
		End	4,279	5,393	6,507	7,622	8,736	9,851	10,965	12,080	13,195	14,310											
	Inboard	Start	4,249	5,356	6,463	7,570	8,677	9,784	10,891	11,998	13,106	14,213					Exceeds MOP						
		Mid.	4,352	5,462	6,572	7,682	8,792	9,902	11,013	12,123	13,234	14,344											
		End	4,249	5,356	6,463	7,570	8,677	9,784	10,891	11,998	13,106	14,213											
GVO-G0214	Outboard	Start	5,217	6,570	7,924	9,278	10,632	11,986	13,341	40	5,217	105	14,018										
		Mid.	5,331	6,689	8,047	9,404	10,762	12,120	13,478														
		End	5,217	6,570	7,924	9,278	10,632	11,986	13,341														
	Inboard	Start	5,187	6,533	7,880	9,226	10,573	11,919	13,266					Exceeds MOP									
		Mid.	5,302	6,652	8,002	9,352	10,703	12,053	13,403														
		End	5,187	6,533	7,880	9,226	10,573	11,919	13,266														
GVO-G0216	Outboard	Start	6,918	8,704	10,490	12,276	14,062	40	6,918	80	14,062												
		Mid.	7,049	8,839	10,629	12,419	14,210																
		End	6,918	8,704	10,490	12,276	14,062																
	Inboard	Start	6,889	8,667	10,446	12,224	14,003					Exceeds MOP											
		Mid.	7,019	8,802	10,584	12,367	14,150																
		End	6,889	8,667	10,446	12,224	14,003																

Notes:
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 MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)									
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200								
			Pressure Thrust Output: Start/Mid./End (lbf)																												
GVO-G0310	Outboard	Start	2,948	3,723	4,498	5,274	6,050	6,826	7,601	8,377	9,153	9,930	10,706	11,482	12,259	13,035	13,812	14,588	15,365	40	2,948	200	15,365								
		Mid.	3,036	3,815	4,593	5,371	6,150	6,928	7,707	8,486	9,264	10,043	10,822	11,600	12,379	13,158	13,937	14,716	15,495					3,036	15,495						
		End	2,948	3,723	4,498	5,274	6,050	6,826	7,601	8,377	9,153	9,930	10,706	11,482	12,259	13,035	13,812	14,588	15,365							2,948	15,365				
	Inboard	Start	2,901	3,665	4,429	5,193	5,957	6,721	7,485	8,250	9,014	9,779	10,543	11,308	12,073	12,838	13,603	14,368	15,133									2,901	15,133		
		Mid.	2,990	3,757	4,523	5,290	6,057	6,824	7,591	8,358	9,125	9,892	10,659	11,426	12,194	12,961	13,728	14,496	15,263											2,990	15,263
		End	2,901	3,665	4,429	5,193	5,957	6,721	7,485	8,250	9,014	9,779	10,543	11,308	12,073	12,838	13,603	14,368	15,133												
GVO-G0312	Outboard	Start	4,264	5,375	6,486	7,597	8,708	9,820	10,931	12,043	13,155	14,267	15,379	16,491	17,603	18,715	Exceeds MOP	40	170	18,715											
		Mid.	4,368	5,482	6,597	7,711	8,826	9,940	11,055	12,170	13,285	14,400	15,515	16,630	17,745	18,860					4,368	18,860									
		End	4,264	5,375	6,486	7,597	8,708	9,820	10,931	12,043	13,155	14,267	15,379	16,491	17,603	18,715							4,264	18,715							
	Inboard	Start	4,217	5,317	6,416	7,516	8,616	9,715	10,815	11,915	13,016	14,116	15,216	16,317	17,417	18,518									4,217	18,518					
		Mid.	4,321	5,424	6,527	7,630	8,733	9,836	10,939	12,042	13,145	14,249	15,352	16,455	17,559	18,662											4,321	18,662			
		End	4,217	5,317	6,416	7,516	8,616	9,715	10,815	11,915	13,016	14,116	15,216	16,317	17,417	18,518													4,217	18,518	
GVO-G0314	Outboard	Start	5,202	6,552	7,903	9,254	10,605	11,956	13,307	14,658	16,010	17,361	Exceeds MOP	40	135	18,037															
		Mid.	5,318	6,672	8,027	9,381	10,736	12,091	13,446	14,801	16,156	17,511					5,318	18,188													
		End	5,202	6,552	7,903	9,254	10,605	11,956	13,307	14,658	16,010	17,361							5,202	18,037											
	Inboard	Start	5,155	6,494	7,833	9,172	10,512	11,851	13,191	14,531	15,870	17,210									5,155	17,880									
		Mid.	5,271	6,614	7,957	9,300	10,643	11,986	13,330	14,673	16,016	17,360											5,271	18,031							
		End	5,155	6,494	7,833	9,172	10,512	11,851	13,191	14,531	15,870	17,210													5,155	17,880					
GVO-G0316	Outboard	Start	6,903	8,686	10,469	12,252	14,035	15,818	17,601	Exceeds MOP	40	105	18,493																		
		Mid.	7,035	8,822	10,609	12,397	14,184	15,971	17,759					7,035	18,653																
		End	6,903	8,686	10,469	12,252	14,035	15,818	17,601							6,903	18,493														
	Inboard	Start	6,857	8,628	10,399	12,170	13,942	15,714	17,485									6,857	18,371												
		Mid.	6,988	8,764	10,540	12,315	14,091	15,867	17,643											6,988	18,531										
		End	6,857	8,628	10,399	12,170	13,942	15,714	17,485													6,857	18,371								
GVO-G0320	Outboard	Start	11,020	13,845	16,670	Exceeds MOP	40	65	18,083																						
		Mid.	11,183	14,013	16,844					11,183	18,260																				
		End	11,020	13,845	16,670							11,020	18,083																		
	Inboard	Start	10,974	13,787	16,601									10,974	18,008																
		Mid.	11,136	13,955	16,774											11,136	18,184														
		End	10,974	13,787	16,601													10,974	18,008												

Notes:
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 MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200					
			Pressure Thrust Output: Start/Mid./End (lbf)																					
GVO-G0412	Outboard	Start	4,247	5,354	6,462	7,569	8,677	9,785	10,893	12,001	13,109	14,218	15,326	16,435	17,543	18,652	19,761	20,870	21,979	40	200	4,247	21,979	
		Mid.	4,352	5,463	6,574	7,685	8,796	9,907	11,018	12,130	13,241	14,352	15,464	16,575	17,687	18,798	19,910	21,022	22,134			4,352	22,134	
		End	4,247	5,354	6,462	7,569	8,677	9,785	10,893	12,001	13,109	14,218	15,326	16,435	17,543	18,652	19,761	20,870	21,979			4,247	21,979	
	Inboard	Start	4,180	5,271	6,361	7,452	8,543	9,635	10,726	11,817	12,909	14,000	15,092	16,184	17,276	18,368	19,460	20,552	21,645			4,180	21,645	
		Mid.	4,285	5,380	6,474	7,568	8,662	9,757	10,851	11,946	13,041	14,135	15,230	16,325	17,419	18,514	19,609	20,704	21,799			4,285	21,799	
		End	4,180	5,271	6,361	7,452	8,543	9,635	10,726	11,817	12,909	14,000	15,092	16,184	17,276	18,368	19,460	20,552	21,645			4,180	21,645	
GVO-G0414	Outboard	Start	5,185	6,532	7,879	9,226	10,573	11,921	13,269	14,616	15,964	17,312	18,661	20,009	21,357	22,706	24,055	25,404	26,752	40	200	5,185	26,752	
		Mid.	5,302	6,653	8,004	9,355	10,707	12,058	13,409	14,761	16,112	17,464	18,815	20,167	21,519	22,870	24,222	25,574	26,926			5,302	26,926	
		End	5,185	6,532	7,879	9,226	10,573	11,921	13,269	14,616	15,964	17,312	18,661	20,009	21,357	22,706	24,055	25,404	26,752			5,185	26,752	
	Inboard	Start	5,118	6,448	7,778	9,109	10,440	11,771	13,101	14,433	15,764	17,095	18,427	19,758	21,090	22,422	23,754	25,086	26,418			5,118	26,418	
		Mid.	5,235	6,570	7,904	9,238	10,573	11,907	13,242	14,577	15,911	17,246	18,581	19,916	21,251	22,586	23,921	25,256	26,592			5,235	26,592	
		End	5,118	6,448	7,778	9,109	10,440	11,771	13,101	14,433	15,764	17,095	18,427	19,758	21,090	22,422	23,754	25,086	26,418			5,118	26,418	
GVO-G0416	Outboard	Start	6,886	8,666	10,445	12,224	14,004	15,784	17,563	19,344	21,124	22,904	24,684	26,465	28,246	30,027	Exceeds MOP				40	175	6,886	30,917
		Mid.	7,020	8,803	10,587	12,371	14,155	15,939	17,723	19,507	21,291	23,075	24,859	26,644	28,428	30,213							7,020	31,105
		End	6,886	8,666	10,445	12,224	14,004	15,784	17,563	19,344	21,124	22,904	24,684	26,465	28,246	30,027							6,886	30,917
	Inboard	Start	6,820	8,582	10,345	12,107	13,870	15,633	17,396	19,160	20,923	22,687	24,450	26,214	27,978	29,743							6,820	30,625
		Mid.	6,953	8,720	10,487	12,254	14,021	15,788	17,555	19,323	21,090	22,858	24,625	26,393	28,161	29,929							6,953	30,813
		End	6,820	8,582	10,345	12,107	13,870	15,633	17,396	19,160	20,923	22,687	24,450	26,214	27,978	29,743							6,820	30,625
GVO-G0420	Outboard	Start	11,003	13,824	16,646	19,468	22,290	25,113	27,935	Exceeds MOP										40	102	11,003	28,500	
		Mid.	11,167	13,994	16,822	19,649	22,476	25,304	28,132													11,167	28,697	
		End	11,003	13,824	16,646	19,468	22,290	25,113	27,935													11,003	28,500	
	Inboard	Start	10,936	13,741	16,546	19,351	22,157	24,962	27,768													10,936	28,329	
		Mid.	11,100	13,911	16,721	19,532	22,343	25,154	27,965													11,100	28,527	
		End	10,936	13,741	16,546	19,351	22,157	24,962	27,768													10,936	28,329	
GVO-G0424	Outboard	Start	16,089	20,192	24,295	28,399	Exceeds MOP													40	74	16,089	30,040	
		Mid.	16,275	20,384	24,493	28,602																16,275	30,246	
		End	16,089	20,192	24,295	28,399																16,089	30,040	
	Inboard	Start	16,023	20,109	24,195	28,282																16,023	29,916	
		Mid.	16,208	20,301	24,393	28,485																16,208	30,122	
		End	16,023	20,109	24,195	28,282																16,023	29,916	
GVO-G0428	Outboard	Start	22,657	28,443	Exceeds MOP															40	50	22,657	28,443	
		Mid.	22,946	28,743																		22,946	28,743	
		End	22,657	28,443																		22,657	28,443	
	Inboard	Start	22,590	28,359																		22,590	28,359	
		Mid.	22,879	28,659																		22,879	28,659	
		End	22,590	28,359																		22,590	28,359	

Notes:
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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G0516	Outboard	Start	6,869	8,641	10,413	12,186	13,958	15,731	17,503	19,276	21,049	22,822	24,596	26,369	28,142	29,916	31,690	33,464	35,238	40	200	6,869	35,238
		Mid.	6,994	8,770	10,546	12,322	14,098	15,874	17,651	19,427	21,203	22,980	24,756	26,533	28,310	30,086	31,863	33,640	35,417			6,994	35,417
		End	6,869	8,641	10,413	12,186	13,958	15,731	17,503	19,276	21,049	22,822	24,596	26,369	28,142	29,916	31,690	33,464	35,238			6,869	35,238
	Inboard	Start	6,750	8,492	10,235	11,978	13,720	15,463	17,206	18,949	20,693	22,436	24,180	25,923	27,667	29,411	31,155	32,899	34,643			6,750	34,643
		Mid.	6,875	8,621	10,368	12,114	13,861	15,607	17,354	19,100	20,847	22,594	24,340	26,087	27,834	29,581	31,328	33,075	34,823			6,875	34,823
		End	6,750	8,492	10,235	11,978	13,720	15,463	17,206	18,949	20,693	22,436	24,180	25,923	27,667	29,411	31,155	32,899	34,643			6,750	34,643
GVO-G0520	Outboard	Start	10,985	13,800	16,615	19,430	22,245	25,060	27,875	30,691	33,506	36,322	39,138	41,955	44,771	47,587	40	175	10,985	48,996			
		Mid.	11,142	13,961	16,781	19,600	22,420	25,240	28,060	30,880	33,700	36,520	39,340	42,161	44,981	47,802			11,142	49,212			
		End	10,985	13,800	16,615	19,430	22,245	25,060	27,875	30,691	33,506	36,322	39,138	41,955	44,771	47,587			10,985	48,996			
	Inboard	Start	10,866	13,651	16,436	19,222	22,007	24,792	27,578	30,364	33,150	35,936	38,722	41,509	44,295	47,082			10,866	48,476			
		Mid.	11,023	13,813	16,602	19,392	22,182	24,973	27,763	30,553	33,343	36,134	38,924	41,715	44,506	47,297			11,023	48,692			
		End	10,866	13,651	16,436	19,222	22,007	24,792	27,578	30,364	33,150	35,936	38,722	41,509	44,295	47,082			10,866	48,476			
GVO-G0524	Outboard	Start	16,072	20,168	24,264	28,360	32,456	36,553	40,650	44,746	48,844	52,941	40	135	16,072	54,989							
		Mid.	16,250	20,351	24,452	28,554	32,655	36,757	40,859	44,961	49,063	53,165			16,250	55,216							
		End	16,072	20,168	24,264	28,360	32,456	36,553	40,650	44,746	48,844	52,941			16,072	54,989							
	Inboard	Start	15,953	20,019	24,085	28,152	32,219	36,285	40,352	44,420	48,487	52,554			15,953	54,588							
		Mid.	16,131	20,202	24,274	28,346	32,418	36,490	40,562	44,634	48,706	52,778			16,131	54,815							
		End	15,953	20,019	24,085	28,152	32,219	36,285	40,352	44,420	48,487	52,554			15,953	54,588							
GVO-G0528	Outboard	Start	22,639	28,418	34,198	39,977	45,757	51,538	40	95	22,639	54,428											
		Mid.	22,920	28,710	34,500	40,290	46,080	51,870			22,920	54,765											
		End	22,639	28,418	34,198	39,977	45,757	51,538			22,639	54,428											
	Inboard	Start	22,520	28,270	34,019	39,769	45,520	51,270			22,520	54,146											
		Mid.	22,801	28,561	34,321	40,082	45,842	51,603			22,801	54,483											
		End	22,520	28,270	34,019	39,769	45,520	51,270			22,520	54,146											
GVO-G0532	Outboard	Start	29,690	37,249	44,808	52,367	40	70	29,690	52,367													
		Mid.	30,011	37,582	45,153	52,724			30,011	52,724													
		End	29,690	37,249	44,808	52,367			29,690	52,367													
	Inboard	Start	29,572	37,100	44,630	52,159			29,572	52,159													
		Mid.	29,892	37,433	44,975	52,516			29,892	52,516													
		End	29,572	37,100	44,630	52,159			29,572	52,159													
GVO-G0536	Outboard	Start	37,692	47,268	40	55	37,692	52,056															
		Mid.	38,053	47,643			38,053	52,437															
		End	37,692	47,268			37,692	52,056															
	Inboard	Start	37,574	47,120			37,574	51,893															
		Mid.	37,934	47,494			37,934	52,274															
		End	37,574	47,120			37,574	51,893															

Notes:
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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G0720	Outboard	Start	10,907	13,709	16,512	19,314	22,117	24,920	27,723	30,527	33,330	36,134	38,938	41,742	44,547	47,351	50,156	52,961	55,766	40	200	10,907	55,766
		Mid.	11,082	13,890	16,699	19,507	22,316	25,124	27,933	30,742	33,551	36,360	39,169	41,978	44,787	47,597	50,406	53,216	56,026			11,082	56,026
		End	10,907	13,709	16,512	19,314	22,117	24,920	27,723	30,527	33,330	36,134	38,938	41,742	44,547	47,351	50,156	52,961	55,766			10,907	55,766
	Inboard	Start	10,757	13,521	16,286	19,051	21,816	24,582	27,347	30,113	32,879	35,645	38,412	41,178	43,945	46,712	49,479	52,247	55,014			10,757	55,014
		Mid.	10,932	13,702	16,473	19,244	22,015	24,786	27,557	30,328	33,100	35,871	38,642	41,414	44,186	46,958	49,730	52,502	55,274			10,932	55,274
		End	10,757	13,521	16,286	19,051	21,816	24,582	27,347	30,113	32,879	35,645	38,412	41,178	43,945	46,712	49,479	52,247	55,014			10,757	55,014
GVO-G0724	Outboard	Start	15,991	20,074	24,158	28,241	32,325	36,410	40,494	44,579	48,664	52,749	56,834	60,919	65,005	69,091	73,177	40	180	15,991	73,177		
		Mid.	16,189	20,279	24,369	28,459	32,549	36,640	40,730	44,821	48,911	53,002	57,093	61,184	65,275	69,367	73,458			16,189	73,458		
		End	15,991	20,074	24,158	28,241	32,325	36,410	40,494	44,579	48,664	52,749	56,834	60,919	65,005	69,091	73,177			15,991	73,177		
	Inboard	Start	15,840	19,886	23,932	27,978	32,025	36,071	40,118	44,165	48,212	52,260	56,307	60,355	64,403	68,452	72,500			15,840	72,500		
		Mid.	16,038	20,091	24,143	28,196	32,248	36,301	40,354	44,407	48,460	52,513	56,567	60,620	64,674	68,727	72,781			16,038	72,781		
		End	15,840	19,886	23,932	27,978	32,025	36,071	40,118	44,165	48,212	52,260	56,307	60,355	64,403	68,452	72,500			15,840	72,500		
GVO-G0728	Outboard	Start	22,561	28,327	34,095	39,862	45,630	51,398	57,167	62,936	68,705	74,475	40	135	22,561	77,360							
		Mid.	22,860	28,639	34,417	40,196	45,975	51,754	57,534	63,313	69,093	74,873			22,860	77,763							
		End	22,561	28,327	34,095	39,862	45,630	51,398	57,167	62,936	68,705	74,475			22,561	77,360							
	Inboard	Start	22,410	28,139	33,869	39,599	45,329	51,060	56,791	62,522	68,254	73,986			22,410	76,852							
		Mid.	22,710	28,451	34,192	39,933	45,674	51,416	57,158	62,899	68,642	74,384			22,710	77,255							
		End	22,410	28,139	33,869	39,599	45,329	51,060	56,791	62,522	68,254	73,986			22,410	76,852							
GVO-G0732	Outboard	Start	29,612	37,158	44,705	52,252	59,799	67,347	74,896	40	100	29,612	74,896										
		Mid.	29,952	37,511	45,071	52,631	60,191	67,751	75,312			29,952	75,312										
		End	29,612	37,158	44,705	52,252	59,799	67,347	74,896			29,612	74,896										
	Inboard	Start	29,462	36,970	44,479	51,989	59,499	67,009	74,520			29,462	74,520										
		Mid.	29,801	37,323	44,845	52,367	59,890	67,413	74,936			29,801	74,936										
		End	29,462	36,970	44,479	51,989	59,499	67,009	74,520			29,462	74,520										
GVO-G0736	Outboard	Start	37,614	47,178	56,741	66,306	75,871	40	80	37,614	75,871												
		Mid.	37,993	47,572	57,150	66,729	76,308			37,993	76,308												
		End	37,614	47,178	56,741	66,306	75,871			37,614	75,871												
	Inboard	Start	37,464	46,990	56,516	66,043	75,570			37,464	75,570												
		Mid.	37,843	47,384	56,925	66,466	76,007			37,843	76,007												
		End	37,464	46,990	56,516	66,043	75,570			37,464	75,570												
GVO-G07128	Outboard	Start	44,971	56,467	67,963	40	65	44,971	73,712														
		Mid.	45,571	57,090	68,609			45,571	74,369														
		End	44,971	56,467	67,963			44,971	73,712														
	Inboard	Start	44,821	56,279	67,738			44,821	73,468														
		Mid.	45,420	56,902	68,384			45,420	74,125														
		End	44,821	56,279	67,738			44,821	73,468														

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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200				
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G0824	Outboard	Start	15,938	20,009	24,080	28,152	32,224	36,296	40,368	44,441	48,514	52,587	56,660	60,733	64,807	68,880	72,954	77,029	81,103	40	200	15,938	81,103
		Mid.	16,138	20,216	24,294	28,372	32,450	36,528	40,607	44,685	48,764	52,843	56,922	61,001	65,080	69,159	73,238	77,318	81,397			16,138	81,397
		End	15,938	20,009	24,080	28,152	32,224	36,296	40,368	44,441	48,514	52,587	56,660	60,733	64,807	68,880	72,954	77,029	81,103			15,938	81,103
	Inboard	Start	15,713	19,728	23,743	27,759	31,775	35,790	39,807	43,823	47,839	51,856	55,873	59,890	63,908	67,925	71,943	75,961	79,980			15,713	79,980
		Mid.	15,913	19,935	23,957	27,979	32,001	36,023	40,045	44,067	48,090	52,112	56,135	60,158	64,181	68,204	72,227	76,250	80,273			15,913	80,273
		End	15,713	19,728	23,743	27,759	31,775	35,790	39,807	43,823	47,839	51,856	55,873	59,890	63,908	67,925	71,943	75,961	79,980			15,713	79,980
GVO-G0828	Outboard	Start	22,505	28,259	34,014	39,769	45,525	51,281	57,037	62,794	68,551	74,308	80,066	85,825	91,583	97,342	40	175	22,505	100,222			
		Mid.	22,808	28,575	34,341	40,108	45,874	51,641	57,409	63,176	68,943	74,711	80,479	86,247	92,015	97,784			22,808	100,668			
		End	22,505	28,259	34,014	39,769	45,525	51,281	57,037	62,794	68,551	74,308	80,066	85,825	91,583	97,342			22,505	100,222			
	Inboard	Start	22,280	27,979	33,677	39,376	45,076	50,775	56,475	62,176	67,877	73,578	79,280	84,982	90,684	96,387			22,280	99,239			
		Mid.	22,584	28,294	34,004	39,714	45,425	51,136	56,847	62,558	68,269	73,981	79,693	85,404	91,117	96,829			22,584	99,685			
		End	22,280	27,979	33,677	39,376	45,076	50,775	56,475	62,176	67,877	73,578	79,280	84,982	90,684	96,387			22,280	99,239			
GVO-G0832	Outboard	Start	29,556	37,090	44,625	52,159	59,695	67,230	74,766	82,303	89,840	97,377	104,915	40	140	29,556	104,915						
		Mid.	29,899	37,447	44,994	52,542	60,090	67,638	75,187	82,735	90,284	97,833	105,382			29,899	105,382						
		End	29,556	37,090	44,625	52,159	59,695	67,230	74,766	82,303	89,840	97,377	104,915			29,556	104,915						
	Inboard	Start	29,332	36,809	44,287	51,766	59,245	66,725	74,205	81,685	89,166	96,647	104,129			29,332	104,129						
		Mid.	29,675	37,166	44,657	52,149	59,641	67,133	74,625	82,117	89,610	97,103	104,596			29,675	104,596						
		End	29,332	36,809	44,287	51,766	59,245	66,725	74,205	81,685	89,166	96,647	104,129			29,332	104,129						
GVO-G0836	Outboard	Start	37,558	47,109	56,661	66,213	75,766	85,319	94,872	104,426	40	110	37,558	104,426									
		Mid.	37,941	47,507	57,074	66,640	76,207	85,774	95,342	104,909			37,941	104,909									
		End	37,558	47,109	56,661	66,213	75,766	85,319	94,872	104,426			37,558	104,426									
	Inboard	Start	37,334	46,829	56,324	65,820	75,316	84,813	94,311	103,808			37,334	103,808									
		Mid.	37,717	47,227	56,737	66,247	75,758	85,269	94,780	104,291			37,717	104,291									
		End	37,334	46,829	56,324	65,820	75,316	84,813	94,311	103,808			37,334	103,808									
GVO-G0840	Outboard	Start	46,511	58,317	70,124	81,931	93,739	40	85	46,511	99,643												
		Mid.	46,934	58,756	70,579	82,402	94,226			46,934	100,138												
		End	46,511	58,317	70,124	81,931	93,739			46,511	99,643												
	Inboard	Start	46,286	58,036	69,787	81,538	93,289			46,286	99,165												
		Mid.	46,709	58,476	70,242	82,009	93,776			46,709	99,660												
		End	46,286	58,036	69,787	81,538	93,289			46,286	99,165												
GVO-G08T32	Outboard	Start	58,888	73,900	88,912	103,925	40	70	58,888	103,925													
		Mid.	59,574	74,613	89,652	104,691			59,574	104,691													
		End	58,888	73,900	88,912	103,925			58,888	103,925													
	Inboard	Start	58,663	73,619	88,575	103,532			58,663	103,532													
		Mid.	59,350	74,332	89,314	104,298			59,350	104,298													
		End	58,663	73,619	88,575	103,532			58,663	103,532													
GVO-G08T36	Outboard	Start	74,892	93,938	40	55	74,892	103,461															
		Mid.	75,658	94,734			75,658	104,272															
		End	74,892	93,938			74,892	103,461															
	Inboard	Start	74,667	93,657			74,667	103,152															
		Mid.	75,433	94,453			75,433	103,963															
		End	74,667	93,657			74,667	103,152															

Notes:

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MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Thrust Output: Start/Mid./End (lbf)																					
GVO-G1028	Outboard	Start	22,372	28,096	33,821	39,546	45,271	50,997	56,723	62,450	68,177	73,905	79,632	85,361	91,089	96,818	102,547	108,277	114,007	40	200	22,372	114,007	
		Mid.	22,682	28,419	34,155	39,892	45,629	51,366	57,103	62,841	68,578	74,316	80,054	85,792	91,531	97,269	103,008	108,747	114,486			22,682	114,486	
		End	22,372	28,096	33,821	39,546	45,271	50,997	56,723	62,450	68,177	73,905	79,632	85,361	91,089	96,818	102,547	108,277	114,007			22,372	114,007	
	Inboard	Start	22,058	27,704	33,350	38,997	44,644	50,291	55,939	61,587	67,236	72,885	78,534	84,184	89,834	95,484	101,135	106,786	112,438			22,058	112,438	
		Mid.	22,369	28,026	33,684	39,343	45,001	50,660	56,318	61,977	67,637	73,296	78,956	84,615	90,275	95,935	101,596	107,256	112,917			22,369	112,917	
		End	22,058	27,704	33,350	38,997	44,644	50,291	55,939	61,587	67,236	72,885	78,534	84,184	89,834	95,484	101,135	106,786	112,438			22,058	112,438	
GVO-G1032	Outboard	Start	29,423	36,927	44,431	51,936	59,441	66,947	74,453	81,959	89,466	96,973	104,481	111,989	119,498	127,007	134,517	142,027	149,537	40	200	29,423	149,537	
		Mid.	29,773	37,291	44,808	52,326	59,844	67,363	74,881	82,400	89,919	97,438	104,957	112,477	119,997	127,517	135,037	142,558	150,078			29,773	150,078	
		End	29,423	36,927	44,431	51,936	59,441	66,947	74,453	81,959	89,466	96,973	104,481	111,989	119,498	127,007	134,517	142,027	149,537			29,423	149,537	
	Inboard	Start	29,109	36,535	43,960	51,387	58,813	66,240	73,668	81,096	88,525	95,953	103,383	110,813	118,243	125,673	133,104	140,536	147,968			29,109	147,968	
		Mid.	29,460	36,899	44,338	51,777	59,217	66,657	74,097	81,537	88,977	96,418	103,859	111,300	118,741	126,183	133,625	141,067	148,509			29,460	148,509	
		End	29,109	36,535	43,960	51,387	58,813	66,240	73,668	81,096	88,525	95,953	103,383	110,813	118,243	125,673	133,104	140,536	147,968			29,109	147,968	
GVO-G1036	Outboard	Start	37,425	46,946	56,468	65,990	75,512	85,035	94,559	104,083	113,607	123,132	132,658	142,184	151,710	161,237	170,764	Exceeds MOP			40	180	37,425	170,764
		Mid.	37,815	47,351	56,888	66,425	75,962	85,499	95,036	104,574	114,112	123,650	133,188	142,727	152,266	161,805	171,344						37,815	171,344
		End	37,425	46,946	56,468	65,990	75,512	85,035	94,559	104,083	113,607	123,132	132,658	142,184	151,710	161,237	170,764						37,425	170,764
	Inboard	Start	37,111	46,554	55,997	65,440	74,885	84,329	93,774	103,220	112,666	122,112	131,559	141,007	150,455	159,903	169,352						37,111	169,352
		Mid.	37,501	46,959	56,417	65,875	75,334	84,793	94,252	103,711	113,170	122,630	132,090	141,550	151,010	160,471	169,932						37,501	169,932
		End	37,111	46,554	55,997	65,440	74,885	84,329	93,774	103,220	112,666	122,112	131,559	141,007	150,455	159,903	169,352						37,111	169,352
GVO-G1040	Outboard	Start	46,378	58,154	69,930	81,707	93,485	105,263	117,042	128,821	140,601	Exceeds MOP								40	128	46,378	150,025	
		Mid.	46,808	58,601	70,393	82,187	93,980	105,774	117,568	129,362	141,157											46,808	150,593	
		End	46,378	58,154	69,930	81,707	93,485	105,263	117,042	128,821	140,601											46,378	150,025	
	Inboard	Start	46,064	57,762	69,460	81,158	92,857	104,557	116,257	127,958	139,659											46,064	149,021	
		Mid.	46,494	58,208	69,923	81,638	93,353	105,068	116,783	128,499	140,215											46,494	149,589	
		End	46,064	57,762	69,460	81,158	92,857	104,557	116,257	127,958	139,659											46,064	149,021	
GVO-G10T32	Outboard	Start	58,532	73,461	88,392	103,322	118,254	133,187	148,121	163,055	Exceeds MOP									40	115	58,532	170,523	
		Mid.	59,233	74,189	89,146	104,103	119,061	134,019	148,978	163,937												59,233	171,416	
		End	58,532	73,461	88,392	103,322	118,254	133,187	148,121	163,055												58,532	170,523	
	Inboard	Start	58,218	73,069	87,921	102,773	117,627	132,481	147,336	162,192												58,218	169,620	
		Mid.	58,919	73,797	88,675	103,554	118,433	133,313	148,193	163,074												58,919	170,514	
		End	58,218	73,069	87,921	102,773	117,627	132,481	147,336	162,192												58,218	169,620	
GVO-G10T36	Outboard	Start	74,536	93,500	112,465	131,430	150,397	169,364	Exceeds MOP											40	90	74,536	169,364	
		Mid.	75,317	94,311	113,305	132,300	151,295	170,291														75,317	170,291	
		End	74,536	93,500	112,465	131,430	150,397	169,364														74,536	169,364	
	Inboard	Start	74,222	93,108	111,994	130,881	149,769	168,658														74,222	168,658	
		Mid.	75,003	93,918	112,834	131,751	150,668	169,585														75,003	169,585	
		End	74,222	93,108	111,994	130,881	149,769	168,658														74,222	168,658	
GVO-G10T40	Outboard	Start	92,442	115,915	139,390	162,866	Exceeds MOP													40	70	92,442	162,866	
		Mid.	93,302	116,809	140,316	163,824																93,302	163,824	
		End	92,442	115,915	139,390	162,866																92,442	162,866	
	Inboard	Start	92,128	115,523	138,919	162,316																92,128	162,316	
		Mid.	92,988	116,416	139,845	163,275																92,988	163,275	
		End	92,128	115,523	138,919	162,316																92,128	162,316	

Notes:

