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ABBREVIATIONS:

BTO- Break to Open
RTO - Run to Open
ETO - End to Open
BTC - Break to Close
RTC - Run to Close
ETC - End to Close



**SCOTCH YOKE PNEUMATIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSY 100	SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	30 psi	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi
160	13000	130	0°	BTO-ETC	2518	3357	5035	5875	6714	7553	8392	10071	10910
			45°	RTO-RTC	1524	2032	3048	3556	4064	4572	5080	6096	6603
			90°	ETO-BTC	2518	3357	5035	5875	6714	7553	8392	10071	10910
180	13000	120	0°	BTO-ETC	3186	4249	6373	7435	8497	9559	10622	12746	
			45°	RTO-RTC	1929	2572	3857	4500	5143	5786	6429	7715	
			90°	ETO-BTC	3186	4249	6373	7435	8497	9559	10622	12746	
235	13000	70	0°	BTO-ETC	5431	7242	10863	12673					
			45°	RTO-RTC	3287	4383	6575	7670					
			90°	ETO-BTC	5431	7242	10863	12673					

KSY 400	SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi
235	36000	130	0°	BTO-ETC	11192	16788	19586	22384	25182	27980	33576	36374	
			45°	RTO-RTC	6299	9449	11024	12599	14174	15749	18898	20473	
			90°	ETO-BTC	8457	12686	14800	16915	19029	21143	25372	27486	
280	36000	90	0°	BTO-ETC	15889	23833	27805	31778	35750				
			45°	RTO-RTC	8943	13414	15650	17886	20122				
			90°	ETO-BTC	12006	18010	21011	24013	27015				
335	36000	60	0°	BTO-ETC	22744	34116							
			45°	RTO-RTC	12801	19202							
			90°	ETO-BTC	17187	25780							
385	36000	40	0°	BTO-ETC	30040								
			45°	RTO-RTC	16908								
			90°	ETO-BTC	22700								

KSY 900	SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi
235	80000	140	0°	BTO-ETC						35974	43169	46767	50364
			45°	RTO-RTC						20248	24298	26323	28347
			90°	ETO-BTC						27184	32621	35340	38058
280	80000	140	0°	BTO-ETC			35750	40857	45964	51071	61285	66392	71499
			45°	RTO-RTC			20122	22996	25871	28745	34494	37369	40243
			90°	ETO-BTC			27015	30874	34733	38592	46311	50170	54029
335	80000	100	0°	BTO-ETC		43863	51174	58484	65795	73105			
			45°	RTO-RTC		24688	28803	32918	37032	41147			
			90°	ETO-BTC		33146	38670	44194	49718	55243			
385	80000	80	0°	BTO-ETC	38622	57934	67589	77245					
			45°	RTO-RTC	21739	32608	38043	43477					
			90°	ETO-BTC	29185	43778	51074	58371					
435	80000	60	0°	BTO-ETC	49306	73959							
			45°	RTO-RTC	27752	41627							
			90°	ETO-BTC	37258	55887							

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE PNEUMATIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSY 1600		SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:								
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi	
335	150000	140	0°	BTO-ETC					85533	95037	114044	123548	133051
			45°	RTO-RTC					48142	53491	64190	69539	74888
			90°	ETO-BTC					64634	71815	86178	93360	100542
385	150000	120	0°	BTO-ETC	50209	75314	87866	100418	112971	125523	150628		
			45°	RTO-RTC	28260	42390	49455	56520	63585	70650	84780		
			90°	ETO-BTC	37941	56912	66397	75882	85367	94853	113823		
435	150000	90	0°	BTO-ETC	64097	96146	112170	128195	144219				
			45°	RTO-RTC	36077	54116	63135	72154	81173				
			90°	ETO-BTC	48436	72654	84763	96872	108981				
485	150000	70	0°	BTO-ETC	79679	119519	139439						
			45°	RTO-RTC	44847	67271	78483						
			90°	ETO-BTC	60210	90316	105368						
535	150000	60	0°	BTO-ETC	96955	145432							
			45°	RTO-RTC	54571	81856							
			90°	ETO-BTC	73265	109897							

KSY 3500		SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:								
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi	
335	310000	140	0°	BTO-ETC								147835	159207
			45°	RTO-RTC								83209	89609
			90°	ETO-BTC								111713	120306
385	310000	140	0°	BTO-ETC						150198	180238	195258	210278
			45°	RTO-RTC						84539	101447	109901	118355
			90°	ETO-BTC						113499	136199	147549	158898
435	310000	140	0°	BTO-ETC				153395	172570	191744	230093	249268	268442
			45°	RTO-RTC				86338	97131	107923	129508	140300	151092
			90°	ETO-BTC				115915	130404	144893	173872	188361	202851
485	310000	130	0°	BTO-ETC			166850	190685	214521	238357	286028	309864	
			45°	RTO-RTC			93911	107327	120743	134159	160990	174406	
			90°	ETO-BTC			126082	144093	162105	180117	216140	234151	
535	310000	100	0°	BTO-ETC	116014	174021	203025	232029	261032	290036			
			45°	RTO-RTC	65298	97948	114272	130597	146922	163246			
			90°	ETO-BTC	87667	131501	153418	175335	197251	219168			

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSY 5000	SYMMETRIC			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø AIR CYLINDER	Max. Operating Torque	Max. Allow able Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi
485	450000	140	0°	BTO-ETC						267835	321402	348186	374969
			45°	RTO-RTC						162907	195488	211779	228070
			90°	ETO-BTC						232905	279486	302777	326067
535	450000	130	0°	BTO-ETC	130362	195543	228134	260724	293315	325905	391086	423677	
			45°	RTO-RTC	79291	118936	138759	158582	178405	198227	237873	257696	
			90°	ETO-BTC	113361	170041	198382	226722	255062	283402	340083	368423	
585	450000	120	0°	BTO-ETC	155868	233801	272768	311735	350702	389669	467603		
			45°	RTO-RTC	94804	142206	165907	189609	213310	237011	284413		
			90°	ETO-BTC	135540	203310	237195	271080	304965	338850	406620		
635	450000	90	0°	BTO-ETC	183650	275475	321388	367300	413213				
			45°	RTO-RTC	111703	167554	195480	223405	251331				
			90°	ETO-BTC	159699	239549	279474	319399	359324				
685	450000	80	0°	BTO-ETC	213710	320565	373993	427420					
			45°	RTO-RTC	129986	194979	227476	259972					
			90°	ETO-BTC	185839	278758	325218	371678					
735	450000	70	0°	BTO-ETC	246047	369071	430583						
			45°	RTO-RTC	149655	224482	261896						
			90°	ETO-BTC	213959	320938	374428						

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYM 100				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																							
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi											
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO									
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°									
140	2071	1602	3213							2072	913	930	2663	1273	1522	3255	1632	2114	3847	1991	2705	5031	2710	3889	5623	3069	4481									
	2071	1602	3213				2567	1214	1425	3340	1683	2198	4113	2152	2971	4886	2622	3744	5659	3091	4517	7205	4030	6063	7978	4499	6836									
	2071	1602	3213	1842	774	700	3799	1962	2657	4777	2556	3635	5755	3150	4614	6734	3744	5592	7712	4338	6570	9669	5526	8527	10647	6120	9505									
160	4071	2947	5895													3482	1624	1659	4321	2132	2498	5999	3148	4176	6839	3656	5015									
	4071	2947	5895							3364	1553	1541	4426	2196	2603	5488	2839	3665	6550	3482	4727	8675	4767	6851	9737	5410	7913									
	4071	2947	5895	3170	1436	1347	6791	3627	4968	8602	4723	6778	10412	5819	8589	12222	6915	10399																		
160	6921	5027	10125																								3989	1576	785							
	6921	5027	10125																																	
	6921	5027	10125							5752	2643	2548	7562	3739	4358	9373	4835	6169	11183	5931	7979															

KSYM 400				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																							
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi											
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO									
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°									
235	10400	7559	11878													14782	6615	7151	17580	8190	9266	23177	11340	13494	25975	12915	15609									
	10400	7559	11878							17406	8092	9134	21378	10327	12135	25350	12563	15137	29322	14799	18139	37267	19270	24142												
	10400	7559	11878	12344	5243	5309	23716	11643	13902	29402	14844	18199	35088	18044	22495																					
235	14710	10701	16816																						18866	8198	8556	21664	9773	10670						
	14710	10701	16816										17068	7185	7197	21040	9421	10198	25012	11657	13200	32956	16128	19203	36929	18364	22205									
	14710	10701	16816				19406	8501	8963	25092	11702	13260	30778	14902	17557	36464	18102	21853																		
	14710	10701	16816	15330	6207	5883	30350	14661	17233																											
280	20268	15179	23720																19454	7178	6296	27398	11650	12299	31370	13886	15301									
	20268	15179	23720							19533	7223	6357	25219	10424	10653	30905	13624	14950	36591	16824	19246															
	20268	15179	23720				24791	10183	10330	32301	14410	16005																								
	20268	15179	23720				37255	17198	19748																											

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYM 900				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO						
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°						
235	12630	9444	15046												16150	6755	6701	19747	8780	9420	23344	10804	12138	30539	14854	17575	34137	16879	20293	
280	12630	9444	15046				18013	7803	8109	23120	10678				28227	13552	15828	33334	16427	19687	38441	19301	23546							
335	12630	9444	15046	16612	7015	7051	31233	15245	18099	38544	19359	23624	45854	23474	29148															
235	18241	12842	21693																						24928	11455	10928	28525	13480	13647
280	18241	12842	21693															27723	13028	13040	32830	15903	16899	43044	21652	24618	48151	24526	28477	
335	18241	12842	21693				25622	11846	11452	32932	15961	16977	40243	20075	22501	47553	24190	28025	54864	28305	33549									
385	18241	12842	21693				39692	19765	22085	49348	25200	29381	59004	30635	36678															
435	18241	12842	21693	31064	14909	15565	55717	28785	34194																					
280	26003	18144	30624																						35282	16350	15687	40389	19225	19546
335	26003	18144	30624												32481	14774	13571	39791	18888	19095	47102	23003	24619	61723	31233	35668	69033	35347	41192	
385	26003	18144	30624							41586	19898	20451	51241	25333	27747	60897	30768	35044	70553	36202	42340									
435	26003	18144	30624				47955	23483	25264	60281	30421	34578	72608	37359	43893															
485	26003	18144	30624	35288	16354	15692	65934	33603	38850																					
335	35014	24402	41315																						52713	24975	24976	60023	29090	30500
385	35014	24402	41315															51887	24510	24352	61543	29945	31648	80854	40814	46241				
435	35014	24402	41315							51271	24164	23887	63598	31102	33201	75924	38040	42516												
485	35014	24402	41315				56924	27345	28158	72247	35970	39737																		