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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G1340	Outboard	Start	46,213	57,952	69,691	81,430	93,170	104,911	116,652	128,393	140,136	151,878	163,622	175,366	187,110	198,855	210,600	222,346	234,093	40	200	46,213	234,093
		Mid.	46,651	58,407	70,162	81,918	93,674	105,431	117,187	128,944	140,702	152,459	164,217	175,975	187,733	199,492	211,251	223,010	234,769			46,651	234,769
		End	46,213	57,952	69,691	81,430	93,170	104,911	116,652	128,393	140,136	151,878	163,622	175,366	187,110	198,855	210,600	222,346	234,093			46,213	234,093
	Inboard	Start	45,738	57,358	68,978	80,598	92,219	103,841	115,463	127,086	138,710	150,333	161,958	173,583	185,208	196,834	208,461	220,088	231,716			45,738	231,716
		Mid.	46,176	57,812	69,449	81,086	92,724	104,361	115,999	127,637	139,275	150,914	162,553	174,192	185,832	197,472	209,112	220,752	232,393			46,176	232,393
		End	45,738	57,358	68,978	80,598	92,219	103,841	115,463	127,086	138,710	150,333	161,958	173,583	185,208	196,834	208,461	220,088	231,716			45,738	231,716
GVO-G1344	Outboard	Start	56,112	70,343	84,574	98,806	113,038	127,271	141,505	155,739	169,974	184,210	198,446	212,683	226,920	241,158	255,396	40	180	56,112	255,396		
		Mid.	56,592	70,842	85,091	99,341	113,591	127,842	142,093	156,344	170,596	184,847	199,099	213,352	227,605	241,858	256,111			56,592	256,111		
		End	56,112	70,343	84,574	98,806	113,038	127,271	141,505	155,739	169,974	184,210	198,446	212,683	226,920	241,158	255,396			56,112	255,396		
	Inboard	Start	55,637	69,748	83,861	97,974	112,087	126,202	140,317	154,432	168,548	182,665	196,782	210,900	225,018	239,137	253,257			Exceeds MOP	55,637	253,257	
		Mid.	56,117	70,247	84,378	98,509	112,641	126,772	140,904	155,037	169,169	183,302	197,436	211,569	225,703	239,837	253,972			56,117	253,972		
		End	55,637	69,748	83,861	97,974	112,087	126,202	140,317	154,432	168,548	182,665	196,782	210,900	225,018	239,137	253,257			55,637	253,257		
GVO-G1348	Outboard	Start	66,966	83,927	100,888	117,851	134,814	151,777	168,741	185,706	202,672	219,638	236,605	253,572	40	150	66,966	253,572					
		Mid.	67,486	84,467	101,449	118,431	135,413	152,395	169,378	186,362	203,345	220,329	237,313	254,298			67,486	254,298					
		End	66,966	83,927	100,888	117,851	134,814	151,777	168,741	185,706	202,672	219,638	236,605	253,572			66,966	253,572					
	Inboard	Start	66,491	83,333	100,175	117,019	133,863	150,708	167,553	184,399	201,246	218,093	234,941	251,790			Exceeds MOP	66,491	251,790				
		Mid.	67,011	83,873	100,736	117,599	134,462	151,326	168,190	185,054	201,919	218,784	235,649	252,515			67,011	252,515					
		End	66,491	83,333	100,175	117,019	133,863	150,708	167,553	184,399	201,246	218,093	234,941	251,790			66,491	251,790					
GVO-G1352	Outboard	Start	78,771	98,699	118,629	138,559	158,490	178,422	198,354	218,288	238,221	258,156	40	130	78,771	258,156							
		Mid.	79,331	99,281	119,233	139,184	159,136	179,088	199,041	218,994	238,947	258,901			79,331	258,901							
		End	78,771	98,699	118,629	138,559	158,490	178,422	198,354	218,288	238,221	258,156			Exceeds MOP	78,771	258,156						
	Inboard	Start	78,295	98,105	117,916	137,727	157,540	177,352	197,166	216,980	236,795	256,611			78,295	256,611							
		Mid.	78,855	98,687	118,520	138,352	158,185	178,019	197,852	217,686	237,521	257,356			78,855	257,356							
		End	78,295	98,105	117,916	137,727	157,540	177,352	197,166	216,980	236,795	256,611			78,295	256,611							

Notes:

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Actuator Model	Stroke Direction Start/Mid./End		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
			40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Thrust Output: Start/Mid./End (lbf)																				
GVO-G13T40	Start	Outboard	91,951	115,309	138,668	162,028	185,390	208,752	232,115	255,480	Exceeds MOP									40	91,951	110	255,480
	Mid.		92,827	116,219	139,611	163,004	186,398	209,792	233,186	256,581		256,581											
	End		91,951	115,309	138,668	162,028	185,390	208,752	232,115	255,480		255,480											
	Start	Inboard	91,476	114,715	137,955	161,196	184,439	207,682	230,927	254,172		254,172											
	Mid.		92,352	115,625	138,898	162,172	185,447	208,722	231,998	255,274		255,274											
	End		91,476	114,715	137,955	161,196	184,439	207,682	230,927	254,172		254,172											
GVO-G13T44	Start	Outboard	111,749	140,091	168,435	196,780	225,126	253,473	Exceeds MOP										40	111,749	90	253,473	
	Mid.		112,709	141,089	169,469	197,850	226,232	254,614		254,614													
	End		111,749	140,091	168,435	196,780	225,126	253,473		253,473													
	Start	Inboard	111,273	139,497	167,722	195,948	224,175	252,403		252,403													
	Mid.		112,233	140,495	168,756	197,018	225,281	253,545		253,545													
	End		111,273	139,497	167,722	195,948	224,175	252,403		252,403													
GVO-G13T48	Start	Outboard	133,456	167,259	201,064	234,869	Exceeds MOP											40	133,456	75	251,773		
	Mid.		134,497	168,340	202,185	236,030		252,952															
	End		133,456	167,259	201,064	234,869		251,773															
	Start	Inboard	132,981	166,665	200,351	234,038		250,881															
	Mid.		134,021	167,746	201,472	235,198		252,061															
	End		132,981	166,665	200,351	234,038		250,881															
GVO-G13T52	Start	Outboard	157,066	196,805	236,545	Exceeds MOP											40	157,066	65	256,416			
	Mid.		158,186	197,969	237,752		257,644																
	End		157,066	196,805	236,545		256,416																
	Start	Inboard	156,590	196,211	235,832		255,643																
	Mid.		157,711	197,375	237,039		256,872																
	End		156,590	196,211	235,832		255,643																

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																				
GVO-G0209-01R0	0.0	4,426																		132	3,159	200	7,145
	1.0	4,718																				2,883	6,871
	2.0	5,081																				2,518	6,505
	3.0	5,418																				2,114	6,096
	4.0	5,772																				1,663	5,637
GVO-G0209-01R1	0.0	3,578																		100	2,131	200	7,993
	1.0	3,744																			1,981	7,845	
	2.0	3,946																			1,777	7,640	
	3.0	4,121																			1,538	7,392	
	4.0	4,301																			1,265	7,107	
GVO-G0209-01R2	0.0	3,108																		84	1,664	200	8,463
	1.0	3,222																			1,918	8,367	
	2.0	3,357																			1,780	8,229	
	3.0	3,466																			1,607	8,047	
	4.0	3,575																			1,407	7,833	
GVO-G0209-01R3	0.0	2,717																		74	1,820	200	8,853
	1.0	2,817																			1,736	8,772	
	2.0	2,934																			1,617	8,652	
	3.0	3,025																			1,464	8,489	
	4.0	3,113																			1,285	8,295	
GVO-G0209-01R4	0.0	2,354																		60	1,012	200	9,217
	1.0	2,429																			952	9,160	
	2.0	2,516																			863	9,070	
	3.0	2,577																			742	8,937	
	4.0	2,633																			599	8,776	

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)							
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200											
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																											
GVO-G0209-01R5	0.0	1,843		Please consult factory	1,523	2,109	2,695	3,281	3,867	4,453	5,039	5,625	6,211	6,797	7,383	7,969	8,555	9,142	9,728	59	1,465	200	9,728							
	1.0	2,002			1,379	1,965	2,551	3,137	3,723	4,310	4,896	5,482	6,068	6,655	7,241	7,828	8,414	9,001	9,587					1,321	9,587					
	2.0	2,195			1,184	1,770	2,356	2,942	3,528	4,114	4,700	5,287	5,873	6,459	7,046	7,632	8,218	8,805	9,391							1,125	9,391			
	3.0	2,361			957	1,542	2,127	2,712	3,297	3,882	4,468	5,053	5,638	6,224	6,809	7,395	7,981	8,566	9,152									898	9,152	
	4.0	2,532			699	1,283	1,866	2,450	3,034	3,618	4,202	4,786	5,370	5,954	6,538	7,123	7,707	8,292	8,876											641
GVO-G0209-01R6	0.0	1,342		Please consult factory	1,438	2,024	2,610	3,196	3,782	4,368	4,953	5,539	6,126	6,712	7,298	7,884	8,470	9,056	9,643	10,229	44	1,087	200	10,229						
	1.0	1,462			1,333	1,919	2,505	3,091	3,677	4,263	4,849	5,436	6,022	6,608	7,195	7,781	8,367	8,954	9,540	10,127					981	10,127				
	2.0	1,606			1,187	1,773	2,359	2,945	3,531	4,117	4,704	5,290	5,876	6,462	7,049	7,635	8,221	8,808	9,394	9,981							836	9,981		
	3.0	1,723			1,011	1,596	2,181	2,766	3,351	3,936	4,521	5,106	5,692	6,277	6,862	7,448	8,034	8,619	9,205	9,791									660	9,791
	4.0	1,840			808	1,391	1,975	2,558	3,142	3,726	4,310	4,894	5,478	6,062	6,646	7,230	7,815	8,399	8,984	9,568										
GVO-G0209-01R7	0.0	976	1,218	1,804	2,390	2,976	3,561	4,147	4,733	5,319	5,905	6,491	7,077	7,663	8,250	8,836	9,422	10,008	10,595	33	808	200	10,595							
	1.0	1,071	1,138	1,724	2,310	2,896	3,482	4,068	4,654	5,240	5,827	6,413	6,999	7,586	8,172	8,758	9,345	9,931	10,518					728	10,518					
	2.0	1,182	1,025	1,611	2,196	2,782	3,368	3,955	4,541	5,127	5,713	6,299	6,885	7,472	8,058	8,645	9,231	9,817	10,404							615	10,404			
	3.0	1,267	881	1,466	2,051	2,636	3,221	3,806	4,391	4,977	5,562	6,147	6,733	7,318	7,903	8,489	9,075	9,660	10,246									472	10,246	
	4.0	1,350	715	1,298	1,882	2,465	3,049	3,633	4,216	4,800	5,384	5,968	6,552	7,136	7,721	8,305	8,889	9,474	10,059											307
GVO-G0209-01R8	0.0	705	1,489	2,075	2,661	3,247	3,832	4,418	5,004	5,590	6,176	6,762	7,348	7,934	8,521	9,107	9,693	10,279	10,866	25	611	200	10,866							
	1.0	780	1,429	2,015	2,601	3,187	3,773	4,359	4,946	5,532	6,118	6,704	7,291	7,877	8,463	9,050	9,636	10,223	10,809					551	10,809					
	2.0	865	1,342	1,928	2,514	3,100	3,686	4,272	4,858	5,444	6,030	6,616	7,203	7,789	8,375	8,962	9,548	10,135	10,721							463	10,721			
	3.0	924	1,224	1,809	2,394	2,979	3,564	4,149	4,734	5,320	5,905	6,490	7,075	7,661	8,246	8,832	9,418	10,003	10,589									347	10,589	
	4.0	979	1,086	1,669	2,253	2,836	3,420	4,003	4,587	5,171	5,755	6,339	6,923	7,507	8,092	8,676	9,260	9,845	10,429											211

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)					
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200				
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G0210-01R0	0.0	4,416							Please consult factory	3,189	3,967	4,744	5,522	6,299	7,077	7,855	8,632	9,410	Exceeds MOP	100	3,189	185	9,799				
	1.0	4,710						2,914		3,691	4,469	5,247	6,025	6,803	7,581	8,359	9,137	2,914			9,526						
	2.0	5,073						2,548		3,326	4,104	4,881	5,659	6,437	7,215	7,993	8,771	2,548			9,160						
	3.0	5,406						2,143		2,920	3,696	4,473	5,250	6,027	6,804	7,581	8,358	2,143			8,746						
	4.0	5,755						1,689		2,464	3,240	4,015	4,790	5,566	6,341	7,117	7,893	1,689			8,281						
GVO-G0210-01R1	0.0	3,569						Please consult factory	2,482	3,259	4,037	4,814	5,592	6,369	7,147	7,924	8,702	9,480	10,258	Exceeds MOP	76	2,171	185	10,647			
	1.0	3,736					2,332		3,110	3,888	4,665	5,443	6,221	6,999	7,777	8,555	9,333	10,111	2,021			10,500					
	2.0	3,937					2,128		2,906	3,684	4,461	5,239	6,017	6,795	7,572	8,350	9,128	9,906	1,817			10,295					
	3.0	4,109					1,886		2,663	3,439	4,216	4,993	5,769	6,546	7,323	8,100	8,877	9,654	1,576			10,043					
	4.0	4,284					1,610		2,385	3,160	3,935	4,710	5,485	6,261	7,036	7,812	8,588	9,363	1,300			9,751					
GVO-G0210-01R2	0.0	3,098						Please consult factory	2,175	2,952	3,730	4,507	5,285	6,062	6,840	7,617	8,395	9,173	9,950	10,728	Exceeds MOP	64	1,709	185	11,117		
	1.0	3,213					2,077		2,855	3,633	4,410	5,188	5,966	6,744	7,521	8,299	9,077	9,855	10,633	1,611			11,022				
	2.0	3,349					1,940		2,717	3,495	4,272	5,050	5,828	6,605	7,383	8,161	8,939	9,717	10,495	1,473			10,884				
	3.0	3,455					1,765		2,541	3,318	4,094	4,871	5,647	6,424	7,201	7,978	8,755	9,532	10,309	1,299			10,697				
	4.0	3,558					1,561		2,336	3,111	3,886	4,661	5,436	6,212	6,987	7,762	8,538	9,314	10,089	1,096			10,477				
GVO-G0210-01R3	0.0	2,708						Please consult factory	1,788	2,565	3,343	4,120	4,897	5,675	6,452	7,230	8,007	8,785	9,563	10,341	11,118	Exceeds MOP	56	1,477	185	11,507	
	1.0	2,809					1,705		2,482	3,260	4,037	4,815	5,593	6,371	7,148	7,926	8,704	9,482	10,260	11,038	1,394			11,427			
	2.0	2,925					1,585		2,363	3,140	3,918	4,696	5,473	6,251	7,029	7,806	8,584	9,362	10,140	10,918	1,274			11,307			
	3.0	3,013					1,430		2,206	2,983	3,759	4,536	5,312	6,089	6,866	7,643	8,420	9,196	9,974	10,751	1,119			11,139			
	4.0	3,097					1,248		2,023	2,798	3,573	4,348	5,123	5,898	6,673	7,449	8,224	9,000	9,775	10,551	938			10,939			
GVO-G0210-01R4	0.0	2,344						Please consult factory	1,375	2,152	2,929	3,706	4,484	5,261	6,039	6,816	7,594	8,371	9,149	9,927	10,704	11,482	Exceeds MOP	48	1,219	185	11,871
	1.0	2,421					1,315		2,092	2,870	3,647	4,425	5,203	5,980	6,758	7,536	8,314	9,092	9,870	10,648	11,426	1,159			11,815		
	2.0	2,508					1,226		2,003	2,781	3,558	4,336	5,113	5,891	6,669	7,446	8,224	9,002	9,780	10,558	11,336	1,070			11,725		
	3.0	2,565					1,102		1,878	2,654	3,431	4,207	4,984	5,760	6,537	7,314	8,091	8,868	9,644	10,422	11,199	946			11,587		
	4.0	2,616					954		1,729	2,504	3,279	4,053	4,828	5,604	6,379	7,154	7,929	8,705	9,480	10,256	11,032	799			11,420		
GVO-G0210-01R5	0.0	1,833						Please consult factory	1,886	2,663	3,440	4,217	4,995	5,772	6,550	7,327	8,105	8,882	9,660	10,438	11,215	11,993	Exceeds MOP	45	1,497	185	12,382
	1.0	1,994					1,742		2,520	3,297	4,075	4,852	5,630	6,408	7,186	7,963	8,741	9,519	10,297	11,075	11,853	1,354			12,242		
	2.0	2,186					1,547		2,324	3,102	3,879	4,657	5,435	6,212	6,990	7,768	8,546	9,323	10,101	10,879	11,657	1,158			12,046		
	3.0	2,350					1,317		2,093	2,870	3,646	4,423	5,199	5,976	6,752	7,529	8,306	9,083	9,860	10,637	11,414	929			11,802		
	4.0	2,515					1,055		1,830	2,604	3,379	4,154	4,929	5,704	6,479	7,255	8,030	8,805	9,581	10,357	11,132	668			11,520		
GVO-G0210-01R6	0.0	1,333	1,609	2,387	3,164	3,941	4,718	5,496	6,273	7,050	7,828	8,606	9,383	10,161	10,938	11,716	12,494					Exceeds MOP	33	1,065	185	12,883	
	1.0	1,454	1,505	2,282	3,060	3,837	4,615	5,392	6,170	6,948	7,725	8,503	9,281	10,059	10,837	11,615	12,393							960		12,782	
	2.0	1,597	1,359	2,136	2,914	3,691	4,469	5,246	6,024	6,802	7,579	8,357	9,135	9,913	10,691	11,469	12,247							815		12,636	
	3.0	1,711	1,179	1,956	2,732	3,508	4,285	5,061	5,838	6,614	7,391	8,168	8,945	9,721	10,498	11,275	12,052							636		12,441	
	4.0	1,823	972	1,747	2,522	3,296	4,071	4,846	5,621	6,396	7,171	7,947	8,722	9,497	10,273	11,049	11,824							430		12,212	
GVO-G0210-01R7	0.0	967	1,975	2,752	3,529	4,307	5,084	5,861	6,639	7,416	8,194	8,971	9,749	10,526	11,304	12,082	12,860					Exceeds MOP	25	809	185	13,249	
	1.0	1,063	1,896	2,673	3,451	4,228	5,006	5,783	6,561	7,339	8,116	8,894	9,672	10,450	11,228	12,006	12,784							730		13,173	
	2.0	1,174	1,782	2,559	3,337	4,114	4,892	5,670	6,447	7,225	8,003	8,780	9,558	10,336	11,114	11,892	12,670							616		13,059	
	3.0	1,256	1,635	2,411	3,187	3,964	4,740	5,517	6,293	7,070	7,846	8,623	9,400	10,177	10,954	11,731	12,508							471		12,897	
	4.0	1,333	1,463	2,237	3,012	3,787	4,561	5,336	6,111	6,886	7,662	8,437	9,212	9,988	10,763	11,539	12,315							301		12,703	

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200				
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																				
GVO-G0212-01R0	0.0	4,402			Please consult factory	3,206	4,321	5,436	6,551	7,666	8,781	9,896	Exceeds MOP							70	3,206	130	9,896
	1.0	4,697				2,931	4,046	5,161	6,277	7,392	8,508	9,623		2,931	9,623								
	2.0	5,059				2,566	3,681	4,796	5,911	7,026	8,142	9,257		2,566	9,257								
	3.0	5,387				2,157	3,271	4,385	5,499	6,613	7,727	8,841		2,157	8,841								
	4.0	5,729				1,698	2,810	3,922	5,034	6,147	7,259	8,372		1,698	8,372								
GVO-G0212-01R1	0.0	3,555			Please consult factory	2,938	4,053	5,168	6,283	7,398	8,513	9,628	Exceeds MOP							53	2,158	130	10,743
	1.0	3,723				2,790	3,905	5,020	6,136	7,251	8,366	9,482		2,009	10,597								
	2.0	3,924				2,586	3,701	4,816	5,931	7,047	8,162	9,277		1,805	10,393								
	3.0	4,091				2,339	3,453	4,567	5,681	6,795	7,909	9,023		1,560	10,137								
	4.0	4,258				2,057	3,169	4,281	5,393	6,505	7,617	8,730		1,279	9,842								
GVO-G0212-01R2	0.0	3,084			Please consult factory	2,294	3,409	4,524	5,639	6,753	7,868	8,984	Exceeds MOP							44	1,625	130	11,214
	1.0	3,200				2,197	3,313	4,428	5,543	6,658	7,773	8,889		1,528	11,120								
	2.0	3,335				2,059	3,174	4,290	5,405	6,520	7,635	8,750		1,390	10,981								
	3.0	3,436				1,880	2,994	4,108	5,222	6,336	7,450	8,564		1,212	10,792								
	4.0	3,532				1,671	2,783	3,895	5,007	6,119	7,231	8,343		1,004	10,568								
GVO-G0212-01R3	0.0	2,694	1,570	2,684	3,799	4,914	6,029	7,144	8,259	9,374	10,489	11,604	Exceeds MOP							39	1,458	130	11,604
	1.0	2,796	1,487	2,602	3,717	4,832	5,948	7,063	8,178	9,294	10,409	11,525		1,376	11,525								
	2.0	2,912	1,368	2,483	3,598	4,713	5,828	6,943	8,058	9,174	10,289	11,405		1,256	11,405								
	3.0	2,994	1,209	2,322	3,436	4,550	5,663	6,777	7,891	9,005	10,120	11,234		1,097	11,234								
	4.0	3,071	1,021	2,133	3,245	4,357	5,468	6,581	7,693	8,805	9,917	11,030		910	11,030								
GVO-G0212-01R4	0.0	2,330	1,933	3,048	4,163	5,278	6,392	7,507	8,622	9,737	10,853	11,968	Exceeds MOP							33	1,153	130	11,968
	1.0	2,408	1,875	2,990	4,105	5,220	6,335	7,450	8,566	9,681	10,797	11,912		1,094	11,912								
	2.0	2,494	1,785	2,900	4,015	5,131	6,246	7,361	8,476	9,592	10,707	11,822		1,005	11,822								
	3.0	2,546	1,657	2,770	3,884	4,998	6,111	7,225	8,339	9,453	10,568	11,682		877	11,682								
	4.0	2,590	1,502	2,614	3,725	4,837	5,949	7,061	8,173	9,286	10,398	11,511		724	11,511								
GVO-G0212-01R5	0.0	1,819	2,444	3,559	4,674	5,789	6,903	8,018	9,133	10,248	11,364	12,479	Exceeds MOP							31	1,441	130	12,479
	1.0	1,981	2,302	3,417	4,532	5,647	6,763	7,878	8,993	10,109	11,224	12,340		1,299	12,340								
	2.0	2,173	2,107	3,222	4,337	5,452	6,567	7,682	8,798	9,913	11,028	12,144		1,103	12,144								
	3.0	2,331	1,872	2,985	4,099	5,213	6,327	7,441	8,555	9,669	10,783	11,897		870	11,897								
	4.0	2,489	1,603	2,714	3,826	4,938	6,050	7,162	8,274	9,386	10,499	11,611		602	11,611								
GVO-G0212-01R6	0.0	1,318	2,945	4,060	5,175	6,290	7,404	8,519	9,634	10,749	11,865	12,980	Exceeds MOP							23	1,050	130	12,980
	1.0	1,441	2,842	3,957	5,072	6,187	7,302	8,418	9,533	10,648	11,764	12,879		947	12,879								
	2.0	1,584	2,696	3,811	4,926	6,041	7,156	8,271	9,387	10,502	11,617	12,733		801	12,733								
	3.0	1,693	2,510	3,624	4,738	5,851	6,965	8,079	9,193	10,307	11,421	12,536		617	12,536								
	4.0	1,797	2,295	3,406	4,518	5,630	6,742	7,854	8,966	10,078	11,191	12,303		405	12,303								

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0214-01R0	0.0	4,391			3,526	4,882	6,238	7,594	8,950	Exceeds MOP										57	3,119		9,628			
	1.0	4,687		Please consult factory	3,252	4,609	5,965	7,322	8,678														2,846		9,356	
	2.0	5,049			2,887	4,243	5,599	6,956	8,312														2,480	105	8,991	
	3.0	5,373			2,474	3,829	5,184	6,539	7,894															2,068		8,571
	4.0	5,708			2,010	3,362	4,715	6,068	7,421															1,604		8,097
GVO-G0214-01R1	0.0	3,543			Please consult factory	3,018	4,374	5,730	7,086	8,442	Exceeds MOP											43	2,069		10,476	
	1.0	3,713		2,870		4,227	5,583	6,939	8,296	9,652													1,921		10,331	
	2.0	3,914		2,666		4,022	5,378	6,735	8,091	9,448													1,717	105	10,126	
	3.0	4,076		2,416		3,770	5,125	6,480	7,835	9,190													1,468		9,868	
	4.0	4,238		2,128		3,480	4,833	6,185	7,538	8,891														1,181		9,568
GVO-G0214-01R2	0.0	3,073	2,132	3,488	4,844	6,200	7,556	8,912	10,268	Exceeds MOP											36	1,590		10,946		
	1.0	3,190	2,037	3,393	4,749	6,105	7,462	8,818	10,175													1,494	105	10,853		
	2.0	3,325	1,898	3,255	4,611	5,967	7,323	8,680	10,036													1,356		10,715		
	3.0	3,422	1,716	3,071	4,425	5,780	7,135	8,490	9,845													1,174		10,522		
	4.0	3,512	1,502	2,854	4,206	5,559	6,912	8,264	9,617													961		10,294		
GVO-G0214-01R3	0.0	2,683	2,523	3,878	5,234	6,590	7,946	9,302	10,659	Exceeds MOP											32	1,438		11,337		
	1.0	2,785	2,441	3,798	5,154	6,510	7,867	9,223	10,580													1,357	105	11,258		
	2.0	2,902	2,322	3,678	5,034	6,390	7,747	9,103	10,460													1,237		11,138		
	3.0	2,980	2,158	3,512	4,867	6,222	7,576	8,931	10,286													1,074		10,964		
	4.0	3,050	1,963	3,316	4,668	6,021	7,373	8,726	10,079													882		10,755		
GVO-G0214-01R4	0.0	2,319	2,886	4,242	5,598	6,954	8,310	9,666	11,022	Exceeds MOP											27	1,124		11,700		
	1.0	2,398	2,829	4,185	5,541	6,898	8,254	9,611	10,967													1,066	105	11,645		
	2.0	2,484	2,740	4,096	5,452	6,808	8,164	9,521	10,877													977		11,556		
	3.0	2,532	2,606	3,960	5,315	6,670	8,024	9,379	10,734													845		11,412		
	4.0	2,569	2,444	3,796	5,149	6,501	7,854	9,207	10,560													686		11,236		
GVO-G0214-01R5	0.0	1,808	3,397	4,753	6,109	7,465	8,821	10,177	11,533	Exceeds MOP											26	1,499		12,211		
	1.0	1,970	3,256	4,613	5,969	7,325	8,682	10,038	11,395													1,358	105	12,073		
	2.0	2,163	3,061	4,417	5,773	7,129	8,486	9,842	11,199													1,162		11,877		
	3.0	2,317	2,821	4,176	5,530	6,885	8,240	9,595	10,950													925		11,627		
	4.0	2,469	2,545	3,897	5,249	6,602	7,954	9,307	10,660													652		11,337		

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)					
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200				
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G0216-01R0	0.0	4,376	Please consult factory	4,328	6,119	7,909	9,700	Exceeds MOP												43	3,075	80	9,700				
	1.0	4,673		4,056	5,847	7,638	9,429																2,802	9,429			
	2.0	5,035		3,690	5,481	7,272	9,063																	2,436	9,063		
	3.0	5,354		3,272	5,061	6,850	8,640																	2,020	8,640		
	4.0	5,682		2,801	4,587	6,374	8,160																		1,550	8,160	
GVO-G0216-01R1	0.0	3,529	3,385	5,176	6,966	8,757	10,547	Exceeds MOP												32	1,953	80	10,547				
	1.0	3,699	3,239	5,030	6,821	8,612	10,403																1,807	10,403			
	2.0	3,900	3,035	4,825	6,616	8,407	10,198																1,602	10,198			
	3.0	4,057	2,780	4,569	6,358	8,147	9,936																1,349	9,936			
	4.0	4,211	2,485	4,271	6,058	7,844	9,631																	1,056	9,631		
GVO-G0216-01R2	0.0	3,058	3,856	5,646	7,437	9,227	11,018	Exceeds MOP												27	1,528	80	11,018				
	1.0	3,177	3,762	5,552	7,343	9,134	10,925																1,434	10,925			
	2.0	3,311	3,623	5,414	7,205	8,996	10,787																1,295	10,787			
	3.0	3,403	3,434	5,223	7,012	8,801	10,591																	1,109	10,591		
	4.0	3,485	3,211	4,997	6,784	8,570	10,357																	889	10,357		
GVO-G0216-01R3	0.0	2,668	4,246	6,036	7,827	9,617	11,408	Exceeds MOP												24	1,382	80	11,408				
	1.0	2,772	4,166	5,957	7,748	9,539	11,330																1,301	11,330			
	2.0	2,888	4,046	5,837	7,628	9,419	11,210																1,181	11,210			
	3.0	2,961	3,876	5,665	7,454	9,243	11,032																1,014	11,032			
	4.0	3,023	3,673	5,459	7,245	9,032	10,819																	815	10,819		
GVO-G0209-02R1	0.0	5,144													3,513	4,099	4,686	5,272	5,859	6,445	141	200	6,445				
	1.0	5,389													3,268	3,854	4,441	5,027	5,614	6,200			2,740	6,200			
	2.0	5,635													3,004	3,590	4,177	4,763	5,349	5,936			2,477	5,936			
	3.0	5,885													2,684	3,269	3,855	4,440	5,026	5,611			2,157	5,611			
	4.0	6,149													2,337	2,921	3,506	4,090	4,675	5,259			1,811	5,259			
GVO-G0209-02R2	0.0	4,515																			123	200	7,074				
	1.0	4,709													2,969	3,555	4,141	4,728	5,314	5,901			6,487	7,074			
	2.0	4,903													2,775	3,361	3,947	4,534	5,120	5,707			6,293	6,880			
	3.0	5,095													2,564	3,150	3,736	4,323	4,909	5,495			6,081	6,668			
	4.0	5,297													2,304	2,889	3,474	4,059	4,645	5,230			5,816	6,401			
GVO-G0209-02R3	0.0	4,045																			110	200	6,111				
	1.0	4,221													2,021	2,605	3,189	3,773	4,357	4,942			5,526	6,111			
	2.0	4,396													2,267	2,853	3,439	4,025	4,612	5,198			5,785	6,371	6,958	7,544	
	3.0	4,568													2,091	2,677	3,263	3,849	4,436	5,022			5,609	6,195	6,782	7,368	
	4.0	4,748													1,899	2,485	3,071	3,657	4,244	4,830			5,416	6,002	6,589	7,175	
GVO-G0209-02R4	0.0	3,560																			99	200	7,667				
	1.0	3,732													1,661	2,246	2,831	3,416	4,002	4,587			5,172	5,758	6,343	6,929	
	2.0	3,904													1,402	1,986	2,570	3,154	3,738	4,323			4,907	5,491	6,076	6,660	
	3.0	4,071													2,166	2,752	3,338	3,924	4,511	5,097			5,683	6,270	6,856	7,443	8,029
	4.0	4,247													1,993	2,579	3,166	3,752	4,338	4,924			5,511	6,097	6,684	7,270	7,857
															1,806	2,392	2,978	3,564	4,150	4,736	5,322	5,908	6,495	7,081	7,667		
															1,572	2,157	2,742	3,327	3,913	4,498	5,083	5,669	6,254	6,839	7,425		
															1,319	1,902	2,486	3,070	3,654	4,239	4,823	5,407	5,992	6,576	7,161		

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200							
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0210-02R1	0.0	5,135								Please consult factory	3,266	4,044	4,821	5,599	6,377	7,155	7,933	8,711	Exceeds MOP	107	185	3,033	9,100			
	1.0	5,380								3,021	3,799	4,576	5,354	6,132	6,910	7,688	8,466	2,788				8,855				
	2.0	5,626								2,757	3,535	4,312	5,090	5,867	6,645	7,423	8,201	2,524				8,589				
	3.0	5,872								2,436	3,212	3,989	4,765	5,542	6,319	7,095	7,872	2,203				8,261				
	4.0	6,132								2,087	2,862	3,638	4,413	5,188	5,964	6,740	7,515	1,855				7,903				
GVO-G0210-02R2	0.0	4,507								Please consult factory	3,117	3,894	4,672	5,450	6,228	7,006	7,784	8,562	9,340	Exceeds MOP	92	185	2,494	9,729		
	1.0	4,701								2,923	3,700	4,478	5,256	6,034	6,812	7,590	8,368	9,146	2,300				9,535			
	2.0	4,894								2,712	3,489	4,267	5,044	5,822	6,599	7,377	8,155	8,933	2,090				9,322			
	3.0	5,083								2,449	3,226	4,002	4,779	5,555	6,332	7,108	7,885	8,662	1,828				9,051			
	4.0	5,281								2,164	2,939	3,714	4,489	5,265	6,040	6,816	7,591	8,367	1,544				8,755			
GVO-G0210-02R3	0.0	4,036								Please consult factory	2,810	3,587	4,365	5,143	5,920	6,698	7,476	8,254	9,032	9,810	Exceeds MOP	83	185	2,265	10,199	
	1.0	4,212								2,634	3,411	4,189	4,967	5,744	6,522	7,300	8,078	8,856	9,634	2,089				10,023		
	2.0	4,387								2,442	3,219	3,996	4,774	5,551	6,329	7,107	7,884	8,662	9,440	1,897				9,829		
	3.0	4,555								2,201	2,977	3,753	4,530	5,306	6,083	6,859	7,636	8,413	9,190	1,657				9,578		
	4.0	4,731								1,938	2,713	3,488	4,263	5,039	5,814	6,590	7,365	8,141	8,917	1,396				9,304		
GVO-G0210-02R4	0.0	3,551								Please consult factory	2,517	3,295	4,072	4,850	5,628	6,406	7,183	7,961	8,739	9,517	10,295	Exceeds MOP	74	185	2,050	10,684
	1.0	3,724								2,345	3,122	3,900	4,678	5,455	6,233	7,011	7,789	8,567	9,345	10,123	1,878				10,512	
	2.0	3,894								2,156	2,934	3,711	4,489	5,266	6,044	6,821	7,599	8,377	9,154	9,932	1,690				10,321	
	3.0	4,059								1,920	2,697	3,473	4,249	5,026	5,802	6,579	7,356	8,132	8,909	9,686	1,455				10,074	
	4.0	4,231								1,664	2,439	3,214	3,989	4,764	5,539	6,315	7,090	7,866	8,641	9,417	1,199				9,805	
GVO-G0212-02R1	0.0	5,122								Please consult factory	3,621	4,736	5,851	6,967	8,082	9,198	Exceeds MOP	74	130	2,952	9,198					
	1.0	5,367								3,376	4,491	5,606	6,722	7,837	8,953	2,707				8,953						
	2.0	5,612								3,111	4,226	5,341	6,456	7,571	8,686	2,442				8,686						
	3.0	5,853								2,786	3,899	5,013	6,127	7,241	8,355	2,118				8,355						
	4.0	6,106								2,433	3,545	4,657	5,769	6,882	7,994	1,766				7,994						
GVO-G0212-02R2	0.0	4,494								Please consult factory	3,134	4,249	5,364	6,480	7,595	8,711	9,826	Exceeds MOP	65	130	2,576	9,826				
	1.0	4,688								2,940	4,055	5,170	6,286	7,401	8,517	9,632	2,382				9,632					
	2.0	4,879								2,728	3,843	4,958	6,073	7,188	8,303	9,418	2,171				9,418					
	3.0	5,063								2,462	3,576	4,689	5,803	6,917	8,031	9,145	1,905				9,145					
	4.0	5,255								2,173	3,285	4,397	5,509	6,621	7,733	8,846	1,617				8,846					
GVO-G0212-02R3	0.0	4,023								Please consult factory	2,489	3,605	4,720	5,835	6,950	8,066	9,181	10,297	Exceeds MOP	58	130	2,266	10,297			
	1.0	4,199								2,313	3,429	4,544	5,659	6,774	7,890	9,005	10,121	2,090				10,121				
	2.0	4,372								2,121	3,235	4,350	5,465	6,580	7,695	8,810	9,926	1,898				9,926				
	3.0	4,535								1,876	2,990	4,103	5,217	6,331	7,444	8,558	9,672	1,654				9,672				
	4.0	4,705								1,610	2,722	3,834	4,946	6,058	7,170	8,283	9,395	1,388				9,395				
GVO-G0212-02R4	0.0	3,538								Please consult factory	2,975	4,090	5,205	6,320	7,435	8,551	9,666	10,782	Exceeds MOP	52	130	2,082	10,782			
	1.0	3,711								2,802	3,917	5,032	6,148	7,263	8,378	9,494	10,609	1,910				10,609				
	2.0	3,880								2,613	3,728	4,843	5,957	7,072	8,188	9,303	10,418	1,721				10,418				
	3.0	4,039								2,373	3,486	4,600	5,713	6,827	7,941	9,055	10,168	1,482				10,168				
	4.0	4,205								2,111	3,222	4,334	5,446	6,559	7,671	8,783	9,896	1,221				9,896				

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0214-02R1	0.0	5,112			2,827	4,183	5,540	6,896	8,253	Exceeds MOP										60	2,827		8,931			
	1.0	5,357		Please consult factory	2,582	3,938	5,295	6,651	8,008													2,582		8,686		
	2.0	5,600			2,317	3,673	5,029	6,385	7,741													2,317	105	8,419		
	3.0	5,837			1,989	3,343	4,698	6,052	7,407														1,989		8,084	
	4.0	6,086			1,632	2,985	4,338	5,690	7,043														1,632		7,720	
GVO-G0214-02R2	0.0	4,484			Please consult factory	3,456	4,812	6,168	7,525	8,881	Exceeds MOP											53	2,506		9,560	
	1.0	4,678		3,261		4,618	5,974	7,331	8,687														2,312		9,366	
	2.0	4,868		3,049		4,405	5,761	7,117	8,473														2,100	105	9,151	
	3.0	5,047		2,779		4,133	5,487	6,842	8,197														1,831		8,874	
	4.0	5,234		2,484		3,837	5,189	6,542	7,895														1,537		8,572	
GVO-G0214-02R3	0.0	4,013		Please consult factory	2,570	3,926	5,282	6,639	7,995	Exceeds MOP												48	2,299		10,030	
	1.0	4,189			2,394	3,750	5,106	6,463	7,819		9,176												2,123		9,854	
	2.0	4,361			2,200	3,556	4,912	6,268	7,624		8,980												1,929	105	9,658	
	3.0	4,520			1,952	3,306	4,661	6,015	7,370		8,724												1,681		9,402	
	4.0	4,685			1,681	3,034	4,386	5,739	7,092		8,445												1,411		9,121	
GVO-G0214-02R4	0.0	3,528		Please consult factory	3,055	4,411	5,768	7,124	8,480	Exceeds MOP												43	2,106		10,515	
	1.0	3,701			2,882	4,239	5,595	6,951	8,308		9,664												1,933		10,343	
	2.0	3,869			2,692	4,048	5,404	6,760	8,116		9,472												1,743	105	10,151	
	3.0	4,024			2,448	3,802	5,157	6,511	7,866		9,221												1,500		9,898	
	4.0	4,184			2,182	3,534	4,887	6,239	7,592		8,945												1,235		9,621	
GVO-G0216-02R1	0.0	5,099		Please consult factory	3,630	5,421	7,212	9,003	Exceeds MOP													46	2,914		9,003	
	1.0	5,344			3,385	5,176	6,967	8,758															2,669		8,758	
	2.0	5,586			3,119	4,909	6,700	8,490															2,402	80	8,490	
	3.0	5,817			2,786	4,574	6,363	8,152															2,070		8,152	
	4.0	6,059			2,423	4,210	5,996	7,783															1,709		7,783	
GVO-G0216-02R2	0.0	4,470	2,468	4,259	6,050	7,841	9,632	Exceeds MOP														40	2,468		9,632	
	1.0	4,664	2,274	4,065	5,856	7,647	9,438																2,274		9,438	
	2.0	4,853	2,060	3,851	5,641	7,432	9,222																2,060	80	9,222	
	3.0	5,027	1,787	3,576	5,364	7,153	8,942																1,787		8,942	
	4.0	5,207	1,489	3,275	5,062	6,848	8,635																1,489		8,635	
GVO-G0216-02R3	0.0	4,000	2,939	4,729	6,520	8,311	10,102	Exceeds MOP															36	2,222		10,102
	1.0	4,176	2,763	4,553	6,344	8,135	9,926																2,046		9,926	
	2.0	4,346	2,568	4,358	6,148	7,939	9,729																1,851	80	9,729	
	3.0	4,500	2,315	4,103	5,892	7,680	9,469																1,599		9,469	
	4.0	4,658	2,038	3,824	5,611	7,398	9,184																1,324		9,184	
GVO-G0216-02R4	0.0	3,515	3,424	5,214	7,005	8,796	10,587	Exceeds MOP															32	1,991		10,587
	1.0	3,687	3,251	5,042	6,833	8,624	10,415																1,819		10,415	
	2.0	3,854	3,060	4,850	6,641	8,431	10,222																1,628	80	10,222	
	3.0	4,003	2,811	4,599	6,388	8,177	9,965																1,380		9,965	
	4.0	4,158	2,539	4,325	6,111	7,898	9,685																1,110		9,685	

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)										
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200														
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																														
GVO-G0310-03R1	0.0	6,486																	5,512	6,281	7,050	7,819	8,588	155	5,128	200	8,588						
	2.0	7,065																	5,082	5,852	6,623	7,393	8,164					4,696	7,616				
	4.0	7,639																	4,533	5,304	6,075	6,845	7,616							3,497	6,963		
	6.0	8,244																	3,882	4,652	5,422	6,192	6,963									2,711	6,170
	8.0	8,878																	3,096	3,864	4,632	5,401	6,170										
GVO-G0310-03R2	0.0	5,650																	4,812	5,580	6,349	7,117	7,886	135	4,058	8,590							
	2.0	6,162																	4,443	5,214	5,984	6,754	7,525				3,580	8,015					
	4.0	6,665																	3,965	4,736	5,507	6,277	7,048						3,009	7,310			
	6.0	7,192																	3,394	4,164	4,934	5,704	6,474								2,315	8,015	
	8.0	7,738																	2,699	3,467	4,236	5,004	5,773										3,842
GVO-G0310-03R3	0.0	4,929																	3,995	4,764	5,532	6,300	7,069	118	3,525	10,144							
	2.0	5,386																	3,680	4,450	5,220	5,990	6,761				3,108	9,428					
	4.0	5,827																	3,262	4,033	4,803	5,574	6,344						2,605	8,920			
	6.0	6,287																	2,759	3,529	4,299	5,069	5,839								1,990	8,290	
	8.0	6,758																	2,143	2,911	3,680	4,448	5,216										3,385
GVO-G0310-03R4	0.0	4,310																	3,846	4,614	5,383	6,151	6,919	104	3,115	10,510							
	2.0	4,718																	3,577	4,347	5,117	5,888	6,658				2,749	10,148					
	4.0	5,107																	3,212	3,982	4,753	5,523	6,294						2,306	9,699			
	6.0	5,508																	2,768	3,538	4,308	5,078	5,848								1,758	9,133	
	8.0	5,915																	2,219	2,987	3,755	4,523	5,291										5,134
GVO-G0312-03R1	0.0	6,462																	5,355	6,460	7,566	8,672	9,777	108	4,707	11,576							
	2.0	7,050																	4,929	6,037	7,144	8,252	9,360				4,159	11,031					
	4.0	7,625																	4,381	5,489	6,597	7,706	8,814						3,507	10,374			
	6.0	8,228																	3,728	4,836	5,943	7,051	8,158								2,716	9,570	
	8.0	8,852																	2,937	4,042	5,148	6,253	7,358										4,423
GVO-G0312-03R2	0.0	5,625																	5,086	6,191	7,297	8,402	9,508	94	3,582	12,004							
	2.0	6,148																	4,723	5,831	6,939	8,047	9,155				3,009	11,426					
	4.0	6,652																	4,246	5,355	6,463	7,571	8,679						2,309	10,710			
	6.0	7,176																	3,673	4,781	5,888	6,995	8,103								13,546	13,255	
	8.0	7,712																	2,972	4,077	5,183	6,288	7,393										3,090
GVO-G0312-03R3	0.0	4,905																	4,701	5,806	6,912	8,017	9,123	82	2,585	12,332							
	2.0	5,371																	4,392	5,500	6,608	7,716	8,823				1,964	11,690					
	4.0	5,814																	3,976	5,084	6,192	7,300	8,409						3,331	14,165			
	6.0	6,271																	3,471	4,578	5,686	6,793	7,901								3,066	13,923	
	8.0	6,732																	2,848	3,953	5,058	6,163	7,268										2,257
GVO-G0312-03R4	0.0	4,286																	4,215	5,320	6,425	7,530	8,636	72	1,703	12,533							
	2.0	4,703																	3,952	5,060	6,168	7,275	8,383				2,257	13,110					
	4.0	5,094																	3,588	4,696	5,804	6,913	8,021						1,703	12,533			
	6.0	5,492																	3,142	4,250	5,357	6,464	7,572								1,703	12,533	
	8.0	5,889																	2,586	3,691	4,796	5,901	7,006										1,703

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200							
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0314-03R1	0.0	6,442						5,291	6,638	7,984	9,330	10,677	Exceeds MOP								88	5,022		11,350		
	2.0	7,038					Please consult factory	4,872	6,220	7,569	8,918	10,267											4,602		10,942	
	4.0	7,615						4,325	5,674	7,023	8,373	9,722											4,055	135	10,397	
	6.0	8,216						3,670	5,019	6,367	7,716	9,064											3,400		9,739	
	8.0	8,832						2,873	4,219	5,564	6,910	8,256											2,604		8,929	
GVO-G0314-03R2	0.0	5,606						4,782	6,128	7,474	8,820	10,167	Exceeds MOP									77	4,378		12,186	
	2.0	6,136					Please consult factory	4,425	5,774	7,123	8,472	9,821		11,170									4,021		11,844	
	4.0	6,642						3,949	5,299	6,648	7,997	9,347		10,696									3,545	135	11,371	
	6.0	7,163						3,374	4,723	6,071	7,419	8,768		10,117									2,970		10,791	
	8.0	7,692						2,668	4,013	5,359	6,704	8,050		9,396									2,264		10,069	
GVO-G0314-03R3	0.0	4,886						4,156	5,502	6,848	8,194	9,540	Exceeds MOP									68	3,887		12,907	
	2.0	5,359					Please consult factory	3,853	5,202	6,551	7,900	9,248		10,597	11,946								3,584		12,621	
	4.0	5,804						3,438	4,787	6,136	7,486	8,835		10,184	11,534								3,168	135	12,208	
	6.0	6,258						2,931	4,279	5,628	6,976	8,325		9,673	11,022								2,662		11,696	
	8.0	6,711						2,302	3,648	4,993	6,339	7,685		9,031	10,377								2,033		11,050	
GVO-G0314-03R4	0.0	4,267						3,430	4,775	6,121	7,467	8,813	10,159	11,506	12,852	Exceeds MOP							59	3,295		13,525
	2.0	4,692					Please consult factory	3,172	4,521	5,870	7,218	8,567	9,916	11,265	12,614								3,038		13,288	
	4.0	5,084						2,809	4,158	5,507	6,857	8,206	9,555	10,905	12,254								2,674	135	12,929	
	6.0	5,479						2,362	3,710	5,058	6,406	7,755	9,103	10,452	11,801								2,227		12,475	
	8.0	5,868						1,800	3,146	4,491	5,837	7,182	8,528	9,874	11,220								1,666		11,893	
GVO-G0316-03R1	0.0	6,417						5,613	7,393	9,173	10,954	Exceeds MOP										67	5,079		11,844	
	2.0	7,023					Please consult factory	5,201	6,984	8,767	10,551												4,666		11,442	
	4.0	7,602						4,655	6,439	8,223	10,007												4,120	105	10,899	
	6.0	8,199						3,998	5,781	7,564	9,347												3,463		10,238	
	8.0	8,805						3,194	4,973	6,753	8,533												2,660		9,422	
GVO-G0316-03R2	0.0	5,581						4,670	6,450	8,230	10,010	11,790	Exceeds MOP										58	4,314		12,680
	2.0	6,121					Please consult factory	4,320	6,103	7,886	9,670	11,453											3,963		12,345	
	4.0	6,628						3,845	5,629	7,413	9,197	10,980											3,489	105	11,872	
	6.0	7,147						3,268	5,051	6,834	8,616	10,399											2,912		11,291	
	8.0	7,665						2,554	4,334	6,113	7,893	9,673											2,199		10,562	
GVO-G0316-03R3	0.0	4,861						5,390	7,170	8,950	10,730	12,510	Exceeds MOP										51	3,788		13,401
	2.0	5,344					Please consult factory	5,097	6,880	8,663	10,446	12,230											3,492		13,122	
	4.0	5,790						4,683	6,467	8,250	10,034	11,818											3,078	105	12,710	
	6.0	6,242						4,173	5,956	7,739	9,522	11,305											2,569		12,196	
	8.0	6,685						3,535	5,314	7,093	8,873	10,653											1,933		11,543	
GVO-G0316-03R4	0.0	4,242						4,229	6,009	7,789	9,569	11,349	13,129	Exceeds MOP									45	3,340		14,020
	2.0	4,677					Please consult factory	3,981	5,764	7,548	9,331	11,114	12,897										3,090		13,789	
	4.0	5,070						3,620	5,403	7,187	8,971	10,755	12,539										2,728	105	13,430	
	6.0	5,463						3,169	4,952	6,735	8,517	10,300	12,083										2,278		12,975	
	8.0	5,841						2,599	4,378	6,157	7,937	9,716	11,496										1,709		12,386	

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)													
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200												
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																
GVO-G0320-03R1	0.0	6,368	Please consult factory	7,240	10,067	Exceeds MOP															42	4,979	65	11,481											
	2.0	6,994		6,845	9,676																				4,580	11,092									
	4.0	7,575		6,303	9,134																					4,037	10,550								
	6.0	8,167		5,640	8,471																						3,376	9,886							
	8.0	8,752		4,818	7,644																							2,557	9,057						
GVO-G0320-03R2	0.0	5,531	5,250	8,077	10,904	Exceeds MOP																37	4,402	65	12,317										
	2.0	6,091	4,916	7,748	10,579																						4,067	11,994							
	4.0	6,602	4,444	7,276	10,108																							3,595	11,524						
	6.0	7,114	3,862	6,693	9,523																								3,013	10,939					
	8.0	7,612	3,131	5,958	8,784																									2,284	10,197				
GVO-G0320-03R3	0.0	4,811	5,970	8,797	11,624	Exceeds MOP																	32	3,709	65	13,038									
	2.0	5,314	5,693	8,524	11,355																									3,428	12,771				
	4.0	5,764	5,282	8,114	10,946																										3,017	12,362			
	6.0	6,209	4,767	7,598	10,428																											2,503	11,844		
	8.0	6,632	4,112	6,938	9,764																											1,851	11,178		
GVO-G0320-03R4	0.0	4,192	6,589	9,416	12,243	Exceeds MOP																		28	3,197	65	13,656								
	2.0	4,647	6,361	9,192	12,023																											2,964	13,439		
	4.0	5,044	6,003	8,834	11,666																												2,604	13,082	
	6.0	5,430	5,546	8,376	11,207																													2,149	12,622
	8.0	5,788	4,955	7,781	10,608																													1,564	12,021

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																									
GVO-G0412-04R2	0.0	8,641																		159	8,430	200	12,929		
	2.5	9,685																						8,430	12,077
	5.0	10,756																						6,540	11,050
	7.5	11,926																						5,322	9,829
	10.0	13,179																						3,882	8,381
GVO-G0412-04R3	0.0	7,288																		134	7,041	200	14,282		
	2.5	8,176																						6,331	13,587
	5.0	9,076																						5,471	12,730
	7.5	10,054																						4,446	11,700
	10.0	11,094																						3,226	10,466
GVO-G0412-04R4	0.0	6,127																		111	5,680	200	15,443		
	2.5	6,845																						5,134	14,917
	5.0	7,562																						4,456	14,244
	7.5	8,333																						3,639	13,422
	10.0	9,142																						2,656	12,418
GVO-G0414-04R1	0.0	10,261																		149	9,260	200	16,085		
	2.5	11,359																						8,365	15,202
	5.0	12,481																						7,289	14,128
	7.5	13,704																						6,011	12,848
	10.0	15,012																						4,498	11,322
GVO-G0414-04R2	0.0	8,621																		131	8,493	200	17,725		
	2.5	9,673																						7,638	16,888
	5.0	10,746																						6,610	15,864
	7.5	11,913																						5,390	14,639
	10.0	13,159																						3,944	13,175
GVO-G0414-04R3	0.0	7,268																		110	7,037	200	19,077		
	2.5	8,164																						6,333	18,397
	5.0	9,066																						5,475	17,543
	7.5	10,042																						4,447	16,510
	10.0	11,073																						3,221	15,261
GVO-G0414-04R4	0.0	6,107																		91	5,657	200	20,238		
	2.5	6,833																						5,118	19,728
	5.0	7,552																						4,442	19,058
	7.5	8,321																						3,623	18,232
	10.0	9,121																						2,633	17,213

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G0416-04R1	0.0	10,235								Please consult factory	10,565	12,336	14,108	15,880	17,652	19,425	Exceeds MOP			113	9,325	175	20,311		
	2.5	11,343								9,677	11,452	13,227	15,002	16,777	18,552	8,435		19,439							
	5.0	12,468								8,602	10,378	12,153	13,929	15,705	17,480	7,360		18,368							
	7.5	13,688								7,323	9,098	10,872	12,647	14,422	16,197	6,081		17,085							
	10.0	14,986								5,802	7,574	9,346	11,117	12,889	14,662	4,562		15,548							
GVO-G0416-04R2	0.0	8,595								8,662	10,433	12,205	13,976	15,748	17,520	19,292	21,065	Exceeds MOP			99	8,485	175	21,951	
	2.5	9,658							7,813	9,588	11,363	13,138	14,912	16,687	18,462	20,237	7,636		21,125						
	5.0	10,733							6,787	8,562	10,338	12,113	13,889	15,664	17,440	19,216	6,609		20,104						
	7.5	11,897							5,565	7,339	9,114	10,889	12,663	14,438	16,213	17,988	5,388		18,876						
	10.0	13,132							4,113	5,884	7,656	9,427	11,199	12,971	14,743	16,515	3,936		17,401						
GVO-G0416-04R3	0.0	7,242								8,243	10,014	11,786	13,557	15,329	17,101	18,873	20,645	22,417	Exceeds MOP			83	7,003	175	23,303
	2.5	8,148							7,549	9,323	11,098	12,872	14,647	16,422	18,197	19,972	21,747	6,306		22,635					
	5.0	9,053							6,691	8,467	10,242	12,017	13,793	15,568	17,344	19,120	20,895	5,449		21,783					
	7.5	10,026							5,662	7,437	9,211	10,986	12,760	14,535	16,310	18,085	19,860	4,420		20,747					
	10.0	11,047							4,427	6,199	7,970	9,741	11,513	13,284	15,056	16,828	18,600	3,188		19,486					
GVO-G0416-04R4	0.0	6,081				Please consult factory	5,862	7,633	9,404	11,176	12,947	14,718	16,490	18,262	20,034	21,806	23,578	Exceeds MOP			69	5,685	175	24,465	
	2.5	6,817				5,330	7,105	8,879	10,654	12,428	14,203	15,978	17,753	19,528	21,303	23,078	5,153		23,965						
	5.0	7,539				4,655	6,431	8,206	9,981	11,756	13,532	15,307	17,083	18,858	20,634	22,410	4,478		23,298						
	7.5	8,305				3,835	5,609	7,383	9,158	10,932	12,707	14,482	16,256	18,031	19,806	21,581	3,658		22,469						
	10.0	9,095				2,838	4,609	6,380	8,151	9,922	11,693	13,465	15,237	17,008	18,780	20,552	2,661		21,439						
GVO-G0420-04R1	0.0	10,183								11,805	14,623	17,442							Exceeds MOP			71	9,268	102	18,005
	2.5	11,312							10,932	13,754	16,577							8,392		17,142					
	5.0	12,441							9,861	12,684	15,508							7,319		16,072					
	7.5	13,656							8,577	11,400	14,222							6,037		14,787					
	10.0	14,932							7,042	9,860	12,678							4,505		13,242					
GVO-G0420-04R2	0.0	8,543				Please consult factory	7,808	10,626	13,445	16,263	19,082								Exceeds MOP			60	7,808	102	19,646
	2.5	9,626				6,973	9,795	12,618	15,440	18,263								6,973		18,827					
	5.0	10,706				5,949	8,772	11,596	14,419	17,243								5,949		17,808					
	7.5	11,865				4,724	7,546	10,368	13,191	16,013								4,724		16,578					
	10.0	13,079				3,259	6,077	8,895	11,713	14,531								3,259		15,095					
GVO-G0420-04R3	0.0	7,190				Please consult factory	9,161	11,979	14,797	17,616	20,434								Exceeds MOP			52	6,907	102	20,998
	2.5	8,117				8,482	11,305	14,127	16,950	19,772								6,224		20,337					
	5.0	9,026				7,629	10,452	13,276	16,099	18,923								5,370		19,487					
	7.5	9,994				6,595	9,417	12,240	15,062	17,885								4,338		18,449					
	10.0	10,994				5,344	8,162	10,980	13,799	16,617								3,090		17,181					
GVO-G0420-04R4	0.0	6,029				Please consult factory	7,504	10,322	13,140	15,958	18,777	21,595							Exceeds MOP			43	5,532	102	22,159
	2.5	6,786				6,991	9,813	12,635	15,458	18,280	21,103							5,015		21,668					
	5.0	7,512				6,320	9,143	11,966	14,790	17,613	20,437							4,344		21,002					
	7.5	8,272				5,495	8,317	11,139	13,961	16,783	19,606							3,519		20,170					
	10.0	9,042				4,479	7,297	10,114	12,933	15,751	18,569							2,507		19,133					

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G0424-04R1	0.0	10,145	Please consult factory	9,748	13,853	17,958	Exceeds MOP														49	9,337	74	19,600
	2.5	11,290		8,879	12,989	17,099		8,468	18,743															
	5.0	12,422		7,809	11,920	16,031		7,398	17,675															
	7.5	13,633		6,524	10,634	14,744		6,114	16,388															
	10.0	14,894		4,984	9,089	13,194		4,574	14,836															
GVO-G0424-04R2	0.0	8,505	Please consult factory	11,388	15,493	19,598	Exceeds MOP														43	8,514	74	21,240
	2.5	9,604		10,565	14,675	18,785		7,688	20,429															
	5.0	10,687		9,544	13,655	17,766		6,667	19,410															
	7.5	11,842		8,316	12,425	16,535		5,439	18,179															
	10.0	13,041		6,838	10,942	15,047		3,964	16,689															
GVO-G0424-04R3	0.0	7,153	8,636	12,740	16,845	20,950	Exceeds MOP														36	6,994	74	22,593
	2.5	8,094	7,965	12,075	16,184	20,294		6,321	21,938															
	5.0	9,007	7,113	11,224	15,335	19,446		5,469	21,090															
	7.5	9,970	6,078	10,187	14,297	18,406		4,434	20,050															
	10.0	10,955	4,819	8,923	13,028	17,133		3,177	18,775															
GVO-G0424-04R4	0.0	5,991	9,797	13,901	18,006	22,112	Exceeds MOP														30	5,692	74	23,754
	2.5	6,764	9,296	13,405	17,515	21,625		5,186	23,269															
	5.0	7,493	8,628	12,738	16,849	20,960		4,517	22,604															
	7.5	8,249	7,799	11,908	16,018	20,128		3,690	21,771															
	10.0	9,003	6,771	10,875	14,980	19,085		2,667	20,727															
GVO-G0428-04R1	0.0	9,984	12,244	18,040	Exceeds MOP																34	8,767	50	18,040
	2.5	11,193	11,452	17,257		7,969	17,257																	
	5.0	12,340	10,399	16,205		6,915	16,205																	
	7.5	13,534	9,094	14,898		5,612	14,898																	
	10.0	14,730	7,477	13,272		4,000	13,272																	
GVO-G0428-04R2	0.0	8,344	13,884	19,680	Exceeds MOP																30	8,089	50	19,680
	2.5	9,507	13,138	18,942		7,333	18,942																	
	5.0	10,604	12,134	17,941		6,328	17,941																	
	7.5	11,743	10,885	16,689		5,081	16,689																	
	10.0	12,876	9,330	15,125		3,535	15,125																	
GVO-G0428-04R3	0.0	6,992	15,237	21,033	Exceeds MOP																25	6,544	50	21,033
	2.5	7,997	14,647	20,452		5,941	20,452																	
	5.0	8,925	13,814	19,620		5,104	19,620																	
	7.5	9,871	12,757	18,561		4,051	18,561																	
	10.0	10,791	11,416	17,211		2,723	17,211																	

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)													
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200												
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																
GVO-G0516-05R2	0.0	13,580															17,574	19,327	21,080	179	17,399	200	21,080												
	3.0	15,898															15,442	17,197	18,951					179	17,399	200	18,951								
	6.0	18,413															12,946	14,701	16,456									179	17,399	200	16,456				
	9.0	21,096															10,191	11,946	13,700													179	17,399	200	13,700
	12.0	24,069															7,007	8,759	10,511																
Please consult factory																																			
GVO-G0516-05R3	0.0	11,434															14,463	16,216	17,968	144	13,412	200	23,227												
	3.0	13,189															12,887	14,642	16,396					144	13,412	200	21,661								
	6.0	15,075															11,019	12,774	14,529									144	13,412	200	19,794				
	9.0	17,079															8,946	10,700	12,454													144	13,412	200	17,717
	12.0	19,287															6,534	8,286	10,037																
Please consult factory																																			
GVO-G0516-05R4	0.0	9,671															12,721	14,474	16,226	121	11,145	200	24,990												
	3.0	11,114															11,453	13,207	14,962					121	11,145	200	23,735								
	6.0	12,653															9,932	11,687	13,442									121	11,145	200	22,216				
	9.0	14,281															8,237	9,990	11,744													121	11,145	200	20,515
	12.0	16,065															6,253	8,004	9,756																
Please consult factory																																			
GVO-G0520-05R1	0.0	16,011															19,908	22,708	25,508	125	18,508	175	32,509												
	3.0	18,384															17,753	20,556	23,358					125	18,508	175	30,366								
	6.0	20,944															15,216	18,019	20,823									125	18,508	175	27,831				
	9.0	23,666															12,409	15,211	18,013													125	18,508	175	25,019
	12.0	26,671															9,154	11,953	14,752																
Please consult factory																																			
GVO-G0520-05R2	0.0	13,535															19,584	22,384	25,184	112	17,344	175	34,985												
	3.0	15,869															17,465	20,267	23,070					112	17,344	175	32,881								
	6.0	18,386															14,971	17,774	20,577									112	17,344	175	30,388				
	9.0	21,063															12,211	15,013	17,814													112	17,344	175	27,622
	12.0	24,016															9,011	11,810	14,609																
Please consult factory																																			
GVO-G0520-05R3	0.0	11,388															13,332	16,131	18,931	90	13,332	175	37,132												
	3.0	13,160															11,766	14,569	17,371					90	13,332	175	35,590								
	6.0	15,049															9,900	12,702	15,505									90	13,332	175	33,726				
	9.0	17,046															7,822	10,624	13,426													90	13,332	175	31,639
	12.0	19,234															5,398	8,196	10,995																
Please consult factory																																			
GVO-G0520-05R4	0.0	9,625															12,295	15,095	17,894	76	11,176	175	38,895												
	3.0	11,086															11,039	13,841	16,643					76	11,176	175	37,664								
	6.0	12,627															9,519	12,322	15,125									76	11,176	175	36,148				
	9.0	14,248															7,819	10,620	13,422													76	11,176	175	34,437
	12.0	16,012															5,822	8,620	11,418																
Please consult factory																																			

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G0524-05R1	0.0	15,978						20,260	24,347	28,434	32,521	36,608	Exceeds MOP								86	18,626	135	38,652	
	3.0	18,363					18,110	22,200	26,290	30,380	34,470													16,474	36,515
	6.0	20,924					15,574	19,664	23,754	27,845	31,936													13,938	33,981
	9.0	23,642					12,765	16,854	20,943	25,032	29,122													11,129	31,167
	12.0	26,633					9,505	13,591	17,676	21,762	25,848													7,871	27,891
GVO-G0524-05R2	0.0	13,501					18,650	22,737	26,823	30,910	34,997	39,084	Exceeds MOP								77	17,424	135	41,128	
	3.0	15,849					16,534	20,624	24,714	28,804	32,895	36,985												15,307	39,030
	6.0	18,367					14,041	18,131	22,221	26,312	30,402	34,493												12,814	36,538
	9.0	21,038					11,279	15,368	19,457	23,546	27,636	31,725												10,053	33,770
	12.0	23,977					8,076	12,161	16,246	20,331	24,417	28,503												6,850	30,546
GVO-G0524-05R3	0.0	11,355				12,624	16,710	20,797	24,883	28,970	33,057	37,144	41,231	Exceeds MOP							60	12,624	135	43,274	
	3.0	13,139				11,064	15,154	19,244	23,334	27,424	31,514	35,604	39,694											11,064	41,739
	6.0	15,030				9,198	13,288	17,378	21,469	25,559	29,649	33,740	37,830											9,198	39,876
	9.0	17,022				7,118	11,207	15,296	19,385	23,474	27,563	31,653	35,742											7,118	37,787
	12.0	19,195				4,688	8,773	12,858	16,943	21,028	25,114	29,199	33,285											4,688	35,328
GVO-G0524-05R4	0.0	9,592				14,387	18,473	22,560	26,646	30,733	34,820	38,907	42,994	Exceeds MOP							52	11,118	135	45,038	
	3.0	11,065				13,139	17,228	21,318	25,408	29,498	33,588	37,678	41,769											9,867	43,814
	6.0	12,607				11,620	15,710	19,800	23,891	27,981	32,072	36,162	40,253											8,348	42,298
	9.0	14,224				9,917	14,005	18,094	22,183	26,272	30,361	34,451	38,540											6,646	40,585
	12.0	15,974				7,910	11,995	16,080	20,165	24,250	28,335	32,421	36,507											4,642	38,550
GVO-G0528-05R1	0.0	15,836				18,011	23,790	29,569	35,348	Exceeds MOP											60	18,011	95	38,238	
	3.0	18,275				15,925	21,710	27,496	33,282															15,925	36,175
	6.0	20,842				13,396	19,182	24,968	30,755															13,396	33,648
	9.0	23,539				10,562	16,345	22,129	27,913															10,562	30,805
	12.0	26,468				7,229	13,005	18,781	24,558															7,229	27,446
GVO-G0528-05R2	0.0	13,360				20,488	26,266	32,045	37,825	Exceeds MOP											54	17,021	95	40,715	
	3.0	15,761				18,439	24,225	30,010	35,796															14,968	38,689
	6.0	18,285				15,953	21,739	27,525	33,312															12,481	36,205
	9.0	20,935				13,165	18,949	24,732	30,516															9,695	33,409
	12.0	23,813				9,885	15,660	21,437	27,213															6,419	30,102
GVO-G0528-05R3	0.0	11,213				16,856	22,634	28,413	34,192	39,971	Exceeds MOP										44	13,389	95	42,861	
	3.0	13,051				15,363	21,149	26,934	32,720	38,505														11,892	41,398
	6.0	14,947				13,504	19,290	25,077	30,863	36,649														10,033	39,543
	9.0	16,919				11,399	17,182	22,965	28,749	34,533														7,929	37,425
	12.0	19,031				8,891	14,667	20,443	26,219	31,995														5,426	34,884
GVO-G0528-05R4	0.0	9,450	12,841	18,619	24,397	30,176	35,955	41,734	Exceeds MOP												37	11,107	95	44,624	
	3.0	10,977	11,653	17,438	23,223	29,008	34,794	40,580																9,917	43,473
	6.0	12,525	10,141	15,927	21,713	27,499	33,285	39,072																8,405	41,965
	9.0	14,120	8,414	14,197	19,980	25,764	31,547	37,331																6,679	40,223
	12.0	15,809	6,338	12,113	17,889	23,664	29,441	35,217																4,605	38,106