KSYM 1600				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																				
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi								
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO									
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°									
335	40315	28508	44183																						54722	24983	27632	73729	35681	41996	83233	41030	49177
385	40315	28508	44183												60103	28012	31699	72656	35077	41184	85208	42142	50670	110312	56272	69640							
435	40315	28508	44183				55831	25607	28471	71855	34627	40580	87880	43646	52689	103904	52665	64798															
485	40315	28508	44183				79204	38763	46133	99124	49975	61185																					
535	40315	28508	44183	56640	26063	29082	105117	53348	65714																								
335	45413	35633	58052																							68631	28556	28126	78135	33906	35308		
385	45413	35633	58052														67557	27952	27315	80110	35017	36801	105214	49147	55771	117767	56212	65256					
435	45413	35633	58052							66757	27502	26711	82782	36521	38820	98806	45540	50928	114830	54560	63037	146879	72598	87255									
485	45413	35633	58052				74106	31638	32264	94026	42850	47316	113945	54062	62369	133865	65273	77421															
535	45413	35633	58052				100019	46223	51845	124258	59866	70161																					
385	57778	44404	71682																							92850	40376	42141	105402	47441	51626		
435	57778	44404	71682														86441	36769	37298	102466	45789	49407	134514	63827	73625								
485	57778	44404	71682							81661	34079	33686	101581	45290	48739	121501	56502	63791	141420	67714	78844												
535	57778	44404	71682				87655	37452	38215	111893	51095	56531	136132	64738	74847																		

Safety factor is not included. 25% is recommended

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SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL CLOSE SPRING RETURN TORQUES

KSYM 3500				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
485	610	54317	40997	65611				88697	39499	42459	112533	52914	60471	136368	66330	78483	160204	79746	96494	184040	93162	114506	231711	119994	150529	255547	133410	168541		
		54317	40997	65611	61697	24302	22057	119704	56951	65890	148708	73276	87807	177712	89600	109724	206715	105925	131641	235719	122249	153558	293726	154899	197391					
385	782	69248	52609	84162															80950	31930	29337	110990	48838	52037	126010	57292	63387			
435		69248	52609	84162										84147	33730	31753	103322	44522	46242	122496	55314	60732	160845	76899	89710	180019	87691	104200		
485		69248	52609	84162							97601	41302	41920	121437	54718	59931	145273	68134	77943	169108	81550	95955	216780	108382	131978					
535		69248	52609	84162							104773	45339	47339	133777	61663	69256	162780	77988	91173	191784	94313	113090								
435	1057	93579	69815	112015																98165	38108	32878	136514	59693	61857	155689	70485	76346		
485		93579	69815	112015													120942	50928	50090	144778	64344	68101	192449	91176	104125	216285	104592	122136		
535		93579	69815	112015							109446	44458	41403	138450	60782	63320	167453	77107	85236	196457	93431	107153	254464	126081	150987					
585		93579	69815	112015							114490	47296	45214	149168	66815	71419	183846	86334	97624	218524	105852	123829	253202	125371	150034					
635		93579	69815	112015							151577	68171	73239	192436	91169	104115	233296	114166	134991											
685		93579	69815	112015	96610	37233	31703	191704	90757	103562	239252	117518	139491																	

KSYM 5000				SYMMETRIC FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																			
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi							
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO					
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°					
485	1130	100890	86215	154065																140162	60401	55550	166945	76692	78840	220512	109273	125421	247296	125564	148712	
535		100890	86215	154065									127244	52544	44317	159835	72367	72657	192425	92190	100997	225016	112012	129337	290197	151658	186018	322787	171481	214358		
585		100890	86215	154065							132912	55991	49245	171879	79692	83130	210845	103393	117015	249812	127095	150900	288779	150796	184785							
635		100890	86215	154065							174586	81339	85484	220498	109265	125409	266411	137190	165334	312323	165116	205259										
685		100890	86215	154065	112820	43771	31774	219676	108764	124694	273103	141261	171153																			
535	1390	123211	100465	175369												137513	58117	51353	170104	77940	79693	202694	97763	108034	267875	137408	164714	300466	157231	193054		
585		123211	100465	175369										149557	65443	61826	188524	89144	95711	227491	112845	129596	266458	136546	163481	344391	183948	231251				
635		123211	100465	175369							152264	67089	64180	198177	95015	104105	244089	122941	144030	290002	150866	183955	335914	178792	223880							
685		123211	100465	175369							197354	94515	103390	250782	127011	149850	304209	159508	196309	357637	192004	242769										
735		123211	100465	175369	122836	49190	38590	245860	124018	145570	307372	161431	199059																			
585	1800	160021	130478	227747																	190681	82832	77218	229647	106533	111103	307581	153935	178873	346548	177636	212758
635		160021	130478	227747													207279	92928	91651	253191	120853	131576	299104	148779	171501	390929	204630	251351				
685		160021	130478	227747										213971	96998	97471	267399	129495	143931	320826	161991	190390	374254	194488	236850							
735		160021	130478	227747							209050	94005	93191	270561	131418	146681	332073	168832	200170	393585	206246	253660										
785		160021	130478	227747							260971	125585	138341	331137	168262	199356	401302	210940	260371	471468	253617	321386										
635	2220	196805	164119	289862																						262320	115137	109386	354145	170989	189236	
685		196805	164119	289862																							284043	128350	128276	337470	160846	174736
735		196805	164119	289862										233778	97777	84566	295289	135190	138056	356801	172604	191546										
785		196805	164119	289862													294353	134621	137242	364518	177298	198256										
835		196805	164119	289862							279525	125602	124347	358913	173889	193382	438302	222176	262417													