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G0532-05R1	0.0	15,779	Please consult factory	21,115	28,681	36,248	Exceeds MOP														46	18,088	70	36,248
	3.0	18,240		19,049	26,623	34,197		16,019	34,197															
	6.0	20,809		16,522	24,097	31,672		13,492	31,672															
	9.0	23,497		13,680	21,252	28,824		10,651	28,824															
	12.0	26,402		10,324	17,887	25,451		7,299	25,451															
GVO-G0532-05R2	0.0	13,303	Please consult factory	23,591	31,158	38,725	Exceeds MOP														41	16,782	70	38,725
	3.0	15,725		21,563	29,137	36,712		14,746	36,712															
	6.0	18,252		19,079	26,654	34,229		12,261	34,229															
	9.0	20,894		16,283	23,855	31,428		9,469	31,428															
	12.0	23,747		12,980	20,543	28,106		6,173	28,106															
GVO-G0532-05R3	0.0	11,156	18,172	25,738	33,304	40,871	Exceeds MOP														33	12,876	70	40,871
	3.0	13,016	16,698	24,272	31,847	39,421		11,397	39,421															
	6.0	14,914	14,841	22,416	29,991	37,567		9,539	37,567															
	9.0	16,877	12,728	20,300	27,872	35,444		7,428	35,444															
	12.0	18,964	10,199	17,762	25,325	32,888		4,905	32,888															
GVO-G0532-05R4	0.0	9,393	19,935	27,501	35,067	42,634	Exceeds MOP														28	10,856	70	42,634
	3.0	10,941	18,773	26,347	33,921	41,496		9,684	41,496															
	6.0	12,492	17,264	24,839	32,414	39,989		8,174	39,989															
	9.0	14,079	15,526	23,098	30,670	38,243		6,441	38,243															
	12.0	15,743	13,421	20,984	28,547	36,110		4,346	36,110															
GVO-G0536-05R1	0.0	15,722	21,598	31,191	Exceeds MOP																36	17,761	55	35,987
	3.0	18,204	19,550	29,152		15,709	33,953																	
	6.0	20,776	17,025	26,627		13,184	31,429																	
	9.0	23,455	14,176	23,775		10,336	28,575																	
	12.0	26,336	10,800	20,389		6,964	25,183																	
GVO-G0536-05R2	0.0	13,245	24,074	33,667	Exceeds MOP																33	17,360	55	38,464
	3.0	15,690	22,064	31,666		15,343	36,467																	
	6.0	18,218	19,582	29,185		12,860	33,986																	
	9.0	20,852	16,779	26,379		10,060	31,178																	
	12.0	23,680	13,455	23,044		6,743	27,839																	
GVO-G0536-05R3	0.0	11,099	26,221	35,814	Exceeds MOP																26	12,792	55	40,610
	3.0	12,980	24,774	34,375		11,331	39,176																	
	6.0	14,881	22,919	32,522		9,476	37,324																	
	9.0	16,835	20,796	30,395		7,358	35,195																	
	12.0	18,898	18,237	27,826		4,813	32,621																	

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200								
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G0728-07R1	0.0	23,078							33,481	39,239	44,997	50,755	Exceeds MOP								97	31,754		53,634			
	4.0	27,432							29,607	35,373	41,139	46,905											27,878		49,788		
	8.0	32,146							25,016	30,784	36,552	42,320											23,286	135	45,204		
	12.0	37,358							19,675	25,441	31,207	36,972											17,946		39,856		
	16.0	42,936							13,606	19,363	25,121	30,879												11,879		33,758	
GVO-G0728-07R2	0.0	20,473							30,330	36,087	41,844	47,602	Exceeds MOP								86	28,027		56,239			
	4.0	24,313							26,962	32,727	38,493	44,259											24,656		52,908		
	8.0	28,449							22,945	28,713	34,480	40,248											20,638	135	48,900		
	12.0	33,010							18,258	24,023	29,788	35,554											15,952		44,203		
	16.0	37,874							12,912	18,669	24,426	30,183											10,609		38,820		
GVO-G0728-07R3	0.0	17,005							28,041	33,797	39,554	45,312	Exceeds MOP								71	22,860		59,707			
	4.0	20,162							25,347	31,112	36,878	42,643											20,159		57,058		
	8.0	23,533							22,094	27,862	33,629	39,397											16,904	135	53,817		
	12.0	27,229							18,274	24,039	29,804	35,569											13,085		49,984		
	16.0	31,144							13,885	19,642	25,398	31,155											8,705		45,550		
GVO-G0728-07R4	0.0	14,400				19,134	24,890	30,646	36,403	42,160	47,917	53,675	Exceeds MOP								60	19,134		62,312			
	4.0	17,042	Please consult factory			16,937	22,702	28,467	34,232	39,998	45,763	51,529											16,937		60,178		
	8.0	19,836		14,257	20,024	25,791	31,558	37,326	43,094	48,861	54,629												14,257	135	57,514		
	12.0	22,881		11,092	16,856	22,621	28,386	34,152	39,917	45,683	51,449													11,092		54,332	
	16.0	26,082		7,436	13,191	18,947	24,704	30,461	36,218	41,975	47,733													7,436		50,612	
GVO-G0732-07R1	0.0	23,013								36,202	43,747	51,292	Exceeds MOP									74	31,676		51,292		
	4.0	27,393							32,347	39,901	47,456												27,815		47,456		
	8.0	32,113							27,761	35,317	42,874												23,227	100	42,874		
	12.0	37,318							22,415	29,969	37,523												17,883		37,523		
	16.0	42,870							16,327	23,871	31,415												11,800		31,415		
GVO-G0732-07R2	0.0	20,407							31,264	38,808	46,352	53,897	Exceeds MOP								66	28,246		53,897			
	4.0	24,273	Please consult factory						27,913	35,467	43,021	50,575											24,892		50,575		
	8.0	28,416		23,901	31,457	39,014	46,571																20,879	100	46,571		
	12.0	32,970		19,209	26,762	34,316	41,871																	16,187		41,871	
	16.0	37,808		13,845	21,389	28,933	36,477																	10,828		36,477	
GVO-G0732-07R3	0.0	16,940								27,188	34,731	42,275	49,820	Exceeds MOP								54	22,662		57,365		
	4.0	20,122	Please consult factory						24,510	32,064	39,618	47,172											19,978		54,726		
	8.0	23,500		21,261	28,818	36,374	43,930	51,487															16,728	100	51,487		
	12.0	27,189		17,436	24,990	32,543	40,097	47,652																12,904		47,652	
	16.0	31,078		13,032	20,575	28,119	35,663	43,207																8,506		43,207	
GVO-G0732-07R4	0.0	14,334								22,250	29,793	37,337	44,881	Exceeds MOP								46	19,233		59,970		
	4.0	17,002	Please consult factory						20,077	27,630	35,184	42,737											17,055		57,846		
	8.0	19,803		17,402	24,958	32,514	40,070	47,627	55,184															14,380	100	55,184	
	12.0	22,841		14,231	21,784	29,337	36,891	44,445	51,999																11,210		51,999
	16.0	26,016		10,551	18,094	25,637	33,181	40,725	48,269																7,534		48,269

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																				
GVO-G0736-07R1	0.0	22,947		Please consult factory	33,207	42,777	52,347	Exceeds MOP												59	80	32,250	52,347
	4.0	27,353			29,365	38,946	48,528															28,407	48,528
	8.0	32,080			24,782	34,366	43,950															23,824	43,950
	12.0	37,277			19,433	29,014	38,595															18,474	38,595
	16.0	42,804			13,330	22,900	32,470															12,374	32,470
GVO-G0736-07R2	0.0	20,342		Please consult factory	35,812	45,382	54,953	Exceeds MOP												52	80	28,156	54,953
	4.0	24,233			32,485	42,066	51,647												24,820			51,647	
	8.0	28,383			28,479	38,063	47,647												20,812			47,647	
	12.0	32,930			23,780	33,361	42,943												16,116			42,943	
	16.0	37,741			18,393	27,962	37,532												10,737			37,532	
GVO-G0736-07R3	0.0	16,874		Please consult factory	29,710	39,280	48,850	Exceeds MOP												43	80	23,012	48,850
	4.0	20,082			27,055	36,635	46,217												20,348			46,217	
	8.0	23,466			23,811	33,395	42,979												17,103			42,979	
	12.0	27,149			19,980	29,561	39,142												13,274			39,142	
	16.0	31,012			15,553	25,122	34,692												8,855			34,692	
GVO-G0736-07R4	0.0	14,269	22,747	32,316	41,885	51,455	61,026	Exceeds MOP												36	80	18,919	61,026
	4.0	16,963	20,594	30,174	39,755	49,336	58,918											16,762	58,918				
	8.0	19,770	17,924	27,508	37,092	46,676	56,260											14,091	56,260				
	12.0	22,801	14,748	24,328	33,909	43,490	53,071											10,916	53,071				
	16.0	25,949	11,047	20,616	30,185	39,754	49,324											7,220	49,324				
GVO-G07128-07R1	0.0	22,581		Please consult factory	32,975	44,486	Exceeds MOP													49	65	31,824	44,486
	4.0	27,130			29,300	40,829												28,147	40,829				
	8.0	31,894			24,759	36,293												23,606	36,293				
	12.0	37,053			19,365	30,894												18,212	30,894				
	16.0	42,433			13,093	24,603												11,942	24,603				
GVO-G07128-07R2	0.0	19,976		Please consult factory	35,580	47,092	Exceeds MOP													43	65	27,523	47,092
	4.0	24,011			32,419	43,948											24,349	43,948					
	8.0	28,197			28,456	39,989											20,382	39,989					
	12.0	32,705			23,712	35,241											15,643	35,241					
	16.0	37,370			18,155	29,666											10,098	29,666					
GVO-G07128-07R3	0.0	16,508	27,538	39,048	50,559	Exceeds MOP													36	65	22,934	50,559	
	4.0	19,860	25,042	36,570	48,099											20,430	48,099						
	8.0	23,281	21,839	33,372	44,906											17,226	44,906						
	12.0	26,924	17,965	29,493	41,022											13,354	41,022						
	16.0	30,641	13,375	24,885	36,395											8,772	36,395						
GVO-G07128-07R4	0.0	13,903	30,143	41,654	53,165	Exceeds MOP													30	65	18,634	53,165	
	4.0	16,740	28,161	39,690	51,219											16,633	51,219						
	8.0	19,584	25,536	37,069	48,602											14,003	48,602						
	12.0	22,577	22,313	33,841	45,370											10,785	45,370						
	16.0	25,578	18,437	29,947	41,458											6,929	41,458						

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)																		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200																	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																					
GVO-G0824-08R1	0.0	34,056																		Please consult factory	37,947	41,984	46,022	173	35,121	200	46,022													
	4.5	38,290																			34,038	38,079	42,120		31,210		42,120													
	9.0	42,909																			29,469	33,510	37,552		26,640		37,552													
	13.5	47,860																			24,407	28,447	32,487		21,579		32,487													
	18.0	53,268																			18,653	22,689	26,725		15,828		26,725													
GVO-G0824-08R2	0.0	28,927																		Please consult factory	26,930	30,966	35,002	39,039	43,076	47,113	51,150	140	26,930	200	51,150									
	4.5	31,992																	24,174		28,214	32,255	36,295	40,336	44,377	48,417	24,174		48,417											
	9.0	35,304																	20,910		24,951	28,992	33,033	37,075	41,116	45,157	20,910		45,157											
	13.5	38,835																	17,274		21,313	25,353	29,393	33,432	37,472	41,513	17,274		41,513											
	18.0	42,668																	13,111		17,146	21,182	25,217	29,253	33,289	37,326	13,111		37,326											
GVO-G0824-08R3	0.0	24,563																		Please consult factory	23,222	27,258	31,294	35,330	39,366	43,403	47,440	51,477	55,514	119	22,818	200	55,514							
	4.5	27,173																	20,913		24,953	28,993	33,033	37,074	41,114	45,155	49,196	53,236	20,509		53,236									
	9.0	29,976																	18,157		22,198	26,239	30,279	34,320	38,362	42,403	46,444	50,485	17,753		50,485									
	13.5	32,954																	15,076		19,115	23,154	27,194	31,234	35,273	39,313	43,353	47,393	14,672		47,393									
	18.0	36,174																	11,535		15,570	19,605	23,640	27,675	31,711	35,747	39,783	43,819	11,131		43,819									
GVO-G0828-08R1	0.0	33,906																		Please consult factory	39,611	45,340	51,070	56,800	62,530											122	35,028	175	65,395	
	4.5	38,199																	35,787		41,523	47,260	52,997	58,734								31,198	61,602							
	9.0	42,827																	31,231		36,968	42,706	48,443	54,181								26,641	57,050							
	13.5	47,758																	26,140		31,875	37,610	43,346	49,081								21,552	51,949							
	18.0	53,104																	20,295		26,023	31,750	37,478	43,207								15,714	46,071							
GVO-G0828-08R2	0.0	28,778																		Please consult factory	27,554	33,282	39,011	44,740	50,469	56,198	61,928	67,658									98	26,409	175	70,523
	4.5	31,901																	24,877		30,613	36,348	42,085	47,821	53,557	59,294	65,031							23,730	67,900					
	9.0	35,221																	21,625		27,362	33,099	38,836	44,574	50,311	56,049	61,787							20,478	64,656					
	13.5	38,733																	17,962		23,696	29,431	35,165	40,900	46,635	52,371	58,107							16,815	60,974					
	18.0	42,504																	13,716		19,442	25,169	30,896	36,623	42,351	48,079	53,807							12,571	56,671					
GVO-G0828-08R3	0.0	24,414																		Please consult factory	26,191	31,918	37,647	43,375	49,104	54,833	60,562	66,292	72,022								84	22,754	175	74,887
	4.5	27,082																	23,961		29,696	35,432	41,168	46,904	52,640	58,376	64,113	69,850							20,519	72,719				
	9.0	29,893																	21,217		26,953	32,690	38,427	44,164	49,902	55,639	61,377	67,115							17,775	69,984				
	13.5	32,852																	18,109		23,843	29,577	35,311	41,046	46,781	52,516	58,252	63,987							14,668	66,855				
	18.0	36,010																	14,484		20,210	25,936	31,662	37,389	43,117	48,844	54,572	60,301							11,049	63,165				

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)										
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200														
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																														
GVO-G0832-08R1	0.0	33,846								40,244	47,760	55,276	62,793	70,311	Exceeds MOP												93	34,982		70,311			
	4.5	38,162								36,432	43,957	51,482	59,007	66,533															31,165		66,533		
	9.0	42,794								31,877	39,404	46,930	54,456	61,983															26,609		61,983		
	13.5	47,717								26,783	34,306	41,829	49,353	56,877															21,517		56,877		
	18.0	53,037								20,925	28,439	35,953	43,468	50,983															15,665		50,983		
GVO-G0832-08R2	0.0	28,717								30,341	37,856	45,372	52,888	60,405	67,922	75,439	Exceeds MOP												75	26,583		75,439	
	4.5	31,864								27,681	35,205	42,730	50,254	57,779	65,305	72,830													23,919		72,830		
	9.0	35,188								24,432	31,957	39,483	47,009	54,536	62,062	69,589													20,669		69,589		
	13.5	38,691								20,762	28,285	35,808	43,331	50,854	58,378	65,902													17,001		65,902		
	18.0	42,437								16,498	24,011	31,525	39,039	46,553	54,068	61,583													12,742		61,583		
GVO-G0832-08R3	0.0	24,353								27,190	34,705	42,220	49,736	57,252	64,769	72,286	79,803	Exceeds MOP												64	22,681		79,803
	4.5	27,045								24,976	32,500	40,024	47,549	55,073	62,598	70,124	77,649												20,461		77,649		
	9.0	29,860								22,234	29,760	37,285	44,811	52,337	59,864	67,390	74,917												17,719		74,917		
	13.5	32,811								19,121	26,643	34,166	41,689	49,212	56,735	64,259	71,783												14,608		71,783		
	18.0	35,943								15,479	22,992	30,505	38,019	45,533	53,047	60,562	68,077												10,972		68,077		
GVO-G0836-08R1	0.0	33,785								41,364	50,906	60,449	69,992	Exceeds MOP															73	34,685		69,992	
	4.5	38,125								37,568	47,120	56,672	66,225																30,881		66,225		
	9.0	42,760								33,016	42,569	52,123	61,677																26,328		61,677		
	13.5	47,675								27,915	37,466	47,016	56,567																21,230		56,567		
	18.0	52,971								22,041	31,581	41,121	50,662																15,364		50,662		
GVO-G0836-08R2	0.0	28,657								27,410	36,951	46,493	56,035	65,577	75,120	Exceeds MOP														59	26,456		75,120
	4.5	31,827								24,762	34,313	43,865	53,417	62,970	72,522														23,807		72,522		
	9.0	35,155								21,515	31,068	40,621	50,175	59,729	69,283														20,559		69,283		
	13.5	38,650								17,841	27,391	36,941	46,491	56,042	65,592														16,886		65,592		
	18.0	42,371								13,564	23,103	32,642	42,181	51,721	61,262														12,610		61,262		
GVO-G0836-08R3	0.0	24,293								22,233	31,774	41,315	50,857	60,399	69,941	79,484	Exceeds MOP													50	22,233		79,484
	4.5	27,008								20,030	29,581	39,132	48,684	58,236	67,789	77,341													20,030		77,341		
	9.0	29,827								17,290	26,843	36,396	45,949	55,503	65,057	74,611													17,290		74,611		
	13.5	32,769								14,173	23,722	33,272	42,822	52,372	61,922	71,473													14,173		71,473		
	18.0	35,877								10,520	20,058	29,596	39,136	48,675	58,215	67,756													10,520		67,756		

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)						
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200					
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																									
GVO-G0840-08R1	0.0	33,725			35,812	47,619	59,426	Exceeds MOP													59	34,632	85	65,330				
	4.5	38,088		Please consult factory	32,026	43,844	55,662																		30,844	61,572		
	9.0	42,727			27,475	39,295	51,115																			26,293	57,025	
	13.5	47,634			22,372	34,188	46,004																			21,190	51,912	
	18.0	52,904			16,487	28,291	40,095																				15,307	45,997
GVO-G0840-08R2	0.0	28,596			Please consult factory	29,135	40,941	52,748	Exceeds MOP													48	26,774	85	70,458			
	4.5	31,790		26,506		38,323	50,142	61,960																		24,142	67,869	
	9.0	35,122		23,261		35,081	46,901	58,721																			20,897	64,631
	13.5	38,609		19,581		31,397	43,213	55,029																			17,218	60,938
	18.0	42,304		15,284		27,087	38,891	50,695																			12,923	56,598
GVO-G0840-08R3	0.0	24,232		Please consult factory	33,499	45,305	57,112	Exceeds MOP													41	22,874	85	74,822				
	4.5	26,971			31,325	43,142	54,961		66,779																	20,689	72,688	
	9.0	29,793			28,590	40,409	52,229		64,049																		17,952	69,959
	13.5	32,728			25,462	37,278	49,094		60,910																		14,829	66,818
	18.0	35,810			21,778	33,581	45,385		57,189																		11,155	63,092

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G08T32-08R1	0.0	33,297	Please consult factory	39,681	54,709	69,737	Exceeds MOP													47	35,173	70	69,737	
	4.5	37,827		36,089	51,136	66,183																	31,575	66,183
	9.0	42,492		31,568	46,618	61,668																	27,053	61,668
	13.5	47,342		26,399	41,442	56,485																	21,886	56,485
	18.0	52,434		20,307	35,330	50,354																	15,800	50,354
GVO-G08T32-08R2	0.0	28,168	29,783	44,810	59,837	74,866	Exceeds MOP													38	26,778	70	74,866	
	4.5	31,529	27,340	42,387	57,433	72,480															24,331		72,480	
	9.0	34,886	24,125	39,174	54,224	69,274															21,115		69,274	
	13.5	38,317	20,381	35,424	50,467	65,511															17,373		65,511	
	18.0	41,834	15,885	30,907	45,930	60,954															12,881		60,954	
GVO-G08T32-08R3	0.0	23,804	34,147	49,174	64,202	79,230	Exceeds MOP													32	22,126	70	79,230	
	4.5	26,710	32,159	47,206	62,252	77,300															20,123		77,300	
	9.0	29,558	29,453	44,502	59,552	74,602															17,414		74,602	
	13.5	32,436	26,262	41,305	56,348	71,392															14,228		71,392	
	18.0	35,340	22,379	37,401	52,424	67,448															10,362		67,448	
GVO-G08T36-08R1	0.0	33,176	40,745	59,825	Exceeds MOP															37	35,021	55	69,365	
	4.5	37,753	37,190	56,292																	31,460		65,843	
	9.0	42,425	32,675	51,780																	26,944		61,333	
	13.5	47,259	27,493	46,590																	21,763		56,139	
	18.0	52,302	21,361	40,436																	15,639		49,973	
GVO-G08T36-08R2	0.0	28,047	45,873	64,953	Exceeds MOP															30	26,794	55	74,494	
	4.5	31,456	43,488	62,589																	24,386		72,140	
	9.0	34,820	40,281	59,386																	21,176		68,938	
	13.5	38,234	36,518	55,615																	17,421		65,165	
	18.0	41,701	31,961	51,036																	12,888		60,574	
GVO-G08T36-08R3	0.0	23,683	50,237	69,318	Exceeds MOP															25	21,619	55	78,858	
	4.5	26,636	48,307	67,408																	19,655		76,959	
	9.0	29,492	45,609	64,714																	16,952		74,266	
	13.5	32,353	42,399	61,496																	13,753		71,045	
	18.0	35,207	38,455	57,530																	9,845		67,067	

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)														
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200													
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																	
GVO-G1028-10R2	0.0	42,885																		Please consult factory	58,272	63,950	69,628	175	55,433	200	69,628									
	6.0	50,280																			51,418	57,103	62,788					48,576	62,788							
	12.0	58,104																			43,686	49,372	55,058					40,843	55,058							
	18.0	66,656																			34,967	40,651	46,335					32,126	46,335							
	24.0	76,026																			25,042	30,718	36,395					22,203	36,395							
GVO-G1028-10R3	0.0	35,728																		Please consult factory	54,074	59,751	65,429	71,107	76,785	159	53,507	200	76,785							
	6.0	43,316																	47,013		52,698	58,382	64,067	69,752	46,445					69,752						
	12.0	51,349																	39,070		44,756	50,442	56,128	61,814	38,502					61,814						
	18.0	60,131																	30,125		35,809	41,492	47,176	52,860	29,557					52,860						
	24.0	69,757																	19,958		25,634	31,310	36,987	42,664	19,390					42,664						
GVO-G1028-10R4	0.0	30,119																		Please consult factory	42,653	48,329	54,006	59,683	65,360	71,037	76,715	82,393	128	41,518	200	82,393				
	6.0	35,876																	37,401		43,085	48,769	54,453	60,137	65,822	71,507	77,192	36,264					77,192			
	12.0	41,927																	31,436		37,121	42,806	48,492	54,177	59,863	65,549	71,235	30,299					71,235			
	18.0	48,519																	24,689		30,372	36,054	41,738	47,421	53,105	58,788	64,472	23,552					64,472			
	24.0	55,710																	16,979		22,654	28,329	34,005	39,680	45,357	51,033	56,711	15,844					56,711			
GVO-G1032-10R1	0.0	50,889																		Please consult factory	74,860	82,326	89,792	97,258	165	71,127	200	97,258								
	6.0	60,600																	65,752		73,226	80,700	88,175	62,015					88,175							
	12.0	70,906																	55,548		63,024	70,499	77,975	51,811					77,975							
	18.0	82,190																	44,078		51,551	59,024	66,498	40,342					66,498							
	24.0	94,579																	31,070		38,534	45,999	53,465	27,338					53,465							
GVO-G1032-10R2	0.0	42,822																		Please consult factory	60,532	67,996	75,461	82,927	90,392	97,859	105,325	133	55,307	200	105,325					
	6.0	50,243																	53,689		61,162	68,636	76,109	83,583	91,057	98,532	48,458					98,532				
	12.0	58,071																	45,960		53,434	60,909	68,384	75,859	83,335	90,810	40,727					90,810				
	18.0	66,615																	37,237		44,709	52,181	59,654	67,127	74,600	82,073	32,007					82,073				
	24.0	75,959																	27,299		34,762	42,226	49,690	57,155	64,620	72,085	22,075					72,085				
GVO-G1032-10R3	0.0	35,665																		Please consult factory	60,224	67,689	75,153	82,618	90,084	97,549	105,016	112,482	121	53,507	200	112,482				
	6.0	43,279																	53,181		60,653	68,127	75,600	83,074	90,547	98,022	105,496	46,455					105,496			
	12.0	51,315																	45,241		52,715	60,190	67,664	75,139	82,615	90,090	97,566	38,514					97,566			
	18.0	60,090																	36,290		43,762	51,234	58,706	66,179	73,651	81,124	88,598	29,566					88,598			
	24.0	69,691																	26,105		33,568	41,031	48,495	55,959	63,423	70,888	78,353	19,389					78,353			
GVO-G1032-10R4	0.0	30,057																		Please consult factory	43,443	50,906	58,369	65,833	73,297	80,761	88,226	95,692	103,158	110,624	118,091	97	41,204	200	118,091	
	6.0	35,839																	38,203		45,675	53,148	60,620	68,093	75,566	83,040	90,513	97,987	105,461	112,936	35,962					112,936
	12.0	41,894																	32,240		39,714	47,188	54,662	62,136	69,611	77,086	84,561	92,036	99,512	106,987	29,998					106,987
	18.0	48,478																	25,489		32,960	40,431	47,903	55,374	62,846	70,318	77,791	85,264	92,737	100,210	23,248					100,210
	24.0	55,644																	17,766		25,228	32,690	40,152	47,615	55,078	62,541	70,005	77,470	84,935	92,400	15,528					92,400

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G1036-10R1	0.0	50,827										71,284	80,775	90,266	99,758	109,251	118,744	Exceeds MOP	129	70,335	118,744				
	6.0	60,562									62,182	71,683	81,184	90,685	100,187	109,689	61,232			109,689					
	12.0	70,873									51,979	61,482	70,984	80,487	89,991	99,494	51,029			99,494					
	18.0	82,149									40,508	50,007	59,507	69,007	78,507	88,008	39,558			88,008					
	24.0	94,513									27,493	36,982	46,472	55,963	65,454	74,945	26,544			74,945					
GVO-G1036-10R2	0.0	42,760									60,370	69,860	79,350	88,842	98,333	107,825	117,318	126,810	Exceeds MOP	104	54,676	126,810			
	6.0	50,205								53,539	63,039	72,539	82,040	91,541	101,043	110,544	120,046	47,839			120,046				
	12.0	58,038								45,811	55,313	64,815	74,317	83,820	93,323	102,826	112,330	40,110			112,330				
	18.0	66,574								37,085	46,584	56,083	65,582	75,082	84,582	94,083	103,583	31,386			103,583				
	24.0	75,893								27,135	36,624	46,113	55,602	65,092	74,583	84,074	93,565	21,443			93,565				
GVO-G1036-10R3	0.0	35,603									58,037	67,527	77,017	86,507	95,998	105,490	114,982	124,475	133,967	Exceeds MOP	95	53,292	133,967		
	6.0	43,241								51,003	60,503	70,003	79,504	89,004	98,505	108,007	117,508	127,010	46,253			127,010			
	12.0	51,282								43,064	52,566	62,068	71,570	81,073	90,576	100,078	109,582	119,085	38,314			119,085			
	18.0	60,049								34,111	43,610	53,109	62,608	72,107	81,607	91,107	100,607	110,108	29,362			110,108			
	24.0	69,624								23,916	33,404	42,893	52,382	61,871	71,361	80,851	90,342	99,834	19,172			99,834			
GVO-G1036-10R4	0.0	29,995									44,667	54,156	63,645	73,135	82,625	92,116	101,607	111,098	120,590	130,083	139,576	Exceeds MOP	77	41,821	139,576
	6.0	35,801								39,443	48,943	58,442	67,942	77,443	86,943	96,444	105,945	115,446	124,948	134,450	36,594			134,450	
	12.0	41,861								33,483	42,984	52,486	61,988	71,490	80,992	90,494	99,997	109,500	119,003	128,507	30,633			128,507	
	18.0	48,437								26,727	36,225	45,723	55,222	64,721	74,220	83,719	93,219	102,719	112,220	121,720	23,878			121,720	
	24.0	55,577								18,988	28,475	37,963	47,451	56,939	66,428	75,918	85,408	94,898	104,389	113,881	16,142			113,881	
GVO-G1040-10R1	0.0	50,764										77,159	88,914	Exceeds MOP	105	71,281	98,319								
	6.0	60,525								68,075	79,842	62,192	89,256												
	12.0	70,840								57,875	69,644	51,991	79,059												
	18.0	82,108								46,398	58,163	40,515	67,576												
	24.0	94,446								33,365	45,119	27,488	54,522												
GVO-G1040-10R2	0.0	42,698									61,715	73,470	85,225	96,981	Exceeds MOP	84	54,663	106,386							
	6.0	50,168								54,899	66,666	78,432	90,199	47,840			99,613								
	12.0	58,004								47,174	58,942	70,711	82,479	40,113			91,895								
	18.0	66,533								38,444	50,208	61,973	73,739	31,385			83,151								
	24.0	75,826								28,479	40,232	51,985	63,739	21,427			73,142								
GVO-G1040-10R3	0.0	35,541									57,118	68,872	80,627	92,382	104,138	Exceeds MOP	77	53,592	113,543						
	6.0	43,204								50,097	61,863	73,630	85,396	97,163	46,568			106,577							
	12.0	51,249								42,161	53,929	65,698	77,466	89,235	38,631			98,650							
	18.0	60,008								33,204	44,968	56,733	68,498	80,263	29,675			89,676							
	24.0	69,558								22,995	34,747	46,500	58,254	70,007	19,470			79,411							
GVO-G1040-10R4	0.0	29,932									39,220	50,973	62,727	74,481	86,235	97,991	109,746	Exceeds MOP	60	39,220	119,151				
	6.0	35,764								34,006	45,772	57,537	69,303	81,069	92,836	104,603	34,006			114,017					
	12.0	41,827								28,048	39,815	51,583	63,351	75,119	86,888	98,656	28,048			108,072					
	18.0	48,396								21,289	33,052	44,816	56,581	68,345	80,110	91,876	21,289			101,288					
	24.0	55,511								13,539	25,290	37,042	48,794	60,547	72,300	84,054	13,539			93,458					