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYM 100				SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
140	2071	1602	3213							2072	913	930	2663	1273	1522	3255	1632	2113	3847	1991	2705	5031	2710	3889	5622	3069	4481			
	1602	3213					2567	1214	1425	3340	1683	2198	4113	2152	2971	4886	2622	3744	5659	3091	4517	7205	4030	6063	7978	4499	6836			
	2071	1602	3213	1842	774	700	3799	1962	2657	4777	2556	3635	5755	3150	4614	6734	3744	5592	7712	4338	6570	9668	5526	8527	10647	6120	9505			
160	4071	2947	5895													3482	1624	1658	4321	2132	2498	5999	3148	4176	6839	3656	5015			
	4071	2947	5895							3364	1553	1540	4426	2196	2603	5488	2839	3665	6550	3482	4727	8674	4767	6851	9737	5410	7913			
	4071	2947	5895	3170	1436	1347	6791	3627	4968	8602	4723	6778	10412	5819	8589	12222	6915	10399												
180	6921	5027	10125																						3989	1576	785			
	6921	5027	10125																					5825	2687	2621	6887	3330	3683	
	6921	5027	10125							5752	2643	2548	7562	3739	4358	9372	4835	6168	11183	5931	7979									

KSYM 400				SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																		
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi						
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°				
235	7859	7559	15710												9055	5040	6674	11169	6615	9472	13284	8190	12270	17512	11340	17866	19627	12914	20664		
	7859	7559	15710				10150	5856	8123	13152	8092	12095	16153	10327	16067	19155	12563	20039	22157	14799	24011	28160	19270	31956							
	7859	7559	15710	9327	5243	7034	17920	11643	18405	22217	14844	24091	26513	18044	29777																
280	11117	10701	22251																					14255	8198	11325	16370	9772	14123		
	11117	10701	22251												12896	7185	9526	15898	9421	13499	18899	11657	17471	24903	16128	25415	27904	18364	29387		
	11117	10701	22251				14663	8501	11865	18960	11702	17551	23256	14902	23236	27553	18102	28922	31850	21302	34608										
	11117	10701	22251	11583	6207	7789	22933	14661	22808	28608	18888	30318																			
335	15816	15179	31535																				14200	7178	8186	20203	11650	16131	23204	13885	20103
	15816	15179	31535							14260	7223	8266	18557	10423	13952	22853	13624	19638	27150	16824	25324	35743	23225	36696							
	15816	15179	31535				18233	10182	13524	23908	14409	21034	29583	18636	28544	35258	22863	36054													
	15816	15179	31535	13162	6405	6813	27651	17198	25988																						

Safety factor is not included. 25% is recommended

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SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL OPEN SPRING RETURN TORQUES

KSYM 900			SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi			
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	
235	9541	8886	19914											12206	7312	8865	14925	9337	12463	17643	11362	16060	23080	15411	23255	25798	17436	26852
280	9541	8886	19914				13614	8361	10728	17473	11235	15835	21332	14110	20942	25192	16984	26049	29051	19859	31156							
335	9541	8886	19914	12556	7573	9328	23604	15802	23949	29128	19917	31259	34653	24031	38569													
235	13781	12780	28588																				18840	11517	14581	21559	13542	18178
280	13781	12780	28588										17093	10216	12269	20952	13090	17376	24811	15965	22483	32530	21714	32697	36389	24588	37804	
335	13781	12780	28588				19365	11908	15275	24889	16022	22585	30413	20137	29896	35937	24252	37206	41462	28366	44517							
385	13781	12780	28588	15405	8958	10034	29997	19827	29345	37293	25262	39001	44590	30696	48656													
435	13781	12780	28588	23477	14971	20717	42106	28847	45370	51421	35784	57696	60735	42722	70023													
280	18905	17648	39589																				27405	16846	21695	31264	19720	26802
335	18905	17648	39589										25289	15269	18894	30813	19384	26205	36337	23498	33515	47385	31728	48136	52910	35842	55447	
385	18905	17648	39589				24873	14959	18344	32169	20394	27999	39465	25828	37655	46761	31263	47310	54058	36698	56966							
435	18905	17648	39589				36982	23979	34369	46296	30917	46695	55611	37854	59021													
485	18905	17648	39589	27410	16849	21702	50568	34098	52347																			
335	25924	24207	54299																				40367	25169	33426	45891	29284	40737
385	25924	24207	54299													39743	24705	32600	47039	30139	42256	61632	41008	61567	68928	46443	71223	
435	25924	24207	54299							39278	24358	31985	48592	31296	44311	57907	38234	56638	67221	45172	68964							
485	25924	24207	54299				43549	27540	37638	55128	36164	52960	66707	44789	68283	78286	53413	83606										

KSYM 1600			SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																			
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi						
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°				
335	30464	26835	58468																				41351	26655	36568	55713	37354	55575	62895	42703	65079
385	30464	26835	58468							35932	22619	29397	45417	29684	41950	54902	36749	54502	64388	43814	67054	83358	57944	92158							
435	30464	26835	58468				42189	27280	37677	54298	36299	53701	66407	45318	69726	78515	54337	85750													
485	30464	26835	58468	29746	18011	21211	59851	40435	61050	74903	51647	80969																			
535	30464	26835	58468	42800	27735	38486	79432	55020	86963	97748	68663	111201																			
335	34323	33535	76816																				51855	30653	37227	59036	36003	46731			
385	34323	33535	76816							50439	29599	35354	62548	38618	51378	74656	47637	67402	86765	56657	83426	110983	74695	115475							
435	34323	33535	76816							55992	33735	42702	71044	44947	62622	86097	56158	82542	101149	67370	102461										
485	34323	33535	76816	38941	21035	20138	75573	48320	68615	93889	61963	92854	112205	75605	117092																
535	34323	33535	76816	38941	21035	20138	75573	48320	68615	93889	61963	92854	112205	75605	117092																
385	43661	41793	94853																				51191	28857	30668	70161	42987	55773	79647	50052	68325
435	43661	41793	94853							53210	30360	33340	65319	39380	49364	77428	48399	65389	101645	66437	97437	113754	75456	113461							
485	43661	41793	94853							61707	36689	44584	76759	47901	64504	91811	59112	84423	106864	70324	104343	136969	92748	144182							
535	43661	41793	94853				66236	40062	50578	84552	53705	74816	102868	67348	99055	121184	80990	123293													

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYM 3500				SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
485	41041	40997	86826				67028	39498	56187	85040	52914	80023	103051	66329	103858	121063	79745	127693	139074	93161	151529	175097	119992	199200	193109	133408	223035			
535	41041	40997	86826	46626	24301	29188	90459	56950	87194	112376	73275	116198	134292	89599	145201															
385	52733	52609	111378																	60765	31929	38819	83465	48837	68859	94815	57291	83879		
435	52733	52609	111378										63181	33729	42016	77670	44521	61191	92159	55313	80365	121138	76898	118713	135627	87690	137888			
485	52733	52609	111378						73348	41301	55471	91359	54717	79306	109371	68133	103141	127382	81549	126977	163405	108380	174648							
535	52733	52609	111378				78767	45338	62642	100684	61663	91646	122600	77987	120649	144517	94311	149652												
435	69523	69815	148232																75370	38107	43510	104348	59692	81859	118837	70484	101033			
485	69523	69815	148232															92581	50927	66287	110592	64343	90122	146615	91174	137793	164627	104590	161629	
535	69523	69815	148232							83894	44457	54791	105811	60781	83794	127727	77106	112798	149644	93430	141801	193477	126079	199808						
585	69523	69815	148232				87705	47296	59835	113910	66814	94513	140114	86332	129190	166319	105851	163868	192524	125369	198546									
635	69523	69815	148232				115730	68170	96922	146606	91167	137781	177481	114165	178640															
685	69523	69815	148232	74194	37232	41955	146053	90755	137049	181982	117517	184595																		

KSYM 5000				SYMMETRIC FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
485	87835	86215	177174													121778	60400	63875	145068	76691	90659	191649	109272	144225	214939	125562	171008			
535	87835	86215	177174							110545	52543	50958	138885	72366	83548	167225	92188	116138	195565	112011	148728	252245	151656	213909	280585	171478	246499			
585	87835	86215	177174				115473	55990	56625	149358	79691	95592	183243	103392	134558	217128	127093	173525	251012	150794	212491									
635	87835	86215	177174				151712	81338	98299	191637	109263	144211	231561	137188	190123	271486	165114	236035												
685	87835	86215	177174	98003	43770	36534	190921	108763	143388	237381	141259	196815																		
535	107147	100465	201664										119573	58116	59058	147913	77938	91648	176253	97761	124238	232933	137406	189419	261273	157229	222009			
585	107147	100465	201664							130046	65441	71102	163931	89142	110068	197815	112843	149035	231700	136544	188001	299469	183946	265935	333354	207647	304901			
635	107147	100465	201664				132400	67088	73809	172324	95013	119721	212249	122939	165633	252173	150864	211545	292098	178790	257457									
685	107147	100465	201664				171609	94513	118898	218068	127009	172325	264528	159505	225752	310987	192002	279180												
735	107147	100465	201664	106810	49189	44381	213789	124016	167404	267278	161429	228915																		
585	139151	130478	261902													165811	82830	88797	199696	106531	127763	267465	153933	205696	301350	177634	244663			
635	139151	130478	261902										180245	92926	105395	220169	120851	151307	260094	148777	197219	339943	204628	289044	379867	232553	334956			
685	139151	130478	261902							186064	96996	112087	232523	129493	165514	278983	161989	218941	325442	194485	272368									
735	139151	130478	261902				181784	94003	107166	235274	131416	168677	288763	168830	230188	342252	206243	291699												
785	139151	130478	261902	104906	40230	18757	226934	125583	159087	287948	168260	229252	348963	210937	299416	409977	253614	369581												
635	171138	164119	333337																228107	115135	125785	307956	170986	217609	347881	198911	263521			
685	171138	164119	333337																246996	128347	147507	293456	160843	200934	386374	307788	432834	258332	361215	
735	171138	164119	333337							203287	97774	97242	256776	135188	158754	310266	172601	220265	363755	210015	281776	470733	284842	404799						
785	171138	164119	333337							255962	134618	157817	316976	177295	227982	377990	219972	298147	439005	262649	368312									
835	171138	164119	333337				243068	125600	142990	312102	173886	222377	381137	222172	301765	450171	270459	381153												