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G10T32-10R1	0.0	50,336					Please consult factory	81,739	96,664	111,590	Exceeds MOP										82	69,799	115	119,053	
	6.0	60,267						72,873	87,817	102,761														60,919	110,234
	12.0	70,611						62,710	77,657	92,605														50,753	100,079
	18.0	81,827						51,166	66,107	81,049														39,213	88,520
	24.0	93,989						37,909	52,831	67,754														25,972	75,216
GVO-G10T32-10R2	0.0	42,269			Please consult factory	59,958	74,881	89,806	104,731	119,656	Exceeds MOP										66	53,989	115	127,120	
	6.0	49,910				53,344	68,287	83,230	98,174	113,118												47,367		120,591	
	12.0	57,775				45,653	60,600	75,546	90,493	105,440												39,675		112,914	
	18.0	66,252				36,861	51,801	66,741	81,682	96,624												30,885		104,095	
	24.0	75,369				26,688	41,608	56,529	71,451	86,374												20,720		93,836	
GVO-G10T32-10R3	0.0	35,112		Please consult factory	52,192	67,115	82,038	96,962	111,888	126,813	Exceeds MOP										60	52,192	115	134,277	
	6.0	42,946			45,366	60,309	75,251	90,195	105,138	120,083										45,366		127,555			
	12.0	51,020			37,463	52,409	67,355	82,302	97,248	112,196										37,463		119,670			
	18.0	59,727			28,446	43,385	58,326	73,266	88,207	103,149										28,446		110,620			
	24.0	69,101			18,037	32,956	47,877	62,798	77,720	92,642										18,037		100,104			
GVO-G10T32-10R4	0.0	29,504	Please consult factory	42,879	57,801	72,723	87,647	102,571	117,496	132,422	Exceeds MOP										49	41,387	115	139,885	
	6.0	35,506		37,864	52,806	67,748	82,691	97,634	112,578	127,522										36,370		134,995			
	12.0	41,599		31,940	46,885	61,830	76,776	91,723	106,670	121,617										30,445		129,091			
	18.0	48,115		25,119	40,058	54,998	69,938	84,878	99,820	114,761										23,625		122,232			
	24.0	55,054		17,165	32,084	47,003	61,923	76,844	91,766	106,689										15,673		114,151			
GVO-G10T36-10R1	0.0	50,211		Please consult factory	80,136	99,113	118,090	Exceeds MOP												65	70,648	90	118,090		
	6.0	60,192			71,299	90,297	109,296												61,800		109,296				
	12.0	70,545			61,141	80,143	99,146												51,640		99,146				
	18.0	81,745			49,588	68,583	87,579												40,090		87,579				
	24.0	93,856			36,302	55,275	74,249												26,816		74,249				
GVO-G10T36-10R2	0.0	42,144	Please consult factory	69,227	88,203	107,180	126,157	Exceeds MOP												52	54,047	90	126,157		
	6.0	49,835		62,659	81,656	100,655	119,653											47,461	119,653						
	12.0	57,709		54,975	73,977	92,979	111,981											39,774	111,981						
	18.0	66,170		46,169	65,163	84,159	103,154											30,973	103,154						
	24.0	75,236		35,950	54,922	73,895	92,869											20,773	92,869						
GVO-G10T36-10R3	0.0	34,987	Please consult factory	57,410	76,384	95,360	114,337	133,314	Exceeds MOP											48	53,615	90	133,314		
	6.0	42,871		50,626	69,623	88,620	107,619	126,618									46,826	126,618							
	12.0	50,953		42,730	61,731	80,732	99,734	118,737									38,930	118,737							
	18.0	59,645		33,699	52,693	71,688	90,683	109,679									29,901	109,679							
	24.0	68,968		23,247	42,218	61,191	80,164	99,138									19,453	99,138							
GVO-G10T36-10R4	0.0	29,379	44,044	63,018	81,993	100,968	119,945	138,923	Exceeds MOP											38	40,249	90	138,923		
	6.0	35,431	39,069	58,065	77,062	96,060	115,058	134,057										35,269	134,057						
	12.0	41,532	33,151	52,151	71,152	90,154	109,156	128,158										29,351	128,158						
	18.0	48,033	26,318	45,311	64,306	83,300	102,296	121,291										22,519	121,291						
	24.0	54,921	18,324	37,294	56,265	75,237	94,210	113,184										14,530	113,184						

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G10T40-10R1	0.0	50,086		Please consult factory	88,218	111,724	Exceeds MOP													52	69,413	70	111,724	
	6.0	60,117			79,423	102,954																	60,599	102,954
	12.0	70,478			69,272	92,807																	50,445	92,807
	18.0	81,663			57,706	81,233																	38,885	81,233
	24.0	93,723			44,376	67,879																	25,575	67,879
GVO-G10T40-10R2	0.0	42,019		Please consult factory	72,779	96,285	Exceeds MOP													42	53,976	70	119,791	
	6.0	49,760			66,250	89,780															47,426		113,311	
	12.0	57,642			58,573	82,108		105,643															39,746	105,643
	18.0	66,088			49,755	73,281		96,809															30,934	96,809
	24.0	75,103			39,495	62,996		86,499															20,695	86,499
GVO-G10T40-10R3	0.0	34,862	56,432	79,936	103,442	126,948	Exceeds MOP													38	51,731	70	126,948	
	6.0	42,796	49,685	73,214	96,744	120,275															44,979		120,275	
	12.0	50,887	41,795	65,329	88,863	112,398															37,089		112,398	
	18.0	59,563	32,753	56,279	79,806	103,334															28,048		103,334	
	24.0	68,835	22,264	45,764	69,265	92,767															17,564		92,767	
GVO-G10T40-10R4	0.0	29,254	62,040	85,544	109,050	132,556	Exceeds MOP													31	40,887	70	132,556	
	6.0	35,356	57,124	80,654	104,184	127,715															35,948		127,715	
	12.0	41,465	51,217	74,750	98,285	121,820															30,037		121,820	
	18.0	47,951	44,366	67,892	91,418	114,946															23,193		114,946	
	24.0	54,788	36,310	59,810	83,312	106,814															15,161		106,814	

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)													
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200												
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																
GVO-G1340-13R1	0.0	81,859																		Please consult factory	138,712	150,395	182	200	129,366	150,395									
	7.5	99,746																			121,534	133,226			112,181	133,226									
	15.0	119,491																			101,884	113,577			92,530	113,577									
	22.5	140,750																			80,374	92,064			71,023	92,064									
	30.0	164,565																			55,777	67,457			46,434	67,457									
GVO-G1340-13R2	0.0	71,384																		Please consult factory	114,141	125,822	137,504	149,186	160,869	157	200	110,636	160,869						
	7.5	86,683																	99,523		111,214	122,905	134,596	146,288	96,016			146,288							
	15.0	103,535																	82,763		94,455	106,147	117,840	129,533	79,255			129,533							
	22.5	121,661																	64,396		76,085	87,774	99,463	111,153	60,889			111,153							
	30.0	141,940																	43,366		55,044	66,723	78,402	90,082	39,862			90,082							
GVO-G1340-13R3	0.0	58,821																		Please consult factory	103,342	115,023	126,704	138,385	150,067	161,749	173,432	131	200	92,831	173,432				
	7.5	71,779																	91,047		102,737	114,427	126,118	137,809	149,501	161,193	80,526			161,193					
	15.0	86,014																	76,901		88,593	100,284	111,977	123,669	135,361	147,054	66,379			147,054					
	22.5	101,305																	61,376		73,064	84,752	96,441	108,130	119,819	131,509	50,857			131,509					
	30.0	118,384																	43,566		55,243	66,921	78,599	90,278	101,958	113,638	33,057			113,638					
GVO-G1340-13R4	0.0	48,347																		Please consult factory	78,778	90,457	102,137	113,817	125,497	137,178	148,860	160,541	172,224	183,907	106	200	74,107	183,907	
	7.5	58,716																	69,041		80,730	92,419	104,109	115,800	127,490	139,181	150,872	162,563	174,255	64,365			174,255		
	15.0	70,058																	57,784		69,474	81,165	92,857	104,548	116,240	127,932	139,624	151,317	163,010	53,108			163,010		
	22.5	82,216																	45,403		57,090	68,777	80,465	92,153	103,841	115,530	127,219	138,908	150,598	40,728			150,598		
	30.0	95,759																	31,162		42,838	54,514	66,191	77,868	89,546	101,224	112,903	124,583	136,263	26,492			136,263		
GVO-G1344-13R1	0.0	81,796																		Please consult factory	129,484	143,669	157,855	172,041	Exceeds MOP	150	180	129,484	172,041						
	7.5	99,707																	112,309		126,505	140,701	154,898	112,309				154,898							
	15.0	119,456																	92,660		106,858	121,055	135,253	92,660				135,253							
	22.5	140,707																	71,149		85,342	99,536	113,731	71,149				113,731							
	30.0	164,494																	46,547		60,729	74,912	89,095	46,547				89,095							
GVO-G1344-13R2	0.0	71,322																		Please consult factory	111,589	125,773	139,958	154,143	168,329	182,516	Exceeds MOP	129	180	110,170	182,516				
	7.5	86,644																	96,981		111,176	125,372	139,568	153,764	167,960	95,561				167,960					
	15.0	103,500																	80,222		94,419	108,616	122,813	137,011	151,209	78,802				151,209					
	22.5	121,618																	61,852		76,045	90,238	104,431	118,625	132,820	60,432				132,820					
	30.0	141,869																	40,811		54,991	69,173	83,355	97,537	111,720	39,393				111,720					
GVO-G1344-13R3	0.0	58,759																		Please consult factory	95,785	109,968	124,152	138,336	152,521	166,706	180,892	195,079	Exceeds MOP	108	180	92,948	195,079		
	7.5	71,740																	83,496		97,690	111,885	126,081	140,276	154,472	168,668	182,865	80,657				182,865			
	15.0	85,978																	69,351		83,547	97,744	111,940	126,137	140,335	154,532	168,730	66,512				168,730			
	22.5	101,261																	53,823		68,015	82,208	96,401	110,594	124,788	138,982	153,176	50,985				153,176			
	30.0	118,314																	36,006		50,186	64,366	78,546	92,728	106,910	121,092	135,275	33,170				135,275			
GVO-G1344-13R4	0.0	48,284																		Please consult factory	77,894	92,077	106,259	120,442	134,626	148,810	162,995	177,181	191,366	205,553	Exceeds MOP	87	180	73,640	205,553
	7.5	58,677																	68,170		82,364	96,558	110,753	124,948	139,143	153,339	167,535	181,731	195,927	63,912				195,927	
	15.0	70,023																	56,915		71,111	85,307	99,503	113,699	127,896	142,093	156,290	170,488	184,686	52,657				184,686	
	22.5	82,172																	44,529		58,721	72,912	87,104	101,297	115,490	129,683	143,877	158,071	172,265	40,272				172,265	
	30.0	95,689																	30,274		44,452	58,631	72,811	86,991	101,172	115,353	129,535	143,717	157,901	26,021				157,901	

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)								
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200												
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																												
GVO-G1348-13R1	0.0	81,737										136,714	153,642	170,570	Exceeds MOP								125	128,250	150	170,570					
	7.5	99,670										119,554	136,494	153,434											111,085		153,434				
	15.0	119,422										99,907	116,849	133,790											91,437		133,790				
	22.5	140,665										78,391	95,328	112,265											69,922		112,265				
	30.0	164,428										53,773	70,697	87,621												45,311		87,621			
GVO-G1348-13R2	0.0	71,262										113,335	130,261	147,188	164,116	181,044	Exceeds MOP								108	109,950	150	181,044			
	7.5	86,608										98,739	115,678	132,617	149,557	166,496										95,351		166,496			
	15.0	103,466										81,982	98,922	115,863	132,804	149,746										78,594		149,746			
	22.5	121,576										63,607	80,543	97,480	114,417	131,354										60,220		131,354			
	30.0	141,802										42,553	59,475	76,398	93,322	110,246										39,168		110,246			
GVO-G1348-13R3	0.0	58,699										92,047	108,972	125,898	142,824	159,751	176,679	193,607	Exceeds MOP							90	92,047	150	193,607		
	7.5	71,704										79,767	96,705	113,643	130,582	147,521	164,461	181,401									79,767		181,401		
	15.0	85,945										65,623	82,563	99,503	116,444	133,385	150,326	167,267									65,623		167,267		
	22.5	101,220										50,092	67,028	83,963	100,899	117,836	134,773	151,710									50,092		151,710		
	30.0	118,247										32,265	49,186	66,108	83,030	99,953	116,877	133,801									32,265		133,801		
GVO-G1348-13R4	0.0	48,225										85,596	102,521	119,446	136,372	153,299	170,226	187,153	204,081	Exceeds MOP							73	73,749	150	204,081	
	7.5	58,641										75,892	92,830	109,768	126,706	143,645	160,584	177,524	194,463									64,036		194,463	
	15.0	69,989										64,640	81,579	98,519	115,459	132,399	149,340	166,281	183,223									52,782		183,223	
	22.5	82,131										52,247	69,181	86,117	103,052	119,988	136,925	153,862	170,799									40,392		170,799	
	30.0	95,622										37,970	54,890	71,811	88,733	105,655	122,578	139,502	156,427									26,126		156,427	
GVO-G1352-13R1	0.0	81,677										135,600	155,508	175,417	Exceeds MOP										107	129,627	130	175,417			
	7.5	99,634										118,451	138,372	158,294													112,474		158,294		
	15.0	119,389										98,805	118,729	138,652													92,828		138,652		
	22.5	140,624										77,285	97,203	117,123													71,309		117,123		
	30.0	164,361										52,655	72,559	92,464													46,684		92,464		
GVO-G1352-13R2	0.0	71,203										126,166	146,074	165,982	185,891	Exceeds MOP										92	110,241	130	185,891		
	7.5	86,571										111,592	131,513	151,435	171,357												95,655		171,357		
	15.0	103,433										94,837	114,761	134,684	154,608												78,899		154,608		
	22.5	121,535										76,455	96,374	116,292	136,212												60,521		136,212		
	30.0	141,736										55,377	75,281	95,185	115,089												39,455		115,089		
GVO-G1352-13R3	0.0	58,640										98,916	118,822	138,729	158,637	178,545	198,454	Exceeds MOP									77	92,944	130	198,454	
	7.5	71,667										86,655	106,575	126,496	146,418	166,339	186,261										80,678		186,261		
	15.0	85,911										72,514	92,436	112,359	132,282	152,206	172,130										66,537		172,130		
	22.5	101,178										56,976	76,893	96,811	116,730	136,649	156,568										51,001		156,568		
	30.0	118,180										39,128	59,030	78,932	98,836	118,740	138,645										33,157		138,645		
GVO-G1352-13R4	0.0	48,165										69,579	89,484	109,390	129,296	149,204	169,111	189,020	208,929	Exceeds MOP								60	69,579	130	208,929
	7.5	58,604										59,877	79,797	99,717	119,638	139,559	159,480	179,402	199,324									59,877		199,324	
	15.0	69,956										48,625	68,547	88,469	108,392	128,315	148,238	168,161	188,085									48,625		188,085	
	22.5	82,089										36,231	56,148	76,065	95,982	115,900	135,819	155,738	175,657									36,231		175,657	
	30.0	95,555										21,951	41,852	61,753	81,655	101,558	121,461	141,365	161,270									21,951		161,270	

Notes:

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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G13T40-13R1	0.0	81,203							149,691	173,048	Exceeds MOP										91	128,670	110	173,048
	7.5	99,342						132,792	156,170	111,753		156,170												
	15.0	119,122						113,181	136,562	92,139		136,562												
	22.5	140,292						91,572	114,945	70,536		114,945												
	30.0	163,828						66,665	90,015	45,651		90,015												
GVO-G13T40-13R2	0.0	70,729						113,454	136,809	Exceeds MOP										78	108,783	110	183,522	
	7.5	86,280						99,101	122,478		94,426	169,233												
	15.0	103,166						82,376	105,756		77,700	152,517												
	22.5	121,203						63,916	87,288		59,242	134,034												
	30.0	141,203						42,594	65,942		37,924	112,641												
GVO-G13T40-13R3	0.0	58,166						102,663	126,017	Exceeds MOP										65	90,986	110	196,085	
	7.5	71,376						90,629	114,005		78,941	184,137												
	15.0	85,645						76,519	99,898		64,829	170,039												
	22.5	100,847						60,901	84,272		49,215	154,390												
	30.0	117,647						42,802	66,149		31,129	136,196												
GVO-G13T40-13R4	0.0	47,691						89,784	113,137	Exceeds MOP										53	73,438	110	206,559	
	7.5	58,313						80,316	103,692		63,953	197,200												
	15.0	69,689						69,096	92,474		52,731	185,994												
	22.5	81,758						56,619	79,990		40,260	173,479												
	30.0	95,022						42,081	65,427		25,740	158,821												
GVO-G13T44-13R1	0.0	81,078						142,916	171,280	Exceeds MOP										75	128,735	90	171,280	
	7.5	99,266						126,042	154,430		111,849	154,430												
	15.0	119,051						106,434	134,824		92,239	134,824												
	22.5	140,205						84,816	113,198		70,626	113,198												
	30.0	163,687						59,883	88,239		45,706	88,239												
GVO-G13T44-13R2	0.0	70,604						125,029	153,391	Exceeds MOP										65	110,848	90	181,754	
	7.5	86,203						110,718	139,105		96,525	167,492												
	15.0	103,096						94,000	122,390		79,805	150,780												
	22.5	121,116						75,524	103,905		61,334	132,287												
	30.0	141,062						54,154	82,509		39,978	110,864												
GVO-G13T44-13R3	0.0	58,041						109,231	137,592	Exceeds MOP										54	92,215	90	194,317	
	7.5	71,299						97,237	125,623		80,206	182,397												
	15.0	85,574						83,132	111,521		66,099	168,302												
	22.5	100,760						67,500	95,880		50,472	152,644												
	30.0	117,507						49,356	77,709		32,345	134,419												
GVO-G13T44-13R4	0.0	47,566						91,345	119,705	Exceeds MOP										44	74,330	90	204,791	
	7.5	58,236						81,914	110,299		64,883	195,459												
	15.0	69,619						70,699	99,088		53,666	184,257												
	22.5	81,671						58,209	86,589		41,182	171,733												
	30.0	94,881						43,630	71,982		26,619	157,044												

Notes:
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Actuator Model (Fail Down)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G13T48-13R1	0.0	80,959		Please consult factory	118,988	152,835	Exceeds MOP													60	118,988	75	169,759	
	7.5	99,192			102,124	135,998																	102,124	152,936
	15.0	118,984			82,517	116,395																	82,517	133,334
	22.5	140,122			60,896	94,764																	60,896	111,699
	30.0	163,553			35,952	69,790																	35,952	86,710
GVO-G13T48-13R2	0.0	70,485		Please consult factory	129,463	163,310	Exceeds MOP													54	109,155	75	180,234	
	7.5	86,130			115,187	149,061															94,863		165,998	
	15.0	103,029			98,473	132,351																	78,147	149,290
	22.5	121,033			79,985	113,853																	59,665	130,788
	30.0	140,928			58,577	92,415																	38,275	109,335
GVO-G13T48-13R3	0.0	57,922		Please consult factory	108,180	142,026	Exceeds MOP													45	91,257	75	192,797	
	7.5	71,225			96,218	130,091															79,282		180,903	
	15.0	85,507			82,117	115,994																	65,179	166,811
	22.5	100,676			66,474	100,341																	49,541	151,144
	30.0	117,373			48,295	82,132																	31,377	132,890
GVO-G13T48-13R4	0.0	47,447	84,810	118,654	152,500	186,347	Exceeds MOP													37	74,656	75	203,271	
	7.5	58,163	75,408	109,281	143,154	177,028															65,246		193,965	
	15.0	69,552	64,197	98,073	131,950	165,828															54,034		182,767	
	22.5	81,587	51,697	85,563	119,430	153,298															41,537		170,233	
	30.0	94,748	37,085	70,921	104,758	138,596															26,935		155,515	
GVO-G13T52-13R1	0.0	80,840		Please consult factory	154,648		Exceeds MOP													53	126,782	65	174,554	
	7.5	99,119			137,844																109,956		157,763	
	15.0	118,918			118,245																		90,355	138,166
	22.5	140,039			96,603																		68,720	116,519
	30.0	163,420			71,593																		43,733	91,493
GVO-G13T52-13R2	0.0	70,366		Please consult factory	125,314	165,123	Exceeds MOP													46	109,390	65	185,028	
	7.5	86,057			111,067	150,906															95,132		170,826	
	15.0	102,962			94,357	134,200																	78,420	154,122
	22.5	120,950			75,859	115,692																	59,927	135,608
	30.0	140,795			54,419	94,218																	38,499	114,119
GVO-G13T52-13R3	0.0	57,803	98,069	137,877	177,686		Exceeds MOP													38	90,107	65	197,591	
	7.5	71,152	86,134	125,972	165,811														78,166		185,730			
	15.0	85,440	72,037	111,879	151,722																64,069		171,644	
	22.5	100,593	56,384	96,215	136,048																48,418		155,964	
	30.0	117,239	38,175	77,974	117,773																30,216		137,674	
GVO-G13T52-13R4	0.0	47,328	108,543	148,351	188,160		Exceeds MOP													31	72,717	65	208,065	
	7.5	58,090	99,196	139,034	178,873																63,343		198,793	
	15.0	69,485	87,992	127,835	167,677																52,135		187,599	
	22.5	81,504	75,473	115,304	155,137																39,625		175,053	
	30.0	94,614	60,801	100,599	140,399																24,983		160,299	

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200		
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G0209-01R0	0.0	4,426																			132	3,257	200	7,295	
	1.0	4,718																				2,981		7,020	
	2.0	5,081																				2,616		6,654	
	3.0	5,418																				2,213		6,245	
	4.0	5,772																				1,761		5,786	
GVO-G0209-01R1	0.0	3,578																				100	2,206	200	8,142
	1.0	3,744																				2,056		7,994	
	2.0	3,946																				1,852		7,790	
	3.0	4,121																				1,612		7,542	
	4.0	4,301																				1,339		7,256	
GVO-G0209-01R2	0.0	3,108																				84	1,727	200	8,612
	1.0	3,222																				1,629		8,517	
	2.0	3,357																				1,491		8,378	
	3.0	3,466																				1,319		8,196	
	4.0	3,575																				1,120		7,983	
GVO-G0209-01R3	0.0	2,717																				74	1,524	200	9,003
	1.0	2,817																				1,440		8,921	
	2.0	2,934																				1,321		8,802	
	3.0	3,025																				1,168		8,638	
	4.0	3,113																				990		8,444	
GVO-G0209-01R4	0.0	2,354																				60	1,057	200	9,366
	1.0	2,429																				996		9,309	
	2.0	2,516																				907		9,220	
	3.0	2,577																				787		9,086	
	4.0	2,633																				644		8,925	

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200					
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G0209-01R5	0.0	1,843		Please consult factory	1,568	2,161	2,755	3,348	3,941	4,535	5,128	5,722	6,315	6,909	7,502	8,096	8,690	9,284	9,877	59	1,509	200	9,877	
	1.0	2,002			1,424	2,017	2,611	3,205	3,798	4,392	4,985	5,579	6,173	6,767	7,361	7,955	8,548	9,142	9,736		1,365		9,736	
	2.0	2,195			1,229	1,822	2,416	3,009	3,603	4,196	4,790	5,384	5,978	6,571	7,165	7,759	8,353	8,947	9,541		1,169		9,541	
	3.0	2,361			1,002	1,594	2,187	2,779	3,372	3,965	4,557	5,150	5,743	6,336	6,929	7,522	8,115	8,708	9,301		943		9,301	
	4.0	2,532			744	1,335	1,926	2,517	3,109	3,700	4,291	4,883	5,474	6,066	6,658	7,250	7,841	8,433	9,026		685		9,026	
GVO-G0209-01R6	0.0	1,342		Please consult factory	1,476	2,069	2,662	3,256	3,849	4,442	5,036	5,629	6,223	6,816	7,410	8,003	8,597	9,191	9,785	10,378	44	1,120	200	10,378
	1.0	1,462			1,370	1,964	2,557	3,151	3,744	4,338	4,932	5,525	6,119	6,713	7,307	7,900	8,494	9,088	9,682	10,276		1,014		10,276
	2.0	1,606			1,225	1,818	2,411	3,005	3,598	4,192	4,786	5,379	5,973	6,567	7,161	7,754	8,348	8,942	9,536	10,130		869		10,130
	3.0	1,723			1,048	1,640	2,233	2,825	3,418	4,011	4,603	5,196	5,789	6,382	6,974	7,567	8,160	8,754	9,347	9,940		693		9,940
	4.0	1,840			845	1,436	2,027	2,618	3,209	3,801	4,392	4,983	5,575	6,166	6,758	7,350	7,942	8,533	9,125	9,718		491		9,718
GVO-G0209-01R7	0.0	976	1,248	1,841	2,435	3,028	3,621	4,214	4,808	5,401	5,995	6,588	7,182	7,775	8,369	8,963	9,556	10,150	10,744	33	833	200	10,744	
	1.0	1,071	1,168	1,761	2,355	2,948	3,542	4,135	4,729	5,323	5,916	6,510	7,104	7,698	8,291	8,885	9,479	10,073	10,667		753		10,667	
	2.0	1,182	1,055	1,648	2,241	2,835	3,428	4,022	4,615	5,209	5,803	6,396	6,990	7,584	8,178	8,771	9,365	9,959	10,553		639		10,553	
	3.0	1,267	911	1,504	2,096	2,688	3,281	3,873	4,466	5,059	5,651	6,244	6,837	7,430	8,023	8,616	9,209	9,802	10,395		497		10,395	
	4.0	1,350	745	1,336	1,926	2,517	3,109	3,700	4,291	4,882	5,474	6,065	6,657	7,248	7,840	8,432	9,024	9,616	10,208		331		10,208	
GVO-G0209-01R8	0.0	705	1,519	2,112	2,706	3,299	3,892	4,485	5,079	5,672	6,266	6,859	7,453	8,046	8,640	9,234	9,827	10,421	11,015	25	630	200	11,015	
	1.0	780	1,459	2,053	2,646	3,240	3,833	4,427	5,020	5,614	6,208	6,801	7,395	7,989	8,583	9,177	9,771	10,365	10,959		569		10,959	
	2.0	865	1,372	1,965	2,558	3,152	3,745	4,339	4,932	5,526	6,120	6,713	7,307	7,901	8,495	9,089	9,683	10,276	10,870		482		10,870	
	3.0	924	1,254	1,846	2,439	3,031	3,624	4,216	4,809	5,402	5,994	6,587	7,180	7,773	8,366	8,959	9,552	10,145	10,738		366		10,738	
	4.0	979	1,116	1,706	2,297	2,888	3,479	4,071	4,662	5,253	5,845	6,436	7,028	7,619	8,211	8,803	9,395	9,987	10,579		229		10,579	

Notes:
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 MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200								
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G0210-01R0	0.0	4,416								3,264	4,049	4,834	5,619	6,404	7,189	7,974	8,759	9,544	Exceeds MOP	100	185	3,264	9,937				
	1.0	4,710								2,988	3,773	4,559	5,344	6,129	6,914	7,700	8,485	9,271				2,988	9,664				
	2.0	5,073								2,623	3,408	4,193	4,978	5,764	6,549	7,334	8,120	8,905				2,623	9,298				
	3.0	5,406								2,218	3,002	3,786	4,570	5,354	6,139	6,923	7,708	8,492				2,218	8,884				
	4.0	5,755								1,764	2,546	3,329	4,112	4,895	5,678	6,461	7,244	8,027				1,764	8,419				
GVO-G0210-01R1	0.0	3,569							2,542	3,326	4,111	4,896	5,681	6,466	7,251	8,036	8,821	9,607	10,392	Exceeds MOP	76	185	2,228	10,784			
	1.0	3,736							2,392	3,177	3,962	4,748	5,533	6,318	7,103	7,889	8,674	9,459	10,245				2,078	10,638			
	2.0	3,937							2,188	2,973	3,758	4,543	5,328	6,114	6,899	7,684	8,470	9,255	10,041				1,874	10,433			
	3.0	4,109							1,946	2,730	3,514	4,298	5,082	5,866	6,651	7,435	8,219	9,004	9,788				1,632	10,181			
	4.0	4,284							1,670	2,452	3,234	4,017	4,800	5,582	6,365	7,148	7,931	8,714	9,498				1,357	9,889			
GVO-G0210-01R2	0.0	3,098							2,227	3,012	3,797	4,582	5,367	6,152	6,937	7,722	8,507	9,292	10,077	10,862	Exceeds MOP	64	185	1,756	11,255		
	1.0	3,213							2,130	2,915	3,700	4,485	5,270	6,055	6,841	7,626	8,411	9,197	9,982	10,768				1,659	11,160		
	2.0	3,349							1,992	2,777	3,562	4,347	5,132	5,917	6,702	7,488	8,273	9,058	9,844	10,629				1,521	11,022		
	3.0	3,455							1,817	2,601	3,385	4,169	4,953	5,737	6,521	7,305	8,090	8,874	9,659	10,443				1,347	10,835		
	4.0	3,558							1,614	2,396	3,178	3,961	4,743	5,526	6,309	7,091	7,874	8,657	9,440	10,224				1,144	10,615		
GVO-G0210-01R3	0.0	2,708							1,833	2,618	3,402	4,187	4,972	5,757	6,542	7,327	8,112	8,897	9,682	10,467	11,253	Exceeds MOP	56	185	1,519	11,645	
	1.0	2,809							1,749	2,534	3,319	4,105	4,890	5,675	6,460	7,245	8,031	8,816	9,601	10,387	11,172				1,435	11,565	
	2.0	2,925							1,630	2,415	3,200	3,985	4,770	5,555	6,340	7,126	7,911	8,696	9,482	10,267	11,052				1,316	11,445	
	3.0	3,013							1,475	2,259	3,042	3,826	4,610	5,394	6,179	6,963	7,747	8,531	9,316	10,100	10,885				1,161	11,277	
	4.0	3,097							1,293	2,075	2,858	3,640	4,422	5,205	5,988	6,770	7,553	8,336	9,119	9,902	10,685				980	11,077	
GVO-G0210-01R4	0.0	2,344							1,412	2,197	2,981	3,766	4,551	5,336	6,121	6,905	7,691	8,476	9,261	10,046	10,831	11,616	Exceeds MOP	48	185	1,255	12,009
	1.0	2,421							1,352	2,137	2,922	3,707	4,492	5,277	6,062	6,848	7,633	8,418	9,203	9,989	10,774	11,560				1,195	11,953
	2.0	2,508							1,263	2,048	2,833	3,618	4,403	5,188	5,973	6,758	7,543	8,329	9,114	9,899	10,685	11,470				1,106	11,863
	3.0	2,565							1,139	1,923	2,707	3,490	4,274	5,058	5,842	6,627	7,411	8,195	8,979	9,764	10,548	11,333				982	11,725
	4.0	2,616							992	1,774	2,556	3,338	4,121	4,903	5,686	6,468	7,251	8,034	8,817	9,600	10,383	11,166				835	11,558
GVO-G0210-01R5	0.0	1,833							1,923	2,708	3,492	4,277	5,062	5,847	6,632	7,417	8,202	8,987	9,772	10,557	11,342	12,127	Exceeds MOP	45	185	1,531	12,520
	1.0	1,994							1,780	2,564	3,349	4,134	4,920	5,705	6,490	7,275	8,060	8,846	9,631	10,416	11,202	11,987				1,387	12,380
	2.0	2,186							1,584	2,369	3,154	3,939	4,724	5,509	6,294	7,079	7,865	8,650	9,435	10,221	11,006	11,792				1,192	12,184
	3.0	2,350							1,354	2,138	2,922	3,706	4,490	5,274	6,058	6,842	7,626	8,410	9,195	9,979	10,764	11,548				962	11,940
	4.0	2,515							1,092	1,874	2,656	3,439	4,221	5,004	5,786	6,569	7,351	8,134	8,917	9,700	10,483	11,267				701	11,658
GVO-G0210-01R6	0.0	1,333	1,639	2,424	3,209	3,993	4,778	5,563	6,348	7,133	7,917	8,702	9,488	10,273	11,058	11,843	12,628								1,090	13,021	
	1.0	1,454	1,534	2,319	3,104	3,889	4,674	5,459	6,244	7,030	7,815	8,600	9,385	10,171	10,956	11,742	12,527								985	12,920	
	2.0	1,597	1,389	2,174	2,958	3,743	4,528	5,313	6,098	6,884	7,669	8,454	9,239	10,025	10,810	11,595	12,381								839	12,774	
	3.0	1,711	1,209	1,993	2,777	3,560	4,344	5,128	5,912	6,696	7,480	8,265	9,049	9,833	10,618	11,402	12,187								661	12,579	
	4.0	1,823	1,002	1,784	2,566	3,348	4,131	4,913	5,696	6,478	7,261	8,043	8,826	9,609	10,392	11,175	11,959								455	12,350	
GVO-G0210-01R7	0.0	967	2,005	2,789	3,574	4,359	5,144	5,928	6,713	7,498	8,283	9,068	9,853	10,638	11,423	12,209	12,994								828	13,387	
	1.0	1,063	1,925	2,710	3,495	4,280	5,065	5,850	6,635	7,421	8,206	8,991	9,776	10,562	11,347	12,133	12,918								748	13,311	
	2.0	1,174	1,812	2,597	3,382	4,167	4,952	5,737	6,522	7,307	8,092	8,877	9,662	10,448	11,233	12,019	12,804								635	13,197	
	3.0	1,256	1,665	2,448	3,232	4,016	4,800	5,584	6,368	7,152	7,936	8,720	9,504	10,289	11,073	11,858	12,642								489	13,034	
	4.0	1,333	1,493	2,275	3,057	3,839	4,621	5,403	6,186	6,968	7,751	8,534	9,317	10,100	10,883	11,666	12,449								320	12,841	