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and/or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSYH 100	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
35	13000	3000	0°	BTO	2590	3437	4284	5131	6028	6874	7721	8568	10312
			45°	RTO	1594	2115	2636	3158	3709	4230	4752	5273	6346
			90°	ETO	2590	3437	4284	5131	6028	6874	7721	8568	10312
			90°	BTC	1745	2315	2885	3456	4059	4630	5200	5770	6945
			45°	RTC	1074	1425	1776	2126	2498	2849	3200	3551	4274
			0°	ETC	1745	2315	2885	3456	4059	4630	5200	5770	6945
			40	13000	2500	0°	BTO	3383	4489	5596	6702	7873	8979
45°	RTO	2082				2763	3443	4124	4845	5525	6206	6887	
90°	ETO	3383				4489	5596	6702	7873	8979	10085	11191	
90°	BTC	2538				3367	4197	5026	5905	6734	7564	8393	
45°	RTC	1562				2072	2583	3093	3634	4144	4655	5165	
0°	ETC	2538				3367	4197	5026	5905	6734	7564	8393	
45	13000	2250				0°	BTO	4282	5682	7082	8482	9964	11364
			45°	RTO	2635	3497	4358	5220	6132	6993	7855		
			90°	ETO	4282	5682	7082	8482	9964	11364	12764		
			90°	BTC	3436	4560	5683	6806	7996	9119	10243		
			45°	RTC	2115	2806	3497	4189	4921	5612	6303		
			0°	ETC	3436	4560	5683	6806	7996	9119	10243		
			50	13000	2000	0°	BTO	5287	7015	8743	10471	12301	14030
45°	RTO	3253				4317	5380	6444	7570	8634			
90°	ETO	5287				7015	8743	10471	12301	14030			
90°	BTC	4441				5892	7344	8796	10333	11785			
45°	RTC	2733				3626	4519	5413	6359	7252			
0°	ETC	4441				5892	7344	8796	10333	11785			
55	13000	1500				0°	BTO	6397	8488	10579	12670		
			45°	RTO	3936	5223	6510	7797					
			90°	ETO	6397	8488	10579	12670					
			90°	BTC	5551	7366	9180	10995					
			45°	RTC	3416	4533	5649	6766					
			0°	ETC	5551	7366	9180	10995					
			60	13000	1250	0°	BTO	7613	10101	12590			
45°	RTO	4685				6216	7748						
90°	ETO	7613				10101	12590						
90°	BTC	6767				8979	11191						
45°	RTC	4164				5525	6887						
0°	ETC	6767				8979	11191						

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSYH 400	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
45	36000	3000	0°	BTO				15327	18006	20535	23065	25595	30803
			45°	RTO				8627	10134	11558	12982	14406	20397
			90°	ETO				11582	13606	15518	17429	19341	23276
			90°	BTC				6434	7559	8621	9683	10745	12931
			45°	RTC				4793	5630	6421	7212	8003	9632
			0°	ETC				8515	10003	11408	12814	14219	17113
			50	36000	2500	0°	BTO		12676	15799	18922	22229	25352
45°	RTO					7135	8893	10650	12512	14269	16027	17785	
90°	ETO					9579	11939	14299	16798	19158	21518	23878	
90°	BTC					6130	7641	9151	10750	12261	13771	15282	
45°	RTC					4566	5691	6816	8007	9132	10257	11382	
0°	ETC					8113	10111	12110	14227	16225	18224	20223	
55	36000	2250				0°	BTO	11559	15338	19117	22896	26897	30676
			45°	RTO	6506	8633	10760	12887	15139	17266	19393		
			90°	ETO	8735	11590	14446	17301	20325	23181	26036		
			90°	BTC	6136	8142	10148	12154	14278	16284	18290		
			45°	RTC	4570	6064	7559	9053	10635	12129	13623		
			0°	ETC	8120	10775	13429	16084	18895	21549	24204		
			60	36000	2000	0°	BTO	13756	18254	22751	27248	32010	36507
45°	RTO	7743				10274	12805	15336	18017	20548			
90°	ETO	10395				13793	17192	20590	24188	27587			
90°	BTC	7796				10345	12894	15443	18141	20690			
45°	RTC	5807				7705	9604	11502	13512	15411			
0°	ETC	10317				13690	17063	20436	24007	27380			
65	36000	1750				0°	BTO	16145	21423	26701	31979	37567	
			45°	RTO	9087	12058	15028	17999	21145				
			90°	ETO	12200	16188	20177	24165	28388				
			90°	BTC	9601	12740	15879	19017	22341				
			45°	RTC	7151	9489	11827	14165	16640				
			0°	ETC	12705	16859	21013	25167	29565				
			70	36000	1500	0°	BTO	18724	24845	30966	37088		
45°	RTO	10539				13984	17429	20875					
90°	ETO	14149				18774	23400	28026					
90°	BTC	11550				15326	19102	22878					
45°	RTC	8603				11416	14228	17041					
0°	ETC	15285				20282	25279	30276					
75	36000	1250				0°	BTO	21494	28521	35548			
			45°	RTO	12098	16053	20008						
			90°	ETO	16242	21552	26862						
			90°	BTC	13644	18104	22564						
			45°	RTC	10162	13485	16807						
			0°	ETC	18055	23958	29860						
			80	36000	1000	0°	BTO	24456	32451				
45°	RTO	13765				18265							
90°	ETO	18480				24522							
90°	BTC	15881				21073							
45°	RTC	11829				15696							
0°	ETC	21017				27887							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSYH 900	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
65	80000	3000	0° BTO				41115	48300	55087	61873	68659	82630	
			45° RTO				23142	27186	31005	34825	38644	46508	
			90° ETO				31069	36499	41627	46755	51882	62440	
			90° BTC				19303	22677	25863	29049	32235	38794	
			45° RTC				14378	16891	19264	21637	24010	28896	
			0° ETC				25545	30009	34225	38442	42658	51338	
70	80000	2500	0° BTO			39814	47684	56017	63887	71757	79628		
			45° RTO			22409	26839	31529	35959	40389	44818		
			90° ETO			30086	36033	42330	48277	54224	60171		
			90° BTC			20262	24267	28508	32513	36518	40524		
			45° RTC			15092	18075	21234	24217	27200	30184		
			0° ETC			26813	32114	37726	43026	48326	53627		
75	80000	2250	0° BTO	27635	36670	45705	54739	64305	73340	82375			
			45° RTO	15555	20640	25725	30810	36194	41279	46364			
			90° ETO	20883	27710	34537	41364	48593	55420	62247			
			90° BTC	14943	19828	24713	29598	34771	39656	44541			
			45° RTC	11130	14769	18408	22046	25899	29538	33176			
			0° ETC	19775	26239	32704	39169	46014	52479	58944			
80	80000	1750	0° BTO	31443	41722	52002	62281	73165					
			45° RTO	17698	23483	29269	35055	41181					
			90° ETO	23760	31528	39296	47063	55288					
			90° BTC	17820	23646	29472	35298	41466					
			45° RTC	13273	17613	21952	26291	30886					
			0° ETC	23582	31292	39001	46711	54874					
85	80000	1750	0° BTO	35496	47101	58705	70310	82597					
			45° RTO	19979	26510	33042	39574	46489					
			90° ETO	26823	35592	44361	53130	62415					
			90° BTC	20883	27710	34537	41364	48593					
			45° RTC	15555	20640	25725	30810	36194					
			0° ETC	27635	36670	45705	54739	64305					
90	80000	1500	0° BTO	39795	52805	65815	78825						
			45° RTO	22399	29721	37044	44366						
			90° ETO	30071	39902	49733	59565						
			90° BTC	24131	32020	39910	47799						
			45° RTC	17974	23850	29726	35603						
			0° ETC	31934	42374	52814	63254						
100	80000	1250	0° BTO	49130	65191	81253							
			45° RTO	27652	36693	45733							
			90° ETO	37125	49262	61399							
			90° BTC	31185	41380	51575							
			45° RTC	23228	30822	38416							
			0° ETC	41269	54761	68252							
110	80000	1000	0° BTO	59447	78881								
			45° RTO	33460	44398								
			90° ETO	44921	59607								
			90° BTC	38981	51725								
			45° RTC	29035	38527								
			0° ETC	51586	68451								