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0212-01R0	0.0	4,402			Please consult factory	3,258	4,380	5,503	6,625	7,748	8,870	9,993	Exceeds MOP								70	3,258	130	9,993		
	1.0	4,697				2,983	4,106	5,229	6,351	7,474	8,597	9,720													2,983	9,720
	2.0	5,059				2,618	3,740	4,863	5,986	7,109	8,231	9,354													2,618	9,354
	3.0	5,387				2,209	3,330	4,452	5,573	6,695	7,816	8,938													2,209	8,938
	4.0	5,729				1,750	2,870	3,989	5,109	6,229	7,349	8,469													1,750	8,469
GVO-G0212-01R1	0.0	3,555			Please consult factory	2,983	4,105	5,228	6,350	7,473	8,595	9,718	Exceeds MOP								53	2,198	130	10,840		
	1.0	3,723				2,835	3,957	5,080	6,203	7,326	8,448	9,571		10,694											2,049	10,694
	2.0	3,924				2,631	3,753	4,876	5,998	7,121	8,244	9,367		10,490											1,845	10,490
	3.0	4,091				2,384	3,505	4,627	5,748	6,870	7,991	9,113		10,235											1,599	10,235
	4.0	4,258				2,102	3,221	4,340	5,460	6,580	7,699	8,819		9,939											1,318	9,939
GVO-G0212-01R2	0.0	3,084			Please consult factory	2,331	3,454	4,576	5,698	6,821	7,943	9,066	Exceeds MOP								44	1,658	130	11,311		
	1.0	3,200				2,235	3,357	4,480	5,603	6,725	7,848	8,971		10,094											1,561	11,217
	2.0	3,335				2,097	3,219	4,342	5,464	6,587	7,710	8,833		9,955	11,078										1,423	11,078
	3.0	3,436				1,918	3,039	4,160	5,281	6,403	7,524	8,646		9,767	10,889										1,245	10,889
	4.0	3,532				1,709	2,828	3,947	5,067	6,186	7,306	8,425		9,545	10,665										1,037	10,665
GVO-G0212-01R3	0.0	2,694	1,600	2,722	3,844	4,966	6,089	7,211	8,333	9,456	10,579	11,701	Exceeds MOP							39	1,487	130	11,701			
	1.0	2,796	1,517	2,640	3,762	4,885	6,007	7,130	8,253	9,376	10,499	11,622											1,405	11,622		
	2.0	2,912	1,398	2,520	3,642	4,765	5,888	7,010	8,133	9,256	10,379	11,502											1,285	11,502		
	3.0	2,994	1,238	2,359	3,481	4,602	5,723	6,845	7,966	9,088	10,209	11,331											1,126	11,331		
	4.0	3,071	1,051	2,170	3,289	4,409	5,528	6,648	7,767	8,887	10,007	11,127											939	11,127		
GVO-G0212-01R4	0.0	2,330	1,963	3,085	4,208	5,330	6,452	7,575	8,697	9,820	10,942	12,065	Exceeds MOP							33	1,178	130	12,065			
	1.0	2,408	1,905	3,027	4,150	5,272	6,395	7,518	8,640	9,763	10,886	12,009											1,119	12,009		
	2.0	2,494	1,815	2,938	4,060	5,183	6,305	7,428	8,551	9,674	10,797	11,919											1,030	11,919		
	3.0	2,546	1,686	2,807	3,929	5,050	6,171	7,293	8,414	9,536	10,657	11,779											902	11,779		
	4.0	2,590	1,532	2,651	3,770	4,890	6,009	7,128	8,248	9,368	10,488	11,608											749	11,608		
GVO-G0212-01R5	0.0	1,819	2,474	3,596	4,719	5,841	6,963	8,086	9,208	10,331	11,453	12,576	Exceeds MOP							31	1,464	130	12,576			
	1.0	1,981	2,332	3,455	4,577	5,700	6,822	7,945	9,068	10,191	11,314	12,437											1,322	12,437		
	2.0	2,173	2,137	3,259	4,382	5,504	6,627	7,749	8,872	9,995	11,118	12,241											1,126	12,241		
	3.0	2,331	1,902	3,023	4,144	5,265	6,386	7,508	8,629	9,751	10,872	11,994											893	11,994		
	4.0	2,489	1,632	2,752	3,871	4,990	6,109	7,229	8,349	9,468	10,588	11,708											625	11,708		
GVO-G0212-01R6	0.0	1,318	2,975	4,097	5,220	6,342	7,464	8,587	9,709	10,832	11,954	13,077	Exceeds MOP							23	1,068	130	13,077			
	1.0	1,441	2,872	3,994	5,117	6,240	7,362	8,485	9,608	10,731	11,853	12,976											964	12,976		
	2.0	1,584	2,726	3,848	4,971	6,093	7,216	8,339	9,461	10,584	11,707	12,830											818	12,830		
	3.0	1,693	2,540	3,661	4,782	5,904	7,025	8,146	9,268	10,389	11,511	12,633											635	12,633		
	4.0	1,797	2,324	3,444	4,563	5,682	6,801	7,921	9,041	10,160	11,280	12,400											422	12,400		

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0214-01R0	0.0	4,391		Please consult factory	3,571	4,934	6,298	7,661	9,025	Exceeds MOP											57	3,162	105	9,707		
	1.0	4,687			3,297	4,661	6,025	7,389	8,753																2,888	9,435
	2.0	5,049			2,932	4,295	5,659	7,023	8,387																2,523	9,069
	3.0	5,373			2,519	3,881	5,243	6,606	7,968																2,110	8,650
	4.0	5,708			2,054	3,414	4,775	6,135	7,495																1,646	8,175
GVO-G0214-01R1	0.0	3,543		Please consult factory	3,055	4,418	5,782	7,145	8,509	Exceeds MOP											43	2,101	105	10,554		
	1.0	3,713			2,908	4,271	5,635	6,999	8,363		9,727													1,953	10,409	
	2.0	3,914			2,703	4,067	5,431	6,795	8,158		9,522													1,749	10,204	
	3.0	4,076			2,453	3,815	5,178	6,540	7,902		9,265													1,500	9,946	
	4.0	4,238			2,165	3,525	4,885	6,245	7,605		8,966													1,213	9,646	
GVO-G0214-01R2	0.0	3,073	2,162	3,526	4,889	6,252	7,616	8,979	10,343	Exceeds MOP											36	1,617	105	11,025		
	1.0	3,190	2,067	3,430	4,794	6,158	7,522	8,886	10,250													1,521		10,932		
	2.0	3,325	1,928	3,292	4,656	6,019	7,383	8,747	10,111													1,383		10,793		
	3.0	3,422	1,746	3,108	4,470	5,832	7,194	8,557	9,919													1,201		10,601		
	4.0	3,512	1,532	2,891	4,251	5,611	6,971	8,332	9,692													988		10,372		
GVO-G0214-01R3	0.0	2,683	2,553	3,916	5,279	6,643	8,006	9,370	10,733	Exceeds MOP											32	1,462	105	11,415		
	1.0	2,785	2,471	3,835	5,199	6,563	7,926	9,290	10,654													1,380		11,336		
	2.0	2,902	2,352	3,715	5,079	6,443	7,806	9,170	10,534													1,261		11,216		
	3.0	2,980	2,188	3,550	4,912	6,274	7,636	8,999	10,361													1,098		11,042		
	4.0	3,050	1,993	3,353	4,713	6,073	7,433	8,793	10,154													905		10,834		
GVO-G0214-01R4	0.0	2,319	2,916	4,279	5,643	7,006	8,370	9,733	11,097	Exceeds MOP											27	1,144	105	11,779		
	1.0	2,398	2,859	4,222	5,586	6,950	8,314	9,678	11,042													1,086		11,724		
	2.0	2,484	2,769	4,133	5,497	6,860	8,224	9,588	10,952													997		11,634		
	3.0	2,532	2,636	3,998	5,360	6,722	8,084	9,447	10,809													865		11,490		
	4.0	2,569	2,474	3,834	5,194	6,554	7,914	9,274	10,634													706		11,315		
GVO-G0214-01R5	0.0	1,808	3,427	4,791	6,154	7,517	8,881	10,244	11,608	Exceeds MOP											26	1,519	105	12,290		
	1.0	1,970	3,286	4,650	6,014	7,378	8,741	10,105	11,469													1,377		12,151		
	2.0	2,163	3,091	4,454	5,818	7,182	8,546	9,909	11,273													1,182		11,955		
	3.0	2,317	2,851	4,213	5,575	6,937	8,299	9,662	11,024													944		11,706		
	4.0	2,469	2,574	3,934	5,294	6,654	8,014	9,374	10,735													671		11,415		

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0216-01R0	0.0	4,376	Please consult factory	4,365	6,163	7,961	9,759	Exceeds MOP													43	3,107	80	9,759		
	1.0	4,673		4,093	5,891	7,690	9,488																	2,834	9,488	
	2.0	5,035		3,727	5,525	7,324	9,122																		2,468	9,122
	3.0	5,354		3,310	5,106	6,903	8,699																		2,052	8,699
	4.0	5,682		2,838	4,632	6,426	8,220																		1,582	8,220
GVO-G0216-01R1	0.0	3,529	3,415	5,213	7,011	8,809	10,607	Exceeds MOP													32	1,977	80	10,607		
	1.0	3,699	3,269	5,067	6,866	8,664	10,462																	1,830	10,462	
	2.0	3,900	3,064	4,863	6,661	8,459	10,258																	1,626	10,258	
	3.0	4,057	2,810	4,606	6,402	8,199	9,996																	1,372	9,996	
	4.0	4,211	2,515	4,308	6,102	7,896	9,691																	1,080	9,691	
GVO-G0216-01R2	0.0	3,058	3,886	5,683	7,481	9,279	11,077	Exceeds MOP													27	1,549	80	11,077		
	1.0	3,177	3,791	5,590	7,388	9,186	10,985																	1,454	10,985	
	2.0	3,311	3,653	5,451	7,249	9,048	10,846																	1,315	10,846	
	3.0	3,403	3,464	5,261	7,057	8,854	10,650																	1,129	10,650	
	4.0	3,485	3,241	5,035	6,829	8,623	10,417																	909	10,417	
GVO-G0216-01R3	0.0	2,668	4,276	6,074	7,872	9,670	11,468	Exceeds MOP													24	1,400	80	11,468		
	1.0	2,772	4,196	5,995	7,793	9,591	11,390																	1,319	11,390	
	2.0	2,888	4,076	5,874	7,673	9,471	11,269																	1,199	11,269	
	3.0	2,961	3,906	5,702	7,499	9,295	11,092																	1,032	11,092	
	4.0	3,023	3,703	5,496	7,290	9,084	10,879																	833	10,879	
GVO-G0209-02R1	0.0	5,144																				141	3,090	200	6,595	
	1.0	5,389																					2,845		6,350	
	2.0	5,635																					2,582		6,085	
	3.0	5,885																					2,263		5,761	
	4.0	6,149																					1,917		5,409	
GVO-G0209-02R2	0.0	4,515																				123	2,650	200	7,223	
	1.0	4,709																					2,456		7,029	
	2.0	4,903																					2,246		6,817	
	3.0	5,095																					1,986		6,551	
	4.0	5,297																					1,704		6,260	
GVO-G0209-02R3	0.0	4,045																				110	2,349	200	7,694	
	1.0	4,221																					2,173		7,518	
	2.0	4,396																					1,982		7,324	
	3.0	4,568																					1,743		7,078	
	4.0	4,748																					1,484		6,810	
GVO-G0209-02R4	0.0	3,560																				99	2,181	200	8,179	
	1.0	3,732																					2,008		8,006	
	2.0	3,904																					1,821		7,817	
	3.0	4,071																					1,588		7,574	
	4.0	4,247																					1,334		7,310	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200							
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0210-02R1	0.0	5,135								Please consult factory	3,348	4,133	4,918	5,704	6,489	7,274	8,060	8,845	Exceeds MOP	107	185	3,112	9,238			
	1.0	5,380								3,103	3,888	4,673	5,459	6,244	7,029	7,815	8,600	2,867				8,993				
	2.0	5,626								2,839	3,624	4,409	5,194	5,979	6,764	7,550	8,335	2,604				8,727				
	3.0	5,872								2,518	3,302	4,085	4,870	5,654	6,438	7,222	8,006	2,282				8,399				
	4.0	6,132								2,169	2,952	3,735	4,517	5,300	6,083	6,866	7,650	1,934				8,041				
GVO-G0210-02R2	0.0	4,507								Please consult factory	3,191	3,976	4,762	5,547	6,332	7,117	7,903	8,688	9,474	Exceeds MOP	92	185	2,563	8,867		
	1.0	4,701								2,997	3,782	4,568	5,353	6,138	6,923	7,709	8,494	9,280	2,369				9,673			
	2.0	4,894								2,786	3,571	4,356	5,141	5,926	6,711	7,496	8,282	9,067	2,158				9,460			
	3.0	5,083								2,524	3,308	4,092	4,875	5,660	6,444	7,228	8,012	8,796	1,897				9,189			
	4.0	5,281								2,238	3,021	3,804	4,586	5,369	6,152	6,935	7,718	8,501	1,612				8,893			
GVO-G0210-02R3	0.0	4,036								Please consult factory	2,877	3,662	4,447	5,232	6,017	6,803	7,588	8,373	9,159	9,944	Exceeds MOP	83	185	2,327	10,337	
	1.0	4,212								2,701	3,486	4,271	5,056	5,841	6,627	7,412	8,197	8,983	9,768	2,151				10,161		
	2.0	4,387								2,509	3,293	4,078	4,863	5,648	6,433	7,219	8,004	8,789	9,574	1,959				9,967		
	3.0	4,555								2,268	3,051	3,835	4,619	5,403	6,187	6,971	7,755	8,540	9,324	1,719				9,716		
	4.0	4,731								2,005	2,788	3,570	4,353	5,136	5,919	6,701	7,484	8,268	9,051	1,458				9,442		
GVO-G0210-02R4	0.0	3,551								Please consult factory	2,577	3,362	4,147	4,932	5,717	6,503	7,288	8,073	8,859	9,644	10,430	Exceeds MOP	74	185	2,106	10,822
	1.0	3,724								2,404	3,189	3,974	4,760	5,545	6,330	7,115	7,901	8,686	9,472	10,257	1,933				10,650	
	2.0	3,894								2,216	3,001	3,786	4,571	5,356	6,141	6,926	7,711	8,496	9,281	10,066	1,745				10,459	
	3.0	4,059								1,980	2,764	3,548	4,331	5,115	5,899	6,683	7,467	8,252	9,036	9,820	1,510				10,212	
	4.0	4,231								1,723	2,506	3,288	4,071	4,853	5,636	6,419	7,202	7,985	8,768	9,551	1,254				9,943	
GVO-G0212-02R1	0.0	5,122								Please consult factory	3,681	4,803	5,926	7,049	8,172	9,295						Exceeds MOP	74	130	3,007	9,295
	1.0	5,367								3,435	4,558	5,681	6,804	7,927	9,050						2,762				9,050	
	2.0	5,612								3,171	4,293	5,416	6,538	7,661	8,783						2,497				8,783	
	3.0	5,853								2,845	3,967	5,088	6,209	7,330	8,452						2,173				8,452	
	4.0	6,106								2,493	3,612	4,732	5,851	6,971	8,091						1,821				8,091	
GVO-G0212-02R2	0.0	4,494								Please consult factory	3,186	4,309	5,432	6,554	7,677	8,800	9,923					Exceeds MOP	65	130	2,625	9,923
	1.0	4,688								2,992	4,115	5,238	6,360	7,483	8,606	9,729					2,431				9,729	
	2.0	4,879								2,781	3,903	5,025	6,148	7,270	8,393	9,516					2,219				9,516	
	3.0	5,063								2,514	3,635	4,757	5,878	6,999	8,120	9,242					1,954				9,242	
	4.0	5,255								2,225	3,344	4,464	5,583	6,703	7,823	8,943					1,665				8,943	
GVO-G0212-02R3	0.0	4,023								Please consult factory	2,534	3,657	4,780	5,902	7,025	8,148	9,271	10,394				Exceeds MOP	58	130	2,310	10,394
	1.0	4,199								2,358	3,481	4,604	5,726	6,849	7,972	9,095	10,218				2,134				10,218	
	2.0	4,372								2,165	3,288	4,410	5,532	6,655	7,777	8,900	10,023				1,941				10,023	
	3.0	4,535								1,921	3,042	4,163	5,284	6,405	7,527	8,648	9,769				1,697				9,769	
	4.0	4,705								1,655	2,774	3,894	5,013	6,133	7,253	8,372	9,492				1,431				9,492	
GVO-G0212-02R4	0.0	3,538								Please consult factory	3,019	4,142	5,265	6,387	7,510	8,633	9,756	10,879				Exceeds MOP	52	130	2,121	10,879
	1.0	3,711								2,847	3,969	5,092	6,215	7,338	8,460	9,583	10,706				1,949				10,706	
	2.0	3,880								2,658	3,780	4,902	6,025	7,147	8,270	9,392	10,515				1,760				10,515	
	3.0	4,039								2,417	3,538	4,659	5,780	6,902	8,023	9,144	10,266				1,521				10,266	
	4.0	4,205								2,155	3,275	4,394	5,514	6,633	7,753	8,873	9,993				1,260				9,993	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)				
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200			
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0214-02R1	0.0	5,112			2,872	4,236	5,600	6,963	8,327	Exceeds MOP											60	2,872	105	9,009		
	1.0	5,357		Please consult factory	2,627	3,991	5,354	6,718	8,082																2,627	8,764
	2.0	5,600			2,361	3,725	5,088	6,452	7,815																2,361	8,497
	3.0	5,837			2,033	3,395	4,757	6,119	7,481																2,033	8,162
	4.0	6,086			1,677	3,037	4,397	5,758	7,118																1,677	7,798
GVO-G0214-02R2	0.0	4,484			Please consult factory	3,500	4,864	6,228	7,592	8,956	Exceeds MOP												53	2,546	105	9,638
	1.0	4,678		3,306		4,670	6,034	7,398	8,762															2,352		9,444
	2.0	4,868		3,094		4,457	5,820	7,184	8,548															2,139		9,229
	3.0	5,047		2,823		4,185	5,547	6,909	8,271															1,870		8,952
	4.0	5,234		2,529		3,889	5,249	6,609	7,970															1,577		8,650
GVO-G0214-02R3	0.0	4,013		Please consult factory	2,607	3,971	5,335	6,698	8,062	Exceeds MOP												48	2,334	105	10,108	
	1.0	4,189			2,431	3,795	5,159	6,522	7,886		9,250														2,158	9,932
	2.0	4,361			2,237	3,601	4,964	6,328	7,691		9,055														1,965	9,737
	3.0	4,520			1,989	3,351	4,713	6,075	7,437		8,799														1,717	9,480
	4.0	4,685			1,718	3,078	4,438	5,798	7,159		8,519														1,446	9,199
GVO-G0214-02R4	0.0	3,528		Please consult factory	3,092	4,456	5,820	7,184	8,548	Exceeds MOP												43	2,138	105	10,594	
	1.0	3,701			2,920	4,283	5,647	7,011	8,375		9,739														1,965	10,421
	2.0	3,869			2,730	4,093	5,456	6,820	8,183		9,547														1,775	10,229
	3.0	4,024			2,485	3,847	5,209	6,571	7,933		9,295														1,532	9,976
	4.0	4,184			2,219	3,579	4,939	6,299	7,659		9,020														1,267	9,700
GVO-G0216-02R1	0.0	5,099		Please consult factory	3,668	5,466	7,264	9,063	Exceeds MOP													46	2,948	80	9,063	
	1.0	5,344			3,423	5,221	7,019	8,818																	2,703	8,818
	2.0	5,586			3,156	4,954	6,752	8,550																	2,437	8,550
	3.0	5,817			2,823	4,619	6,415	8,211																	2,104	8,211
	4.0	6,059			2,461	4,255	6,049	7,843																	1,743	7,843
GVO-G0216-02R2	0.0	4,470	2,498		4,296	6,094	7,893	9,691	Exceeds MOP													40	2,498	80	9,691	
	1.0	4,664	2,304		4,102	5,900	7,699	9,497															2,304		9,497	
	2.0	4,853	2,090		3,888	5,686	7,484	9,282															2,090		9,282	
	3.0	5,027	1,817		3,613	5,409	7,205	9,001															1,817		9,001	
	4.0	5,207	1,519		3,312	5,106	6,900	8,695															1,519		8,695	
GVO-G0216-02R3	0.0	4,000	2,968		4,767	6,565	8,363	10,162	Exceeds MOP													36	2,249	80	10,162	
	1.0	4,176	2,792		4,591	6,389	8,187	9,986															2,073		9,986	
	2.0	4,346	2,597		4,395	6,193	7,991	9,789															1,878		9,789	
	3.0	4,500	2,344		4,140	5,936	7,733	9,529															1,626		9,529	
	4.0	4,658	2,068		3,862	5,656	7,450	9,244															1,350		9,244	
GVO-G0216-02R4	0.0	3,515	3,453		5,252	7,050	8,848	10,647	Exceeds MOP													32	2,015	80	10,647	
	1.0	3,687	3,281		5,079	6,878	8,676	10,474															1,842		10,474	
	2.0	3,854	3,090		4,887	6,685	8,483	10,281															1,651		10,281	
	3.0	4,003	2,841		4,637	6,433	8,229	10,025															1,404		10,025	
	4.0	4,158	2,568		4,362	6,156	7,950	9,744															1,133		9,744	

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G0314-03R1	0.0	6,442						5,396	6,754	8,112	9,470	10,828	Exceeds MOP								88	5,125	135	11,507	
	2.0	7,038						4,977	6,337	7,698	9,058	10,419												4,705	11,099
	4.0	7,615						4,430	5,791	7,152	8,513	9,874												4,158	10,554
	6.0	8,216						3,775	5,135	6,495	7,855	9,216												3,503	9,896
	8.0	8,832						2,978	4,335	5,693	7,050	8,408												2,706	9,087
GVO-G0314-03R2	0.0	5,606						4,875	6,233	7,591	8,948	10,306	Exceeds MOP								77	4,468	135	12,344	
	2.0	6,136						4,519	5,879	7,239	8,600	9,961		11,321										4,110	12,002
	4.0	6,642						4,043	5,403	6,764	8,125	9,486		10,848										3,634	11,528
	6.0	7,163						3,467	4,827	6,188	7,548	8,908		10,268										3,059	10,948
	8.0	7,692						2,761	4,118	5,475	6,833	8,190		9,548										2,354	10,227
GVO-G0314-03R3	0.0	4,886						4,238	5,595	6,953	8,311	9,669	11,027	Exceeds MOP								68	3,967	135	13,064
	2.0	5,359						3,935	5,295	6,656	8,016	9,377	10,737		12,098								3,663		12,778
	4.0	5,804						3,520	4,880	6,241	7,602	8,963	10,324		11,685								3,247		12,366
	6.0	6,258						3,013	4,373	5,733	7,093	8,453	9,813		11,174								2,741		11,854
	8.0	6,711						2,384	3,741	5,098	6,456	7,813	9,170		10,528								2,113		11,207
GVO-G0314-03R4	0.0	4,267						3,500	4,857	6,214	7,572	8,930	10,288	Exceeds MOP								59	3,364	135	13,683
	2.0	4,692						3,242	4,603	5,963	7,323	8,684	10,044		11,405	12,765							3,106		13,446
	4.0	5,084						2,879	4,240	5,601	6,962	8,322	9,683		11,044	12,406							2,743		13,086
	6.0	5,479						2,432	3,791	5,151	6,511	7,871	9,232		10,592	11,952							2,296		12,632
	8.0	5,868						1,870	3,227	4,584	5,941	7,299	8,656		10,014	11,371							1,735		12,050
GVO-G0316-03R1	0.0	6,417						5,695	7,487	9,278	11,070	Exceeds MOP										67	5,157	105	11,966
	2.0	7,023						5,282	7,077	8,872	10,667												4,744		11,565
	4.0	7,602						4,737	6,532	8,328	10,123												4,198		11,021
	6.0	8,199						4,080	5,874	7,669	9,463												3,542		10,361
	8.0	8,805						3,275	5,066	6,858	8,649												2,738		9,545
GVO-G0316-03R2	0.0	5,581						4,740	6,531	8,323	10,115	11,907	Exceeds MOP									58	4,382	105	12,803
	2.0	6,121						4,390	6,185	7,980	9,775	11,570											4,031		12,467
	4.0	6,628						3,915	5,711	7,506	9,301	11,097											3,556		11,995
	6.0	7,147						3,338	5,132	6,927	8,721	10,516											2,979		11,413
	8.0	7,665						2,624	4,415	6,206	7,998	9,789											2,266		10,685
GVO-G0316-03R3	0.0	4,861						5,460	7,252	9,043	10,835	12,627	Exceeds MOP									51	3,848	105	13,523
	2.0	5,344						5,167	6,962	8,756	10,551	12,346											3,551		13,244
	4.0	5,790						4,753	6,548	8,344	10,139	11,935											3,137		12,833
	6.0	6,242						4,243	6,038	7,832	9,627	11,421											2,628		12,318
	8.0	6,685						3,605	5,396	7,187	8,978	10,769											1,993		11,665
GVO-G0316-03R4	0.0	4,242						4,288	6,079	7,871	9,662	11,454	Exceeds MOP									45	3,392	105	14,142
	2.0	4,677						4,040	5,834	7,629	9,424	11,219		13,014									3,142		13,912
	4.0	5,070						3,678	5,473	7,269	9,064	10,860		12,655									2,780		13,553
	6.0	5,463						3,228	5,022	6,816	8,611	10,405		12,200									2,330		13,097
	8.0	5,841						2,657	4,448	6,239	8,030	9,821		11,613									1,762		12,508

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)										
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200									
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																													
GVO-G0320-03R1	0.0	6,368	Please consult factory	7,298	10,137	Exceeds MOP															42	5,028	65	11,557								
	2.0	6,994		6,903	9,746																				4,629	11,168						
	4.0	7,575		6,361	9,204																					4,086	10,626					
	6.0	8,167		5,698	8,541																						3,425	9,962				
	8.0	8,752		4,876	7,714																							2,606	9,133			
GVO-G0320-03R2	0.0	5,531	5,296	8,135	10,974	Exceeds MOP																37	4,445	65	12,393							
	2.0	6,091	4,963	7,806	10,649																						4,110	12,070				
	4.0	6,602	4,491	7,335	10,178																							3,638	11,600			
	6.0	7,114	3,909	6,751	9,593																								3,056	11,014		
	8.0	7,612	3,178	6,016	8,854																									2,327	10,273	
GVO-G0320-03R3	0.0	4,811	6,017	8,855	11,694	Exceeds MOP																	32	3,746	65	13,113						
	2.0	5,314	5,740	8,583	11,425																									3,466	12,847	
	4.0	5,764	5,329	8,172	11,016																									3,054	12,438	
	6.0	6,209	4,814	7,656	10,498																										2,540	11,920
	8.0	6,632	4,158	6,996	9,834																										1,888	11,253
GVO-G0320-03R4	0.0	4,192	6,636	9,474	12,313	Exceeds MOP																		28	3,230	65	13,732					
	2.0	4,647	6,407	9,250	12,093																										2,996	13,514
	4.0	5,044	6,049	8,893	11,736																										2,637	13,158
	6.0	5,430	5,593	8,435	11,277																										2,182	12,698
	8.0	5,788	5,002	7,839	10,677																											1,596

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)									
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200								
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																												
GVO-G0412-04R2	0.0	8,641																			Please consult factory	8,809	9,923	11,037	12,151	13,265	159	200	8,697	13,265	
	2.5	9,685																					7,948	9,064	10,180	11,297			12,413	7,837	12,413
	5.0	10,756																					6,919	8,035	9,152	10,269			11,386	6,807	11,386
	7.5	11,926																					5,700	6,816	7,932	9,048			10,165	5,589	10,165
	10.0	13,179																					4,261	5,374	6,488	7,602			8,716	4,149	8,716
GVO-G0412-04R3	0.0	7,288												7,934	9,048	10,161	11,275	12,389	13,503	14,617	Please consult factory	134	200	7,266	14,617						
	2.5	8,176												7,226	8,342	9,458	10,574	11,690	12,806	13,922				6,556	13,922						
	5.0	9,076												6,366	7,482	8,599	9,715	10,832	11,949	13,065				5,696	13,065						
	7.5	10,054												5,340	6,456	7,572	8,688	9,804	10,920	12,036				4,670	12,036						
	10.0	11,094												4,119	5,232	6,346	7,460	8,574	9,688	10,802				3,451	10,802						
GVO-G0412-04R4	0.0	6,127																				Please consult factory	111	200	5,866	15,779					
	2.5	6,845												6,868	7,982	9,095	10,209	11,322	12,436	13,550	14,664				15,779	5,321	15,253				
	5.0	7,562												6,325	7,441	8,556	9,672	10,788	11,904	13,021	14,137				15,253	4,643	14,580				
	7.5	8,333												5,647	6,764	7,880	8,996	10,113	11,230	12,346	13,463				14,580	3,826	13,757				
	10.0	9,142												4,830	5,946	7,061	8,177	9,293	10,409	11,525	12,641				13,757	2,843	12,754				
GVO-G0414-04R1	0.0	10,261																				Please consult factory	149	200	9,511	16,420					
	2.5	11,359												9,646	11,001	12,355	13,710	15,065	16,420	8,615	15,538										
	5.0	12,481												7,675	9,033	10,390	11,748	13,106	14,464	6,262	14,464										
	7.5	13,704												6,397	7,754	9,112	10,469	11,826	13,184	4,749	13,184										
	10.0	15,012												4,884	6,239	7,593	8,948	10,303	11,658		11,658										
GVO-G0414-04R2	0.0	8,621																				Please consult factory	131	200	8,713	18,061					
	2.5	9,673												9,932	11,286	12,641	13,996	15,350	16,705	18,061	7,858				17,224						
	5.0	10,746												9,080	10,437	11,794	13,151	14,509	15,866	17,224	6,830				16,200						
	7.5	11,913												8,052	9,410	10,768	12,126	13,484	14,842	16,200	5,610				14,975						
	10.0	13,159												6,831	8,188	9,545	10,903	12,260	13,617	14,975	4,164				13,511						
GVO-G0414-04R3	0.0	7,268																				Please consult factory	110	200	7,221	19,413					
	2.5	8,164												7,221	8,575	9,930	11,284	12,639	13,993	15,348	16,703				18,058	19,413	6,518	18,733			
	5.0	9,066												6,518	7,875	9,232	10,589	11,946	13,304	14,661	16,018				17,376	18,733	5,659	17,879			
	7.5	10,042												4,632	5,989	7,346	8,703	10,060	11,417	12,774	14,131				15,489	16,846	4,632	16,846			
	10.0	11,073												3,406	4,760	6,114	7,468	8,823	10,177	11,532	12,887				14,242	15,597	3,406	15,597			
GVO-G0414-04R4	0.0	6,107																				Please consult factory	91	200	5,810	20,574					
	2.5	6,833												7,028	8,382	9,737	11,091	12,445	13,800	15,154	16,509				17,864	19,219	20,574	5,271	20,064		
	5.0	7,552												6,492	7,849	9,206	10,563	11,920	13,277	14,634	15,991				17,349	18,706	20,064	4,594	19,394		
	7.5	8,321												5,816	7,174	8,531	9,889	11,246	12,604	13,962	15,320				16,678	18,036	19,394	3,776	18,567		
	10.0	9,121												4,997	6,354	7,710	9,067	10,424	11,781	13,138	14,495				15,853	17,210	18,567	2,786	17,549		
														4,004	5,358	6,712	8,066	9,421	10,775	12,130	13,484	14,839	16,194	17,549		17,549					

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G0424-04R1	0.0	10,145	Please consult factory	9,832	13,953	18,075	Exceeds MOP														49	9,419	74	19,724
	2.5	11,290		8,963	13,090	17,216		8,551	18,867															
	5.0	12,422		7,893	12,021	16,148		7,480	17,799															
	7.5	13,633		6,608	10,735	14,861		6,196	16,512															
	10.0	14,894		5,068	9,190	13,312		4,656	14,960															
GVO-G0424-04R2	0.0	8,505	Please consult factory	11,472	15,593	19,715	Exceeds MOP														43	8,587	74	21,364
	2.5	9,604		10,649	14,776	18,902		7,761	20,553															
	5.0	10,687		9,628	13,756	17,884		6,739	19,535															
	7.5	11,842		8,400	12,526	16,652		5,511	18,303															
	10.0	13,041		6,922	11,043	15,165		4,037	16,814															
GVO-G0424-04R3	0.0	7,153	8,703	12,824	16,946	21,068	Exceeds MOP														36	7,054	74	22,717
	2.5	8,094	8,032	12,159	16,285	20,412		6,382	22,062															
	5.0	9,007	7,181	11,308	15,436	19,563		5,530	21,214															
	7.5	9,970	6,145	10,271	14,397	18,524		4,494	20,174															
	10.0	10,955	4,886	9,007	13,129	17,250		3,237	18,899															
GVO-G0424-04R4	0.0	5,991	9,864	13,985	18,107	22,229	Exceeds MOP														30	5,743	74	23,878
	2.5	6,764	9,363	13,489	17,616	21,742		5,237	23,393															
	5.0	7,493	8,695	12,822	16,950	21,078		4,567	22,729															
	7.5	8,249	7,866	11,992	16,119	20,245		3,740	21,896															
	10.0	9,003	6,838	10,959	15,081	19,203		2,717	20,851															
GVO-G0428-04R1	0.0	9,984	12,311	18,124	Exceeds MOP																34	8,824	50	18,124
	2.5	11,193	11,519	17,340		8,026	17,340																	
	5.0	12,340	10,466	16,289		6,972	16,289																	
	7.5	13,534	9,161	14,982		5,669	14,982																	
	10.0	14,730	7,544	13,356		4,057	13,356																	
GVO-G0428-04R2	0.0	8,344	13,951	19,764	Exceeds MOP																30	8,139	50	19,764
	2.5	9,507	13,205	19,026		7,384	19,026																	
	5.0	10,604	12,201	18,025		6,378	18,025																	
	7.5	11,743	10,952	16,773		5,131	16,773																	
	10.0	12,876	9,397	15,209		3,586	15,209																	
GVO-G0428-04R3	0.0	6,992	15,304	21,116	Exceeds MOP																25	6,586	50	21,116
	2.5	7,997	14,714	20,536		5,983	20,536																	
	5.0	8,925	13,881	19,704		5,146	19,704																	
	7.5	9,871	12,824	18,645		4,093	18,645																	
	10.0	10,791	11,483	17,295		2,765	17,295																	

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)					
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200				
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																								
GVO-G0516-05R2	0.0	13,580																		Please consult factory	18,112	19,894	21,677	179	200	17,933	21,677
	3.0	15,898																			15,979	17,764	19,548			15,801	19,548
	6.0	18,413																			13,484	15,268	17,053			13,305	17,053
	9.0	21,096																			10,729	12,513	14,297			10,550	14,297
	12.0	24,069																			7,544	9,326	11,108			7,366	11,108
GVO-G0516-05R3	0.0	11,434																		Please consult factory	14,911	16,693	18,476	144	200	13,842	23,824
	3.0	13,189																	13,335		15,119	16,904	12,264			22,258	
	6.0	15,075																	11,467		13,252	15,036	10,396			20,391	
	9.0	17,079																	9,394		11,178	12,962	8,324			18,314	
	12.0	19,287																	6,982		8,763	10,545	5,913			15,890	
GVO-G0516-05R4	0.0	9,671																		Please consult factory	13,110	14,892	16,674	121	200	11,506	25,587
	3.0	11,114																	11,841		13,625	15,409	10,235			24,332	
	6.0	12,653																	10,320		12,105	13,889	8,714			22,813	
	9.0	14,281																	8,625		10,408	12,192	7,019			21,112	
	12.0	16,065																	6,641		8,422	10,204	5,038			19,112	
GVO-G0520-05R1	0.0	16,011																		Please consult factory	20,296	23,125	25,955	125	175	18,881	33,031
	3.0	18,384																	18,141		20,973	23,806	16,725			30,888	
	6.0	20,944																	15,604		18,437	21,270	14,188			28,353	
	9.0	23,666																	12,797		15,629	18,461	11,381			25,541	
	12.0	26,671																	9,542		12,371	15,200	8,128			22,273	
GVO-G0520-05R2	0.0	13,535																		Please consult factory	19,942	22,772	25,602	112	175	17,679	35,507
	3.0	15,869																	17,823		20,655	23,488	15,557			33,403	
	6.0	18,386																	15,329		18,162	20,995	13,063			30,910	
	9.0	21,063																	12,569		15,401	18,232	10,303			28,145	
	12.0	24,016																	9,369		12,198	15,026	7,107			24,928	
GVO-G0520-05R3	0.0	11,388																		Please consult factory	13,600	16,430	19,259	90	175	13,600	37,654
	3.0	13,160																	12,035		14,867	17,700	12,035			36,112	
	6.0	15,049																	10,168		13,001	15,834	10,168			34,248	
	9.0	17,046																	8,091		10,922	13,754	8,091			32,161	
	12.0	19,234																	5,667		8,495	11,323	5,667			29,710	
GVO-G0520-05R4	0.0	9,625																		Please consult factory	12,534	15,363	18,193	76	175	11,403	39,417
	3.0	11,086																	11,277		14,110	16,942	10,144			38,187	
	6.0	12,627																	9,758		12,591	15,423	8,625			36,670	
	9.0	14,248																	8,058		10,889	13,721	6,925			34,960	
	12.0	16,012																	6,061		8,889	11,717	4,930			32,932	

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200		
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G0524-05R1	0.0	15,978						20,529	24,645	28,762	32,879	36,996	Exceeds MOP								86	18,882	135	39,055	
	3.0	18,363						18,378	22,498	26,618	30,738	34,858										16,730		36,918	
	6.0	20,924						15,842	19,963	24,083	28,203	32,324										14,194		34,384	
	9.0	23,642						13,033	17,152	21,271	25,391	29,510										11,386		31,569	
	12.0	26,633						9,774	13,889	18,004	22,120	26,236										8,128		28,294	
GVO-G0524-05R2	0.0	13,501						18,889	23,005	27,122	31,239	35,355	39,472	Exceeds MOP								77	17,654	135	41,531
	3.0	15,849						16,773	20,893	25,013	29,133	33,253	37,373										15,537		39,433
	6.0	18,367						14,279	18,400	22,520	26,640	30,760	34,881										13,043		36,941
	9.0	21,038						11,518	15,637	19,756	23,875	27,994	32,113										10,282		34,173
	12.0	23,977						8,314	12,429	16,544	20,660	24,775	28,891										7,080		30,949
GVO-G0524-05R3	0.0	11,355			12,803	16,919	21,035	25,152	29,268	33,385	37,502	41,619	Exceeds MOP								60	12,803	135	43,677	
	3.0	13,139			11,243	15,363	19,482	23,602	27,722	31,842	35,962	40,082										11,243		42,142	
	6.0	15,030			9,377	13,497	17,617	21,737	25,857	29,978	34,098	38,219										9,377		40,279	
	9.0	17,022			7,298	11,416	15,535	19,654	23,773	27,892	32,011	36,130										7,298		38,190	
	12.0	19,195			4,867	8,982	13,097	17,211	21,327	25,442	29,557	33,673										4,867		35,731	
GVO-G0524-05R4	0.0	9,592			14,566	18,682	22,798	26,915	31,031	35,148	39,265	43,382	Exceeds MOP								52	11,273	135	45,440	
	3.0	11,065			13,318	17,437	21,557	25,677	29,797	33,916	38,037	42,157										10,022		44,217	
	6.0	12,607			11,799	15,919	20,039	24,159	28,280	32,400	36,520	40,641										8,503		42,701	
	9.0	14,224			10,096	14,214	18,333	22,452	26,571	30,690	34,809	38,928										6,801		40,988	
	12.0	15,974			8,089	12,204	16,318	20,433	24,548	28,664	32,779	36,895										4,797		38,953	
GVO-G0528-05R1	0.0	15,836			18,190	23,999	29,808	35,617	Exceeds MOP											60	18,190	95	38,522		
	3.0	18,275			16,104	21,919	27,735	33,550												16,104	36,458				
	6.0	20,842			13,575	19,391	25,207	31,023												13,575	33,931				
	9.0	23,539			10,741	16,554	22,368	28,182												10,741	31,089				
	12.0	26,468			7,408	13,214	19,020	24,826												7,408	27,730				
GVO-G0528-05R2	0.0	13,360			20,667	26,475	32,284	38,093	Exceeds MOP											54	17,182	95	40,998		
	3.0	15,761			18,618	24,434	30,249	36,065												15,129	38,973				
	6.0	18,285			16,132	21,948	27,764	33,580												12,642	36,489				
	9.0	20,935			13,344	19,158	24,971	30,785												9,856	33,692				
	12.0	23,813			10,064	15,869	21,675	27,482												6,580	30,385				
GVO-G0528-05R3	0.0	11,213			17,005	22,813	28,622	34,431	40,240	Exceeds MOP										44	13,520	95	43,145		
	3.0	13,051			15,513	21,328	27,143	32,958	38,774											12,024	41,682				
	6.0	14,947			13,654	19,469	25,285	31,102	36,918											10,164	39,826				
	9.0	16,919			11,548	17,361	23,174	28,988	34,802											8,060	37,709				
	12.0	19,031			9,040	14,846	20,652	26,458	32,264											5,557	35,167				
GVO-G0528-05R4	0.0	9,450	12,960	18,768	24,576	30,385	36,194	42,003	Exceeds MOP											37	11,218	95	44,908		
	3.0	10,977	11,772	17,587	23,402	29,217	35,033	40,849												10,028	43,756				
	6.0	12,525	10,260	16,076	21,892	27,708	33,524	39,340												8,516	42,248				
	9.0	14,120	8,533	14,346	20,159	25,973	31,786	37,600												6,789	40,507				
	12.0	15,809	6,457	12,262	18,068	23,873	29,679	35,486												4,716	38,389				

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)								
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200							
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																											
GVO-G0532-05R1	0.0	15,779	Please consult factory	21,264	28,860	36,457	Exceeds MOP														46	18,226	70	36,457						
	3.0	18,240		19,198	26,802	34,406																		16,156	34,406					
	6.0	20,809		16,671	24,276	31,881																			13,629	31,881				
	9.0	23,497		13,829	21,431	29,033																				10,788	29,033			
	12.0	26,402		10,473	18,066	25,660																				7,436	25,660			
GVO-G0532-05R2	0.0	13,303	Please consult factory	23,741	31,337	38,933	Exceeds MOP															41	16,904	70	38,933					
	3.0	15,725		21,712	29,317	36,921																			14,869	36,921				
	6.0	18,252		19,228	26,833	34,438																				12,384	34,438			
	9.0	20,894		16,433	24,034	31,637																				9,591	31,637			
	12.0	23,747		13,129	20,722	28,315																				6,296	28,315			
GVO-G0532-05R3	0.0	11,156	18,291	25,887	33,483	41,080	Exceeds MOP															33	12,974	70	41,080					
	3.0	13,016	16,818	24,422	32,026	39,630																			11,495	39,630				
	6.0	14,914	14,961	22,566	30,171	37,776																			9,638	37,776				
	9.0	16,877	12,848	20,449	28,051	35,653																				7,527	35,653			
	12.0	18,964	10,319	17,911	25,504	33,097																				5,004	33,097			
GVO-G0532-05R4	0.0	9,393	20,054	27,650	35,246	42,843	Exceeds MOP																28	10,940	70	42,843				
	3.0	10,941	18,892	26,496	34,100	41,705																				9,768	41,705			
	6.0	12,492	17,383	24,988	32,593	40,198																				8,258	40,198			
	9.0	14,079	15,646	23,247	30,849	38,452																					6,524	38,452		
	12.0	15,743	13,540	21,133	28,726	36,319																					4,430	36,319		
GVO-G0536-05R1	0.0	15,722	21,717	31,340	Exceeds MOP																		36	17,869	55	36,152				
	3.0	18,204	19,669	29,301																							15,816	34,117		
	6.0	20,776	17,144	26,777																							13,291	31,593		
	9.0	23,455	14,295	23,925																								10,444	28,739	
	12.0	26,336	10,919	20,538																								7,072	25,348	
GVO-G0536-05R2	0.0	13,245	24,194	33,817	Exceeds MOP																			33	17,458	55	38,628			
	3.0	15,690	22,184	31,815																								15,442	36,631	
	6.0	18,218	19,701	29,334																								12,959	34,150	
	9.0	20,852	16,899	26,528																								10,159	31,343	
	12.0	23,680	13,574	23,193																									6,842	28,003
GVO-G0536-05R3	0.0	11,099	26,340	35,963	Exceeds MOP																			26	12,869	55	40,775			
	3.0	12,980	24,893	34,525																								11,409	39,341	
	6.0	14,881	23,039	32,671																								9,553	37,488	
	9.0	16,835	20,916	30,545																									7,435	35,359
	12.0	18,898	18,357	27,975																									4,891	32,785

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)														
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200													
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																	
GVO-G0720-07R3	0.0	17,205																			Please consult factory	24,435	27,252	30,069	32,887	35,704	38,522	147	23,590	200	38,522					
	4.0	20,284																					21,656	24,477	27,298	30,119	32,941				35,762	20,810	35,762			
	8.0	23,634																					18,382	21,204	24,026	26,848	29,670				32,492	17,535	32,492			
	12.0	27,352																					14,584	17,405	20,226	23,047	25,868				28,689	13,737	28,689			
	16.0	31,347																					10,282	13,099	15,916	18,734	21,551				24,369	9,437	24,369			
GVO-G0720-07R4	0.0	14,600																			Please consult factory	21,407	24,223	27,040	29,857	32,675	35,492	38,310	41,128	124	19,717	200	41,128			
	4.0	17,164																				19,134	21,955	24,776	27,597	30,418	33,239	36,061	38,882				17,442	38,882		
	8.0	19,938																				16,435	19,256	22,078	24,900	27,722	30,544	33,367	36,189				14,742	36,189		
	12.0	23,004																				13,290	16,111	18,931	21,752	24,573	27,394	30,216	33,037				11,598	33,037		
	16.0	26,285																				9,711	12,528	15,344	18,161	20,979	23,796	26,614	29,431				8,021	29,431		
GVO-G0724-07R1	0.0	23,238																			Please consult factory	33,522	37,626	41,730	45,834	49,939							Exceeds MOP	138	180	49,939
	4.0	27,530																		29,564		33,672	37,781	41,889	45,998						28,742	45,998				
	8.0	32,227																		24,951		29,061	33,170	37,280	41,390						24,130	41,390				
	12.0	37,456																		19,633		23,741	27,850	31,958	36,067						18,812	36,067				
	16.0	43,099																		13,650		17,753	21,857	25,962	30,066						12,829	30,066				
GVO-G0724-07R2	0.0	20,633																			Please consult factory	32,023	36,127	40,231	44,335	48,440	52,544						Exceeds MOP	122	180	52,544
	4.0	24,410																		28,576		32,684	36,792	40,901	45,009	49,118					25,289	49,118				
	8.0	28,531																		24,539		28,648	32,757	36,867	40,977	45,086					21,251	45,086				
	12.0	33,108																		19,873		23,981	28,089	32,197	36,306	40,415					16,586	40,415				
	16.0	38,036																		14,608		18,712	22,816	26,920	31,024	35,128					11,325	35,128				
GVO-G0724-07R3	0.0	17,165																			Please consult factory	27,284	31,387	35,491	39,595	43,699	47,803	51,907	56,012	Exceeds MOP	101	180	56,012			
	4.0	20,259																		24,510		28,618	32,726	36,834	40,943	45,051	49,160	53,269	20,813				53,269			
	8.0	23,614																		21,237		25,346	29,455	33,565	37,674	41,784	45,893	50,003	17,539				50,003			
	12.0	27,327																		17,438		21,546	25,654	29,762	33,870	37,978	42,087	46,196	13,741				46,196			
	16.0	31,307																		13,131		17,234	21,338	25,442	29,545	33,649	37,754	41,858	9,439				41,858			
GVO-G0724-07R4	0.0	14,560																			Please consult factory	21,683	25,786	29,889	33,993	38,096	42,200	46,304	50,408	54,513	58,617	Exceeds MOP	85	180	58,617	
	4.0	17,139																		19,415		23,522	27,630	31,738	35,846	39,954	44,063	48,171	52,280	56,388	17,361				56,388	
	8.0	19,918																		16,716		20,825	24,934	29,043	33,152	37,261	41,371	45,480	49,590	53,700	14,661				53,700	
	12.0	22,980																		13,570		17,678	21,785	25,893	30,001	34,109	38,218	42,326	46,435	50,543	11,516				50,543	
	16.0	26,244																		9,988		14,090	18,193	22,297	26,400	30,504	34,608	38,712	42,816	46,920	7,936				46,920	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)					
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200									
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																									
GVO-G0728-07R1	0.0	23,078							33,859	39,654	45,450	51,246	Exceeds MOP								97	32,121	135	54,144				
	4.0	27,432						29,985	35,788	41,592	47,396													28,244	50,298			
	8.0	32,146						25,394	31,199	37,005	42,811													23,652	45,714			
	12.0	37,358						20,053	25,856	31,660	37,463													18,312	40,365			
	16.0	42,936						13,984	19,779	25,574	31,370													12,246	34,268			
GVO-G0728-07R2	0.0	20,473						30,670	36,464	42,260	48,055	53,851	Exceeds MOP								86	28,352	135	56,749				
	4.0	24,313					27,302	33,105	38,908	44,712	50,516													24,980	53,418			
	8.0	28,449					23,285	29,090	34,896	40,702	46,507													20,963	49,410			
	12.0	33,010					18,598	24,401	30,204	36,007	41,811													16,276	44,713			
	16.0	37,874					13,252	19,046	24,841	30,636	36,432													10,934	39,330			
GVO-G0728-07R3	0.0	17,005						28,343	34,137	39,932	45,727	51,523	57,319	Exceeds MOP								71	23,128	135	60,217			
	4.0	20,162					25,649	31,452	37,255	43,059	48,862	54,666											20,427		57,568			
	8.0	23,533					22,397	28,202	34,007	39,812	45,618	51,424											17,172		54,327			
	12.0	27,229					18,576	24,379	30,182	35,985	41,788	47,592											13,353		50,494			
	16.0	31,144					14,187	19,982	25,776	31,571	37,366	43,162											8,973		46,060			
GVO-G0728-07R4	0.0	14,400			19,361	25,154	30,948	36,743	42,538	48,333	54,128	59,924	Exceeds MOP									60	19,361	135	62,822			
	4.0	17,042	Please consult factory		17,164	22,966	28,769	34,572	40,375	46,179	51,982	57,786													17,164	60,688		
	8.0	19,836		14,484	20,288	26,093	31,898	37,704	43,509	49,315	55,121														14,484	58,024		
	12.0	22,881		11,318	17,121	22,923	28,726	34,529	40,333	46,136	51,940															11,318	54,842	
	16.0	26,082		7,662	13,456	19,250	25,044	30,838	36,633	42,428	48,224															7,662	51,122	
GVO-G0732-07R1	0.0	23,013							36,504	44,087	51,669	Exceeds MOP											74	31,955	100	51,669		
	4.0	27,393					32,649	40,241	47,833															28,094		47,833		
	8.0	32,113					28,063	35,657	43,252															23,506		43,252		
	12.0	37,318					22,717	30,309	37,901															18,162		37,901		
	16.0	42,870					16,629	24,211	31,793															12,080		31,793		
GVO-G0732-07R2	0.0	20,407				31,528	39,110	46,692	54,275	Exceeds MOP												66	28,496	100	54,275			
	4.0	24,273	Please consult factory		28,177	35,769	43,361	50,953																		25,141	50,953	
	8.0	28,416		24,165	31,759	39,354	46,948																			21,128	46,948	
	12.0	32,970		19,473	27,065	34,656	42,248																			16,437	42,248	
	16.0	37,808		14,110	21,691	29,273	36,855																			11,077	36,855	
GVO-G0732-07R3	0.0	16,940				27,414	34,996	42,578	50,160	57,742	Exceeds MOP												54	22,866	100	57,742		
	4.0	20,122	Please consult factory		24,737	32,328	39,920	47,512	55,104																	20,182	55,104	
	8.0	23,500		21,488	29,082	36,676	44,270	51,865																		16,932	51,865	
	12.0	27,189		17,663	25,254	32,846	40,437	48,029																		13,108	48,029	
	16.0	31,078		13,258	20,839	28,421	36,003	43,585																		8,710	43,585	
GVO-G0732-07R4	0.0	14,334		Please consult factory		22,439	30,020	37,601	45,183	52,765	60,348	Exceeds MOP												46	19,407	100	60,348	
	4.0	17,002	20,266		27,857	35,448	43,040	50,631	58,224																17,229		58,224	
	8.0	19,803	17,591		25,185	32,779	40,373	47,967	55,561																		14,554	55,561
	12.0	22,841	14,420		22,011	29,602	37,193	44,785	52,377																		11,383	52,377
	16.0	26,016	10,740		18,321	25,902	33,483	41,065	48,647																		7,708	48,647

Notes:

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MOP defined in this document are for standard stroke actuators identified in the GVO-G product date sheet. For MOP of longer stroke linear actuator, please consult Emerson.

Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)							
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200						
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																										
GVO-G0736-07R1	0.0	22,947			33,433	43,041	52,649	Exceeds MOP													59	32,473	80	52,649					
	4.0	27,353		Please consult factory	29,592	39,211	48,830																				28,630		48,830
	8.0	32,080			25,009	34,630	44,253																				24,047		44,253
	12.0	37,277			19,659	29,278	38,897																				18,697		38,897
	16.0	42,804			13,557	23,165	32,772																				12,596		32,772
GVO-G0736-07R2	0.0	20,342				36,039	45,646	55,255	Exceeds MOP													52	28,353	80	55,255				
	4.0	24,233		Please consult factory	32,711	42,330	51,950																				25,016		51,950
	8.0	28,383			28,705	38,327	47,949																				21,008		47,949
	12.0	32,930			24,007	33,626	43,245																				16,312		43,245
	16.0	37,741			18,619	28,227	37,835																				10,934		37,835
GVO-G0736-07R3	0.0	16,874				29,899	39,506	49,114	Exceeds MOP													43	23,174	80	58,722				
	4.0	20,082		Please consult factory	27,243	36,862	46,481	56,100																			20,511		56,100
	8.0	23,466			24,000	33,622	43,244	52,866																			17,265		52,866
	12.0	27,149			20,169	29,788	39,407	49,026																			13,436		49,026
	16.0	31,012			15,742	25,349	34,957	44,564																			9,018		44,564
GVO-G0736-07R4	0.0	14,269	22,898		32,505	42,112	51,720	61,328	Exceeds MOP													36	19,055	80	61,328				
	4.0	16,963	20,745	30,363	39,982	49,601	59,220																			16,898		59,220	
	8.0	19,770	18,076	27,697	37,318	46,940	56,562																			14,227		56,562	
	12.0	22,801	14,899	24,517	34,135	43,754	53,373																			11,051		53,373	
	16.0	25,949	11,198	20,804	30,411	40,019	49,627																			7,356		49,627	
GVO-G07128-07R1	0.0	22,581			33,164	44,713	Exceeds MOP														49	32,009	65	50,487					
	4.0	27,130		Please consult factory	29,489	41,055																					28,332		46,839
	8.0	31,894			24,948	36,519																					23,791		42,305
	12.0	37,053			19,554	31,120																					18,397		36,904
	16.0	42,433			13,282	24,830																					12,127		30,605
GVO-G07128-07R2	0.0	19,976				35,769	47,318	Exceeds MOP														43	27,685	65	53,093				
	4.0	24,011		Please consult factory	32,608	44,175																					24,512		49,959
	8.0	28,197			28,645	40,216																					20,545		46,002
	12.0	32,705			23,901	35,468																					15,805		41,251
	16.0	37,370			18,344	29,892																					10,261		35,667
GVO-G07128-07R3	0.0	16,508	27,689		39,237	50,786	Exceeds MOP															36	23,070	65	56,561				
	4.0	19,860	25,193	36,759	48,326																					20,566		54,109	
	8.0	23,281	21,990	33,561	45,132																					17,362		50,918	
	12.0	26,924	18,116	29,682	41,249																					13,490		47,032	
	16.0	30,641	13,526	25,074	36,622																					8,908		42,397	
GVO-G07128-07R4	0.0	13,903	30,294	41,842	53,391	Exceeds MOP															30	18,747	65	59,166					
	4.0	16,740	28,313	39,879	51,446																					16,747		57,229	
	8.0	19,584	25,687	37,258	48,829																					14,116		54,615	
	12.0	22,577	22,464	34,030	45,596																					10,898		51,380	
	16.0	25,578	18,589	30,136	41,684																					7,042		47,459	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)						
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200										
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																										
GVO-G0824-08R1	0.0	34,056																			Please consult factory	38,963	43,056	47,150	173	36,098	200	47,150	
	4.5	38,290																					35,054	39,151		43,249		32,186	43,249
	9.0	42,909																					30,485	34,582		38,680		27,616	38,680
	13.5	47,860																					25,423	29,519		33,616		22,555	33,616
	18.0	53,268																					19,669	23,761		27,854		16,804	27,854
GVO-G0824-08R2	0.0	28,927																			Please consult factory	27,720	31,812	35,905	140	27,720	200	52,279	
	4.5	31,992																				24,964	29,061	33,158		24,964		49,546	
	9.0	35,304																				21,700	25,798	29,895		21,700		46,286	
	13.5	38,835																				18,064	22,160	26,256		18,064		42,641	
	18.0	42,668																				13,901	17,992	22,084		13,901		38,454	
GVO-G0824-08R3	0.0	24,563																			Please consult factory	23,899	27,991	32,084	119	23,490	200	56,643	
	4.5	27,173																				21,590	25,687	29,783		21,181		54,365	
	9.0	29,976																				18,834	22,931	27,029		18,425		51,614	
	13.5	32,954																				15,753	19,849	23,944		15,343		48,522	
	18.0	36,174																				12,212	16,303	20,395		11,803		44,948	
GVO-G0828-08R1	0.0	33,906																			Please consult factory	40,345	46,130	51,916	122	35,717	175	66,382	
	4.5	38,199																				36,521	42,313	48,106		31,887		62,590	
	9.0	42,827																				31,964	37,758	43,552		27,329		58,038	
	13.5	47,758																				26,874	32,665	38,457		22,241		52,937	
	18.0	53,104																				21,029	26,813	32,597		16,402		47,059	
GVO-G0828-08R2	0.0	28,778																			Please consult factory	28,119	33,903	39,688	98	26,962	175	71,511	
	4.5	31,901																				25,441	31,233	37,026		24,283		68,887	
	9.0	35,221																				22,189	27,983	33,776		21,031		65,644	
	13.5	38,733																				18,526	24,317	30,108		17,368		61,962	
	18.0	42,504																				14,280	20,063	25,846		13,124		57,659	
GVO-G0828-08R3	0.0	24,414																			Please consult factory	26,699	32,483	38,267	84	23,228	175	75,875	
	4.5	27,082																				24,468	30,260	36,052		20,993		73,706	
	9.0	29,893																				21,725	27,518	33,311		18,249		70,972	
	13.5	32,852																				18,616	24,407	30,198		15,142		67,843	
	18.0	36,010																				14,992	20,774	26,557		11,523		64,153	

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200							
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																							
GVO-G0832-08R1	0.0	33,846						Please consult factory	40,808	48,380	55,953	63,527	71,101	Exceeds MOP							93	35,507		71,101		
	4.5	38,162							36,996	44,578	52,159	59,741	67,323											31,690		67,323
	9.0	42,794							32,442	40,024	47,607	55,190	62,773											27,134	140	62,773
	13.5	47,717							27,347	34,926	42,506	50,086	57,667											22,041		57,667
	18.0	53,037							21,489	29,059	36,630	44,201	51,773											16,190		51,773
GVO-G0832-08R2	0.0	28,717					Please consult factory	30,792	38,364	45,936	53,509	61,082	68,655	76,229	Exceeds MOP							75	27,007		76,229	
	4.5	31,864						28,132	35,713	43,294	50,875	58,456	66,038	73,620										24,342		73,620
	9.0	35,188						24,883	32,465	40,047	47,630	55,213	62,796	70,379										21,092	140	70,379
	13.5	38,691						21,214	28,793	36,372	43,952	51,532	59,112	66,692										17,424		66,692
	18.0	42,437						16,950	24,519	32,089	39,660	47,230	54,802	62,373										13,165		62,373
GVO-G0832-08R3	0.0	24,353					Please consult factory	27,585	35,156	42,728	50,300	57,873	65,446	73,019	80,593	Exceeds MOP							64	23,042		80,593
	4.5	27,045						25,371	32,951	40,532	48,113	55,694	63,275	70,857	78,439									20,823		78,439
	9.0	29,860						22,629	30,211	37,793	45,376	52,958	60,541	68,124	75,707									18,080	140	75,707
	13.5	32,811						19,516	27,095	34,674	42,253	49,833	57,412	64,993	72,573									14,969		72,573
	18.0	35,943						15,874	23,443	31,013	38,583	46,153	53,724	61,295	68,867									11,333		68,867
GVO-G0836-08R1	0.0	33,785					Please consult factory	41,816	51,414	61,013	70,613				Exceeds MOP							73	35,097		70,613	
	4.5	38,125						38,019	47,628	57,237	66,846													31,293		66,846
	9.0	42,760						33,467	43,077	52,687	62,298													26,740	110	62,298
	13.5	47,675						28,367	37,974	47,581	57,188													21,642		57,188
	18.0	52,971						22,493	32,089	41,685	51,282													15,776		51,282
GVO-G0836-08R2	0.0	28,657					Please consult factory	27,748	37,346	46,944	56,543	66,142	75,741		Exceeds MOP							59	26,789		75,741	
	4.5	31,827						25,100	34,708	44,317	53,925	63,534	73,143											24,140		73,143
	9.0	35,155						21,853	31,463	41,073	50,683	60,293	69,903											20,892	110	69,903
	13.5	38,650						18,180	27,786	37,392	46,999	56,606	66,213											17,219		66,213
	18.0	42,371						13,903	23,498	33,093	42,689	52,286	61,883											12,943		61,883
GVO-G0836-08R3	0.0	24,293					Please consult factory	22,515	32,112	41,710	51,308	60,907	70,506	80,105	Exceeds MOP							50	22,515		80,105	
	4.5	27,008						20,312	29,919	39,527	49,136	58,744	68,353	77,962										20,312		77,962
	9.0	29,827						17,572	27,181	36,791	46,401	56,011	65,621	75,232										17,572	110	75,232
	13.5	32,769						14,455	24,061	33,667	43,273	52,880	62,487	72,094										14,455		72,094
	18.0	35,877						10,802	20,396	29,991	39,587	49,183	58,780	68,377										10,802		68,377

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)						
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200					
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																									
GVO-G0840-08R1	0.0	33,725			36,151	48,014	59,878	Exceeds MOP												59	34,965	85	65,810					
	4.5	38,088	Please consult factory		32,365	44,239	56,114																31,177	62,051				
	9.0	42,727			27,814	39,690	51,567																	26,626	57,505			
	13.5	47,634			22,710	34,583	46,455																		21,523	52,392		
	18.0	52,904			16,826	28,686	40,547																			15,640	46,477	
GVO-G0840-08R2	0.0	28,596		Please consult factory	29,417	41,279	53,143	65,006	Exceeds MOP													48	27,044	85	70,938			
	4.5	31,790			26,788	38,662	50,537	62,411																	24,413	68,349		
	9.0	35,122			23,544	35,419	47,296	59,172																		21,168	65,111	
	13.5	38,609			19,864	31,736	43,608	55,481																		17,489	61,417	
	18.0	42,304			15,566	27,426	39,286	51,147																			13,194	57,077
GVO-G0840-08R3	0.0	24,232	Please consult factory	33,781	45,643	57,507	69,370	Exceeds MOP													41	23,105	85	75,302				
	4.5	26,971			31,607	43,481	55,356		67,230																	20,920	73,168	
	9.0	29,793			28,872	40,748	52,624		64,500																		18,184	70,439
	13.5	32,728			25,744	37,616	49,489		61,362																		15,060	67,298
	18.0	35,810			22,060	33,920	45,780		57,641																			11,387

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G08T32-08R1	0.0	33,297	Please consult factory	39,963	55,048	70,132	Exceeds MOP														47	35,438	70	70,132
	4.5	37,827		36,371	51,474	66,578		31,840	66,578															
	9.0	42,492		31,850	46,957	62,063		27,319	62,063															
	13.5	47,342		26,681	41,780	56,881		22,151	56,881															
	18.0	52,434		20,589	35,668	50,749		16,066	50,749															
GVO-G08T32-08R2	0.0	28,168	30,009	45,092	60,176	75,261	Exceeds MOP													38	26,992	70	75,261	
	4.5	31,529	27,566	42,669	57,772	72,875		24,546	72,875															
	9.0	34,886	24,350	39,456	54,562	69,669		21,329	69,669															
	13.5	38,317	20,607	35,706	50,806	65,906		17,587	65,906															
	18.0	41,834	16,111	31,189	46,269	61,349		13,095	61,349															
GVO-G08T32-08R3	0.0	23,804	34,373	49,456	64,540	79,625	Exceeds MOP													32	22,307	70	79,625	
	4.5	26,710	32,385	47,488	62,591	77,695		20,303	77,695															
	9.0	29,558	29,679	44,784	59,890	74,997		17,594	74,997															
	13.5	32,436	26,488	41,587	56,686	71,787		14,409	71,787															
	18.0	35,340	22,605	37,683	52,763	67,843		10,543	67,843															
GVO-G08T36-08R1	0.0	33,176	40,971	60,107	Exceeds MOP														37	35,230	55	69,676		
	4.5	37,753	37,416	56,574		31,668	66,153																	
	9.0	42,425	32,901	52,062		27,152	61,643																	
	13.5	47,259	27,718	46,872		21,972	56,450																	
	18.0	52,302	21,587	40,718		15,848	50,284																	
GVO-G08T36-08R2	0.0	28,047	46,099	65,236	Exceeds MOP														30	26,964	55	74,804		
	4.5	31,456	43,713	62,871		24,556	72,451																	
	9.0	34,820	40,506	59,668		21,345	69,249																	
	13.5	38,234	36,744	55,898		17,590	65,475																	
	18.0	41,701	32,187	51,318		13,057	60,884																	
GVO-G08T36-08R3	0.0	23,683	50,463	69,600	Exceeds MOP														25	21,760	55	79,168		
	4.5	26,636	48,532	67,690		19,796	77,270																	
	9.0	29,492	45,835	64,996		17,093	74,577																	
	13.5	32,353	42,624	61,778		13,895	71,356																	
	18.0	35,207	38,681	57,812		9,986	67,378																	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)														
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200													
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																	
GVO-G1028-10R2	0.0	42,885																		Please consult factory	59,691	65,447	71,204	175	56,812	200	71,204									
	6.0	50,280																			52,837	58,600	64,364					49,955	64,364							
	12.0	58,104																			45,105	50,870	56,635					42,223	56,635							
	18.0	66,656																			36,386	42,149	47,912					33,505	47,912							
	24.0	76,026																			26,460	32,216	37,972					23,583	37,972							
GVO-G1028-10R3	0.0	35,728																		Please consult factory	55,335	61,091	66,847	72,604	78,361	159	54,760	200	78,361							
	6.0	43,316																	48,274		54,037	59,801	65,564	71,328	47,698					71,328						
	12.0	51,349																	40,331		46,096	51,860	57,625	63,390	39,755					63,390						
	18.0	60,131																	31,386		37,149	42,911	48,674	54,437	30,810					54,437						
	24.0	69,757																	21,219		26,974	32,729	38,484	44,240	20,643					44,240						
GVO-G1028-10R4	0.0	30,119																		Please consult factory	43,678	49,433	55,188	60,944	66,699	72,456	78,212	83,969	128	37,273	200	78,768				
	6.0	35,876																	38,426		44,188	49,951	55,714	61,477	67,241	73,004	78,768	31,308					72,812			
	12.0	41,927																	32,461		38,225	43,989	49,753	55,517	61,282	67,047	72,812	24,561					66,049			
	18.0	48,519																	25,713		31,475	37,237	42,999	48,761	54,523	60,286	66,049	16,853					58,287			
	24.0	55,710																	18,004		23,757	29,511	35,266	41,020	46,775	52,531	58,287	16,853					58,287			
GVO-G1032-10R1	0.0	50,889																		Please consult factory	76,200	83,744	91,289	98,835	165	72,427	200	98,835								
	6.0	60,600																	67,092		74,645	82,198	89,751	63,316					89,751							
	12.0	70,906																	56,888		64,442	71,996	79,551	53,111					79,551							
	18.0	82,190																	45,418		52,970	60,522	68,074	41,643					68,074							
	24.0	94,579																	32,410		39,953	47,497	55,041	28,638					55,041							
GVO-G1032-10R2	0.0	42,822																		Please consult factory	61,635	69,178	76,722	84,266	91,811	99,356	106,902	133	56,355	200	106,902					
	6.0	50,243																	54,793		62,345	69,897	77,449	85,002	92,555	100,108	49,507					100,108				
	12.0	58,071																	47,063		54,616	62,170	69,724	77,278	84,832	92,387	41,776					92,387				
	18.0	66,615																	38,341		45,891	53,442	60,994	68,545	76,097	83,649	33,055					83,649				
	24.0	75,959																	28,403		35,945	43,487	51,030	58,573	66,117	73,661	23,123					73,661				
GVO-G1032-10R3	0.0	35,665																		Please consult factory	61,249	68,792	76,335	83,879	91,423	98,968	106,513	114,058	121	54,461	200	114,058				
	6.0	43,279																	54,205		61,757	69,309	76,861	84,413	91,966	99,519	107,072	47,409					107,072			
	12.0	51,315																	46,265		53,818	61,372	68,925	76,479	84,033	91,588	99,142	39,468					99,142			
	18.0	60,090																	37,315		44,865	52,416	59,967	67,519	75,070	82,622	90,174	30,520					90,174			
	24.0	69,691																	27,130		34,671	42,213	49,756	57,298	64,842	72,386	79,930	20,343					79,930			
GVO-G1032-10R4	0.0	30,057																		Please consult factory	44,231	51,772	59,315	66,857	74,400	81,944	89,487	97,032	104,576	112,121	119,667	97	41,968	200	119,667	
	6.0	35,839																	38,991		46,542	54,093	61,645	69,197	76,748	84,301	91,853	99,406	106,959	114,512	36,726					114,512
	12.0	41,894																	33,028		40,581	48,134	55,687	63,240	70,793	78,347	85,901	93,455	101,009	108,563	30,763					108,563
	18.0	48,478																	26,277		33,827	41,377	48,927	56,478	64,028	71,579	79,131	86,682	94,234	101,786	24,012					101,786
	24.0	55,644																	18,554		26,095	33,635	41,176	48,718	56,260	63,802	71,345	78,889	86,432	93,976	16,292					93,976

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)														
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200																		
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																		
GVO-G1036-10R1	0.0	50,827																			Please consult factory	72,308	81,878	91,448	101,019	110,591	120,162	Exceeds MOP	129	71,351	180	120,162					
	6.0	60,562																				63,207	72,786	82,366	91,946	101,527	111,108			62,249		111,108					
	12.0	70,873																					53,004	62,585	72,167	81,748	91,330			100,913		52,046	100,913				
	18.0	82,149																					41,532	51,110	60,689	70,268	79,847			89,426		40,574	89,426				
	24.0	94,513																					28,517	38,086	47,654	57,224	66,794			76,364		27,561	76,364				
GVO-G1036-10R2	0.0	42,760																			Please consult factory	61,237	70,806	80,375	89,945	99,515	109,086	118,657	128,229	Exceeds MOP	104	55,495	180	128,229			
	6.0	50,205																				54,406	63,985	73,564	83,144	92,723	102,304	111,884	121,465			48,658		121,465			
	12.0	58,038																				46,678	56,258	65,839	75,421	85,002	94,584	104,166	113,748			40,929		113,748			
	18.0	66,574																				37,952	47,529	57,107	66,686	76,264	85,843	95,422	105,002			32,205		105,002			
	24.0	75,893																				28,002	37,570	47,138	56,706	66,275	75,844	85,414	94,984			22,262		94,984			
GVO-G1036-10R3	0.0	35,603																			Please consult factory	58,825	68,394	77,963	87,532	97,102	106,672	116,243	125,814	135,386	Exceeds MOP	95	54,041	180	135,386		
	6.0	43,241																				51,791	61,370	70,949	80,528	90,108	99,688	109,268	118,848	128,429			47,002		128,429		
	12.0	51,282																				43,853	53,433	63,014	72,595	82,176	91,758	101,339	110,921	120,504			39,062		120,504		
	18.0	60,049																				34,899	44,477	54,054	63,632	73,211	82,789	92,368	101,947	111,527			30,111		111,527		
	24.0	69,624																				24,704	34,271	43,838	53,406	62,974	72,543	82,112	91,682	101,252			19,921		101,252		
GVO-G1036-10R4	0.0	29,995																			Please consult factory	45,298	54,865	64,433	74,002	83,571	93,140	102,710	112,281	121,851	131,423	140,994	Exceeds MOP	77	42,427	180	140,994
	6.0	35,801																				40,074	49,652	59,231	68,809	78,388	87,968	97,547	107,127	116,707	126,288	135,869			37,200		135,869
	12.0	41,861																				34,114	43,694	53,274	62,855	72,435	82,016	91,598	101,179	110,761	120,343	129,925			31,240		129,925
	18.0	48,437																				27,358	36,934	46,511	56,089	65,667	75,244	84,823	94,401	103,980	113,559	123,139			24,485		123,139
	24.0	55,577																				19,619	29,185	38,751	48,318	57,885	67,453	77,021	86,590	96,159	105,729	115,299			16,749		115,299
GVO-G1040-10R1	0.0	50,764																			Please consult factory	78,026	89,860	Exceeds MOP	105	72,108	128	99,328									
	6.0	60,525																				68,942	80,788			63,019		90,264									
	12.0	70,840																				58,742	70,590			52,818		80,068									
	18.0	82,108																				47,265	59,109			41,343		68,585									
	24.0	94,446																				34,232	46,065			28,316		55,531									
GVO-G1040-10R2	0.0	42,698																			Please consult factory	62,425	74,258	86,092	97,927	Exceeds MOP	84	55,325	128	107,395							
	6.0	50,168																				55,609	67,454	79,299	91,145			48,502		100,622							
	12.0	58,004																				47,883	59,730	71,578	83,425			40,775		92,903							
	18.0	66,533																				39,153	50,996	62,840	74,684			32,047		84,160							
	24.0	75,826																				29,188	41,020	52,852	64,685			22,089		74,151							
GVO-G1040-10R3	0.0	35,541																			Please consult factory	57,749	69,582	81,415	93,249	105,084	Exceeds MOP	77	54,199	128	114,552						
	6.0	43,204																				50,728	62,573	74,418	86,263	98,109			47,175		107,586						
	12.0	51,249																				42,792	54,639	66,486	78,333	90,181			39,238		99,659						
	18.0	60,008																				33,835	45,678	57,521	69,365	81,209			30,282		90,685						
	24.0	69,558																				23,626	35,457	47,288	59,121	70,953			20,076		80,420						
GVO-G1040-10R4	0.0	29,932																			Please consult factory	39,692	51,524	63,357	75,190	87,024	98,858	110,692	Exceeds MOP	60	39,692	128	120,160				
	6.0	35,764																				34,479	46,323	58,168	70,012	81,858	93,703	105,549			34,479		115,025				
	12.0	41,827																				28,521	40,367	52,213	64,060	75,907	87,755	99,602			28,521		109,080				
	18.0	48,396																				21,761	33,604	45,447	57,290	69,133	80,977	92,821			21,761		102,297				
	24.0	55,511																				14,012	25,842	37,672	49,503	61,335	73,167	85,000			14,012		94,467				

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																				
GVO-G10T32-10R1	0.0	50,336					Please consult factory	82,448	97,452	112,457	Exceeds MOP									82	70,446	115	119,959
	6.0	60,267						73,583	88,605	103,628											61,565		111,140
	12.0	70,611						63,420	78,445	93,472											51,399		100,985
	18.0	81,827						51,875	66,895	81,916											39,860		89,426
	24.0	93,989						38,618	53,619	68,621											26,618		76,122
GVO-G10T32-10R2	0.0	42,269				Please consult factory	60,510	75,512	90,515	105,519	120,523	Exceeds MOP								66	54,509	115	128,026
	6.0	49,910					53,896	68,918	83,940	98,962	113,985										47,888		121,497
	12.0	57,775					46,205	61,230	76,255	91,281	106,307										40,195		113,821
	18.0	66,252					37,412	52,431	67,451	82,471	97,491										31,405		105,002
	24.0	75,369					27,239	42,238	57,238	72,239	87,241										21,240		94,742
GVO-G10T32-10R3	0.0	35,112				Please consult factory	52,665	67,667	82,669	97,672	112,676	Exceeds MOP								60	52,665	115	135,183
	6.0	42,946					45,839	60,860	75,882	90,904	105,926		120,950								45,839		128,461
	12.0	51,020					37,936	52,961	67,986	83,011	98,037		113,063								37,936		120,576
	18.0	59,727					28,919	43,937	58,956	73,976	88,996		104,016								28,919		111,527
	24.0	69,101					18,510	33,508	48,507	63,507	78,508		93,509								18,510		101,011
GVO-G10T32-10R4	0.0	29,504				Please consult factory	43,273	58,273	73,275	88,277	103,280	Exceeds MOP								49	41,773	115	140,791
	6.0	35,506					38,258	53,279	68,300	83,321	98,344		113,366	128,389							36,756		135,901
	12.0	41,599					32,334	47,358	62,382	77,407	92,432		107,458	122,484							30,831		129,998
	18.0	48,115					25,513	40,531	55,549	70,568	85,588		100,608	115,628							24,011		123,139
	24.0	55,054					17,559	32,557	47,555	62,554	77,554		92,554	107,556							16,060		115,057
GVO-G10T36-10R1	0.0	50,211				Please consult factory	80,688	99,743	118,800	Exceeds MOP									65	71,161	90	118,800	
	6.0	60,192					71,851	90,928	110,006											62,312		110,006	
	12.0	70,545					61,693	80,774	99,855											52,153		99,855	
	18.0	81,745					50,140	69,214	88,288											40,603		88,288	
	24.0	93,856					36,854	55,905	74,958											27,328		74,958	
GVO-G10T36-10R2	0.0	42,144				Please consult factory	69,700	88,755	107,810	126,867	Exceeds MOP								52	54,457	90	126,867	
	6.0	49,835					63,131	82,208	101,285	120,363										47,871		120,363	
	12.0	57,709					55,448	74,528	93,609	112,690										40,184		112,690	
	18.0	66,170					46,641	65,715	84,789	103,864										31,383		103,864	
	24.0	75,236					36,423	55,474	74,526	93,578										21,183		93,578	
GVO-G10T36-10R3	0.0	34,987				Please consult factory	57,804	76,857	95,912	114,967	134,024	Exceeds MOP							48	53,993	90	134,024	
	6.0	42,871					51,020	70,096	89,172	108,249	127,327									47,204		127,327	
	12.0	50,953					43,124	62,204	81,284	100,365	119,446									39,308		119,446	
	18.0	59,645					34,093	53,166	72,240	91,314	110,389									30,279		110,389	
	24.0	68,968					23,641	42,691	61,742	80,794	99,847									19,832		99,847	
GVO-G10T36-10R4	0.0	29,379	44,359	63,412	82,465	101,520	120,575	139,632	Exceeds MOP									38	40,549	90	139,632		
	6.0	35,431	39,384	58,459	77,535	96,612	115,689	134,767											35,569		134,767		
	12.0	41,532	33,466	52,545	71,625	90,705	109,786	128,867											29,650		128,867		
	18.0	48,033	26,633	45,706	64,778	83,852	102,926	122,001											22,819		122,001		
	24.0	54,921	18,639	37,688	56,738	75,789	94,841	113,894											14,829		113,894		

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)			
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200		
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																						
GVO-G10T40-10R1	0.0	50,086			88,691	112,276	Exceeds MOP													52	69,823	70	112,276		
	6.0	60,117		Please	79,896	103,505																61,009		103,505	
	12.0	70,478		consult	69,745	93,359																50,855		93,359	
	18.0	81,663		factory	58,179	81,785																39,294		81,785	
	24.0	93,723			44,849	68,430																25,985		68,430	
GVO-G10T40-10R2	0.0	42,019	Please consult factory		73,173	96,757	120,343	Exceeds MOP													42	54,307	70	120,343	
	6.0	49,760			66,644	90,253	113,863																47,757		113,863
	12.0	57,642			58,968	82,581	106,194																40,077		106,194
	18.0	66,088			50,149	73,754	97,360																31,265		97,360
	24.0	75,103			39,889	63,469	87,051																21,026		87,051
GVO-G10T40-10R3	0.0	34,862	56,747	80,330	103,914	127,500	Exceeds MOP														38	52,031	70	127,500	
	6.0	42,796	50,000	73,608	97,217	120,827																45,278		120,827	
	12.0	50,887	42,110	65,723	89,336	112,950																37,388		112,950	
	18.0	59,563	33,069	56,674	80,279	103,885																28,348		103,885	
	24.0	68,835	22,579	46,158	69,738	93,319																17,863		93,319	
GVO-G10T40-10R4	0.0	29,254	62,355	85,939	109,523	133,108	Exceeds MOP														31	41,131	70	133,108	
	6.0	35,356	57,440	81,048	104,657	128,266																36,193		128,266	
	12.0	41,465	51,532	75,144	98,758	122,371																30,281		122,371	
	18.0	47,951	44,681	68,286	91,891	115,497																23,437		115,497	
	24.0	54,788	36,626	60,205	83,785	107,366																15,405		107,366	

Notes:

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)													
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200												
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																																
GVO-G1340-13R1	0.0	81,859																		Please consult factory	140,980	152,783	182	131,539	200	152,783									
	7.5	99,746																			123,802	135,613					114,353	135,613							
	15.0	119,491																			104,152	115,965					94,703	115,965							
	22.5	140,750																			82,642	94,452					73,195	94,452							
	30.0	164,565																			58,045	69,845					48,606	69,845							
GVO-G1340-13R2	0.0	71,384																		Please consult factory	116,051	127,852	139,653	151,455	163,257	157	112,511	200	163,257						
	7.5	86,683																	101,433		113,243	125,054	136,865	148,676	97,890					148,676					
	15.0	103,535																	84,673		96,484	108,296	120,108	131,920	81,130					131,920					
	22.5	121,661																	66,306		78,114	89,923	101,731	113,541	62,764					113,541					
	30.0	141,940																	45,276		57,073	68,872	80,671	92,470	41,736					92,470					
GVO-G1340-13R3	0.0	58,821																		Please consult factory	105,014	116,814	128,614	140,415	152,216	164,018	175,820	131	94,394	200	175,820				
	7.5	71,779																	92,718		104,528	116,338	128,148	139,958	151,769	163,580	82,090					163,580			
	15.0	86,014																	78,572		90,383	102,194	114,006	125,818	137,630	149,442	67,943					149,442			
	22.5	101,305																	63,047		74,854	86,662	98,470	110,279	122,088	133,897	52,421					133,897			
	30.0	118,384																	45,237		57,034	68,831	80,629	92,427	104,226	116,025	34,621					116,025			
GVO-G1340-13R4	0.0	48,347																		Please consult factory	80,092	91,890	103,689	115,488	127,288	139,088	150,889	162,690	174,492	186,294	106	75,372	200	186,294	
	7.5	58,716																	70,354		82,162	93,971	105,781	117,590	129,400	141,210	153,021	164,832	176,643	65,630					176,643
	15.0	70,058																	59,097		70,907	82,717	94,528	106,339	118,150	129,962	141,773	153,585	165,398	54,373					165,398
	22.5	82,216																	46,716		58,522	70,329	82,136	93,943	105,751	117,559	129,368	141,177	152,986	41,993					152,986
	30.0	95,759																	32,476		44,271	56,066	67,862	79,659	91,456	103,254	115,052	126,851	138,650	27,758					138,650
GVO-G1344-13R1	0.0	81,796																		Please consult factory	131,274	145,579	159,884	174,190	Exceeds MOP	150	180	174,190							
	7.5	99,707																	114,100		128,415	142,731	157,047	114,100					157,047						
	15.0	119,456																	94,451		108,768	123,085	137,402	94,451					137,402						
	22.5	140,707																	72,940		87,253	101,566	115,880	72,940					115,880						
	30.0	164,494																	48,338		62,640	76,941	91,244	48,338					91,244						
GVO-G1344-13R2	0.0	71,322																		Please consult factory	113,141	127,445	141,749	156,053	170,359	184,665	Exceeds MOP	129	180	184,665					
	7.5	86,644																	98,533		112,848	127,163	141,478	155,793	170,109	97,101					170,109				
	15.0	103,500																	81,774		96,090	110,407	124,723	139,040	153,358	80,342					153,358				
	22.5	121,618																	63,404		77,716	92,029	106,342	120,655	134,969	61,972					134,969				
	30.0	141,869																	42,363		56,663	70,963	85,265	99,567	113,869	40,933					113,869				
GVO-G1344-13R3	0.0	58,759																		Please consult factory	97,098	111,401	125,704	140,008	154,312	168,616	182,922	197,228	Exceeds MOP	108	180	197,228			
	7.5	71,740																	84,809		99,123	113,437	127,752	142,067	156,382	170,698	185,014	81,946					185,014		
	15.0	85,978																	70,664		84,980	99,296	113,612	127,928	142,245	156,562	170,879	67,801					170,879		
	22.5	101,261																	55,136		69,448	83,760	98,072	112,385	126,698	141,011	155,325	52,274					155,325		
	30.0	118,314																	37,319		51,618	65,918	80,218	94,519	108,820	123,122	137,424	34,460					137,424		
GVO-G1344-13R4	0.0	48,284																		Please consult factory	78,969	93,270	107,572	121,875	136,178	150,482	164,786	179,091	193,396	207,702	Exceeds MOP	87	180	207,702	
	7.5	58,677																	69,245		83,558	97,872	112,186	126,500	140,815	155,130	169,445	183,760	198,076	64,951					198,076
	15.0	70,023																	57,990		72,305	86,620	100,935	115,251	129,567	143,884	158,200	172,518	186,835	53,695					186,835
	22.5	82,172																	45,604		59,914	74,225	88,537	102,849	117,161	131,474	145,787	160,100	174,414	41,310					174,414
	30.0	95,689																	31,349		45,646	59,945	74,243	88,543	102,843	117,144	131,445	145,747	160,050	27,059					160,050

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)					
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200									
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																									
GVO-G1348-13R1	0.0	81,737										138,266	155,313	172,360	Exceeds MOP							125	129,743	150	172,360			
	7.5	99,670										121,106	138,165	155,224										112,577		155,224		
	15.0	119,422										101,459	118,520	135,581										92,929		135,581		
	22.5	140,665										79,943	96,999	114,056										71,415		114,056		
	30.0	164,428										55,325	72,368	89,412										46,803		89,412		
GVO-G1348-13R2	0.0	71,262									114,648	131,694	148,740	165,787	182,835	Exceeds MOP							108	111,239	150	182,835		
	7.5	86,608									100,052	117,110	134,169	151,228	168,287									96,641		168,287		
	15.0	103,466									83,295	100,355	117,415	134,476	151,536									79,883		151,536		
	22.5	121,576									64,920	81,976	99,032	116,088	133,145									61,509		133,145		
	30.0	141,802									43,866	60,908	77,950	94,993	112,037									40,457		112,037		
GVO-G1348-13R3	0.0	58,699									93,121	110,166	127,211	144,257	161,303	178,350	195,398	Exceeds MOP						90	93,121	150	195,398	
	7.5	71,704									80,841	97,899	114,957	132,015	149,073	166,132	183,191								80,841		183,191	
	15.0	85,945									66,698	83,757	100,817	117,876	134,937	151,997	169,058								66,698		169,058	
	22.5	101,220									51,167	68,221	85,277	102,332	119,388	136,444	153,501								51,167		153,501	
	30.0	118,247									33,339	50,380	67,421	84,463	101,505	118,548	135,592								33,339		135,592	
GVO-G1348-13R4	0.0	48,225									86,551	103,595	120,640	137,685	154,731	171,777	188,824	205,872	Exceeds MOP						73	74,621	150	205,872
	7.5	58,641									76,847	93,904	110,961	128,019	145,077	162,136	179,195	196,254								64,907		196,254
	15.0	69,989									65,595	82,653	99,713	116,772	133,832	150,892	167,953	185,014								53,654		185,014
	22.5	82,131									53,202	70,256	87,310	104,366	121,421	138,477	155,533	172,590								41,264		172,590
	30.0	95,622									38,925	55,964	73,005	90,046	107,088	124,130	141,173	158,217								26,997		158,217
GVO-G1352-13R1	0.0	81,677										136,913	156,941	176,969	Exceeds MOP								107	130,905	130	176,969		
	7.5	99,634										119,764	139,805	159,846											113,751		159,846	
	15.0	119,389										100,118	120,161	140,204											94,105		140,204	
	22.5	140,624										78,598	98,636	118,675											72,586		118,675	
	30.0	164,361										53,969	73,992	94,016											47,962		94,016	
GVO-G1352-13R2	0.0	71,203										127,360	147,387	167,415	187,443	Exceeds MOP								92	111,339	130	187,443	
	7.5	86,571										112,786	132,826	152,867	172,909										96,753		172,909	
	15.0	103,433										96,031	116,074	136,117	156,160										79,997		156,160	
	22.5	121,535										77,649	97,687	117,725	137,764										61,619		137,764	
	30.0	141,736										56,571	76,594	96,617	116,641										40,553		116,641	
GVO-G1352-13R3	0.0	58,640									99,871	119,897	139,923	159,950	179,978	200,006	Exceeds MOP							77	93,863	130	200,006	
	7.5	71,667									87,610	107,650	127,690	147,731	167,772	187,813									81,598		187,813	
	15.0	85,911									73,469	93,510	113,553	133,595	153,638	173,681									67,456		173,681	
	22.5	101,178									57,931	77,968	98,005	118,043	138,081	158,120									51,920		158,120	
	30.0	118,180									40,083	60,104	80,126	100,149	120,172	140,196									34,077		140,196	
GVO-G1352-13R4	0.0	48,165									70,295	90,320	110,345	130,371	150,397	170,425	190,452	210,481	Exceeds MOP						60	70,295	130	210,481
	7.5	58,604									60,593	80,633	100,672	120,712	140,752	160,793	180,834	200,876								60,593		200,876
	15.0	69,956									49,342	69,383	89,424	109,466	129,508	149,551	169,594	189,637								49,342		189,637
	22.5	82,089									36,948	56,984	77,020	97,057	117,094	137,132	157,170	177,209								36,948		177,209
	30.0	95,555									22,667	42,687	62,708	82,729	102,751	122,774	142,798	162,822								22,667		162,822

Notes:
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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																	MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)	
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190	200					
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G13T40-13R1	0.0	81,203							150,884	174,361	Exceeds MOP										91	129,757	111	176,708
	7.5	99,342						133,986	157,484	112,839		159,833												
	15.0	119,122						114,375	137,875	93,225		140,225												
	22.5	140,292						92,766	116,258	71,623		118,608												
	30.0	163,828						67,859	91,329	46,737		93,676												
GVO-G13T40-13R2	0.0	70,729						114,409	137,883	161,359	184,835	Exceeds MOP								78	109,714	111	187,183	
	7.5	86,280						100,056	123,552	147,049	170,546		95,357	172,896										
	15.0	103,166						83,331	106,831	130,330	153,830		78,632	156,180										
	22.5	121,203						64,871	88,362	111,855	135,347		60,173	137,697										
	30.0	141,203						43,549	67,016	90,484	113,954		38,855	116,301										
GVO-G13T40-13R3	0.0	58,166						103,499	126,972	150,446	173,922	197,398	Exceeds MOP							65	91,762	111	199,746	
	7.5	71,376						91,465	114,960	138,456	161,953	185,451		79,717	187,800									
	15.0	85,645						77,354	100,853	124,352	147,852	171,352		65,605	173,702									
	22.5	100,847						61,736	85,227	108,719	132,211	155,704		49,991	158,053									
	30.0	117,647						43,637	67,104	90,571	114,039	137,509		31,905	139,856									
GVO-G13T40-13R4	0.0	47,691						90,501	113,973	137,446	160,921	184,396	207,872	Exceeds MOP						53	74,070	111	210,220	
	7.5	58,313						81,032	104,527	128,023	151,519	175,016	198,513		64,586	200,863								
	15.0	69,689						69,812	93,310	116,809	140,308	163,807	187,308		53,364	189,658								
	22.5	81,758						57,335	80,825	104,316	127,808	151,300	174,793		40,893	177,142								
	30.0	95,022						42,798	66,263	89,729	113,196	136,665	160,134		26,373	162,481								
GVO-G13T44-13R1	0.0	81,078						143,872	172,354	Exceeds MOP									75	129,631	90	172,354		
	7.5	99,266						126,997	155,504		112,744	155,504												
	15.0	119,051						107,389	135,899		93,134	135,899												
	22.5	140,205						85,772	114,273		71,521	114,273												
	30.0	163,687						60,838	89,313		46,601	89,313												
GVO-G13T44-13R2	0.0	70,604						125,864	154,346	182,828	Exceeds MOP								65	111,624	90	182,828		
	7.5	86,203						111,554	140,060	168,567		97,301	168,567											
	15.0	103,096						94,835	123,345	151,855		80,581	151,855											
	22.5	121,116						76,360	104,861	133,362		62,110	133,362											
	30.0	141,062						54,990	83,464	111,938		40,754	111,938											
GVO-G13T44-13R3	0.0	58,041						109,947	138,427	166,909	195,391	Exceeds MOP							54	92,859	90	195,391		
	7.5	71,299						97,953	126,459	154,964	183,471		80,850	183,471										
	15.0	85,574						83,848	112,357	140,866	169,376		66,743	169,376										
	22.5	100,760						68,216	96,716	125,217	153,718		51,117	153,718										
	30.0	117,507						50,073	78,545	107,019	135,494		32,990	135,494										
GVO-G13T44-13R4	0.0	47,566						91,942	120,421	148,902	177,383	205,866	Exceeds MOP						44	74,855	90	205,866		
	7.5	58,236						82,511	111,016	139,521	168,027	196,534		65,409	196,534									
	15.0	69,619						71,296	99,804	128,313	156,822	185,332		54,191	185,332									
	22.5	81,671						58,806	87,305	115,805	144,306	172,807		41,707	172,807									
	30.0	94,881						44,227	72,698	101,170	129,644	158,119		27,145	158,119									

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Actuator Model (Fail Up)	Spring Stroke		Operating Pressure (psig)																MinOP (psig)	Thrust @ MinOP (lbf)	MOP (psig)	Thrust @ MOP (lbf)		
	Stroke (in.)	Thrust (lbf)	40	50	60	70	80	90	100	110	120	130	140	150	160	170	180	190					200	
			Pressure Stroke Thrust: Start / 25% Stroke / 50% Stroke / 75% Stroke / End (lbf)																					
GVO-G13T48-13R1	0.0	80,959			119,705	153,671	Exceeds MOP														60	119,705	75	170,655
	7.5	99,192		Please consult factory	102,841	136,834																102,841		153,831
	15.0	118,984			83,234	117,231																83,234		134,229
	22.5	140,122			61,612	95,600																61,612		112,594
	30.0	163,553			36,668	70,626																36,668		87,605
GVO-G13T48-13R2	0.0	70,485			130,179	164,145	Exceeds MOP														54	109,800	75	181,129
	7.5	86,130		Please consult factory	115,903	149,897														95,507		166,893		
	15.0	103,029			99,189	133,186														78,791		150,185		
	22.5	121,033			80,701	114,689														60,309		131,683		
	30.0	140,928			59,293	93,251														38,920		110,230		
GVO-G13T48-13R3	0.0	57,922			108,777	142,742	Exceeds MOP														45	91,795	75	193,692
	7.5	71,225		Please consult factory	96,815	130,808														79,819		181,798		
	15.0	85,507			82,714	116,711														65,716		167,706		
	22.5	100,676			67,071	101,058														50,078		152,039		
	30.0	117,373			48,892	82,849														31,915		133,786		
GVO-G13T48-13R4	0.0	47,447	85,287		119,251	153,216	Exceeds MOP														37	75,098	75	204,166
	7.5	58,163	75,886		109,877	143,870														65,688		194,860		
	15.0	69,552	64,674		98,670	132,666														54,476		183,662		
	22.5	81,587	52,174		86,160	120,147														41,979		171,128		
	30.0	94,748	37,562		71,518	105,474														27,376		156,411		
GVO-G13T52-13R1	0.0	80,840			155,365	Exceeds MOP															53	127,415	65	175,330
	7.5	99,119		Please consult factory	138,560															110,589		158,539		
	15.0	118,918			118,961															90,987		138,942		
	22.5	140,039			97,319															69,353		117,295		
	30.0	163,420			72,309															44,366		92,269		
GVO-G13T52-13R2	0.0	70,366			125,910	165,839	Exceeds MOP														46	109,939	65	185,804
	7.5	86,057		Please consult factory	111,664	151,623														95,681		171,602		
	15.0	102,962			94,954	134,917														78,970		154,898		
	22.5	120,950			76,456	116,408														60,476		136,384		
	30.0	140,795			55,015	94,934														39,048		114,894		
GVO-G13T52-13R3	0.0	57,803	98,546		138,473	178,402	Exceeds MOP														38	90,561	65	198,367
	7.5	71,152	86,611		126,569	166,527														78,620		186,506		
	15.0	85,440	72,514		112,476	152,438														64,522		172,419		
	22.5	100,593	56,861		96,812	136,764														48,871		156,740		
	30.0	117,239	38,653		78,571	118,490														30,670		138,450		
GVO-G13T52-13R4	0.0	47,328	109,020		148,948	188,876	Exceeds MOP														31	73,087	65	208,841
	7.5	58,090	99,674		139,631	179,590														63,713		199,569		
	15.0	69,485	88,470		128,431	168,394														52,505		188,375		
	22.5	81,504	75,950		115,901	155,853														39,995		175,829		
	30.0	94,614	61,278		101,196	141,115														25,354		161,075		

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