Safety factor is not included. 25% is recommended

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SCOTCH YOKE HYDRAULIC SYMMETRIC DOUBLE ACTING TORQUES

KSYH 1600	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CLYNDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
75	150000	3000	0°	BTO						95342	107087	118832	143013
			45°	RTO						53663	60274	66884	80495
			90°	ETO						72046	80921	89797	108069
			90°	BTC						42536	47776	53016	63804
			45°	RTC						31683	35586	39489	47524
			0°	ETC						56290	63224	70158	84435
80	150000	2500	0°	BTO					95115	108478	121841	135205	
			45°	RTO					53535	61057	68578	76100	
			90°	ETO					71874	81972	92071	102169	
			90°	BTC					46000	52462	58925	65388	
			45°	RTC					34263	39076	43890	48704	
			0°	ETC					60873	69426	77978	86531	
85	150000	2250	0°	BTO				91402	107376	122462	137547		
			45°	RTO				51446	60436	68927	77418		
			90°	ETO				69069	81139	92539	103939		
			90°	BTC				47043	55265	63029	70794		
			45°	RTC				35040	41164	46947	52730		
			0°	ETC				62255	73134	83409	93685		
90	150000	2000	0°	BTO			85559	102472	120380	137293			
			45°	RTO			48157	57676	67756	77275			
			90°	ETO			64654	77434	90966	103746			
			90°	BTC			46263	55408	65091	74236			
			45°	RTC			34459	41271	48483	55294			
			0°	ETC			61222	73324	86138	98240			
95	150000	1750	0°	BTO	57641	76485	95330	114174	134127				
			45°	RTO	32443	43050	53656	64263	75493				
			90°	ETO	43557	57797	72037	86277	101354				
			90°	BTC	32437	43042	53646	64251	75479				
			45°	RTC	24161	32060	39958	47857	56220				
			0°	ETC	42926	56959	70993	85026	99885				
105	150000	1500	0°	BTO	70415	93435	116455	139476					
			45°	RTO	39633	52590	65547	78504					
			90°	ETO	53210	70605	88001	105396					
			90°	BTC	42090	55850	69610	83370					
			45°	RTC	31350	41600	51849	62098					
			0°	ETC	55700	73909	92119	110328					
115	150000	1250	0°	BTO	84466	112080	139694						
			45°	RTO	47542	63084	78626						
			90°	ETO	63828	84694	105561						
			90°	BTC	52708	69939	87171						
			45°	RTC	39259	52094	64928						
			0°	ETC	69751	92554	115357						
130	150000	1000	0°	BTO	107938	143225							
			45°	RTO	60753	80614							
			90°	ETO	81564	108229							
			90°	BTC	70444	93474							
			45°	RTC	52470	69624							
			0°	ETC	93222	123699							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSYH 3500	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
100	310000	3000	0°	BTO				151378	177832	202817	227802	252786	304225
			45°	RTO				85203	100093	114155	128218	142280	171233
			90°	ETO				114390	134381	153260	172140	191020	229891
			90°	BTC				88035	103419	117949	132479	147009	176924
			45°	RTC				65572	77031	87854	98676	109499	131781
			0°	ETC				116500	136860	156088	175316	194544	234132
110	310000	2500	0°	BTO			152936	183167	215177	245408	275640	305871	
			45°	RTO			86080	103095	121112	138128	155143	172159	
			90°	ETO			115567	138412	162600	185445	208290	231135	
			90°	BTC			93562	112056	131639	150134	168629	187123	
			45°	RTC			69689	83465	98051	111826	125602	139378	
			0°	ETC			123815	148290	174204	198679	223154	247629	
115	310000	2250	0°	BTO			167155	200197	235183	268225	301268		
			45°	RTO			94083	112681	132372	150970	169568		
			90°	ETO			126312	151281	177718	202687	227656		
			90°	BTC			104307	124925	146757	167376	187995		
			45°	RTC			77692	93050	109311	124669	140027		
			0°	ETC			138034	165320	194211	221496	248782		
125	310000	2000	0°	BTO	119412	158451	197489	236528	277863	316901			
			45°	RTO	67211	89184	111156	133129	156395	178367			
			90°	ETO	90235	119735	149235	178734	209970	239469			
			90°	BTC	76929	102079	127229	152379	179008	204158			
			45°	RTC	57300	76033	94766	113499	133333	152066			
			0°	ETC	101804	135086	168368	201650	236890	270172			
135	310000	1500	0°	BTO	139282	184817	230351	275886					
			45°	RTO	78395	104024	129653	155282					
			90°	ETO	105250	139659	174067	208476					
			90°	BTC	91944	122003	152062	182120					
			45°	RTC	68484	90873	113262	135651					
			0°	ETC	121674	161452	201230	241009					
140	310000	1500	0°	BTO	149791	198761	247730	296700					
			45°	RTO	84309	111872	139435	166997					
			90°	ETO	113191	150195	187200	224205					
			90°	BTC	99885	132540	165194	197849					
			45°	RTC	74399	98721	123044	147367					
			0°	ETC	132182	175396	218610	261823					
160	310000	1250	0°	BTO	195645	259606	323566						
			45°	RTO	110118	146119	182119						
			90°	ETO	147841	196173	244506						
			90°	BTC	134535	178518	222500						
			45°	RTC	100208	132968	165728						
			0°	ETC	178037	236241	294445						
170	310000	1000	0°	BTO	220865	293070							
			45°	RTO	124313	164954							
			90°	ETO	166898	221461							
			90°	BTC	153593	203806							
			45°	RTC	114403	151803							
			0°	ETC	203257	269706							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC
DOUBLE ACTING TORQUES**

KSYH 5000	SYMMETRIC			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CLYNDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
115	450000	3000	0°	BTO						301398	338526	375655	452096
			45°	RTO						183321	205904	228487	274981
			90°	ETO						262091	294377	326664	393136
			90°	BTC						183434	206031	228628	275151
			45°	RTC						128304	144109	159915	192456
			0°	ETC						210944	236930	262916	316416
			130	450000	2250	0°	BTO				287468	337705	385151
45°	RTO							174848	205404	234263	263121		
90°	ETO							249977	293663	334921	376180		
90°	BTC							191270	224695	256264	287833		
45°	RTC							133785	157165	179246	201327		
0°	ETC							219955	258394	294697	331001		
140	450000	2000				0°	BTO				333394	391657	446684
			45°	RTO				202783	238220	271689			
			90°	ETO				289915	340579	388429			
			90°	BTC				231207	271612	309772			
			45°	RTC				161719	189981	216672			
			0°	ETC				265882	312347	356230			
			150	450000	1750	0°	BTO				319555	382723	449607
45°	RTO							194365	232786	273467			
90°	ETO							277880	332810	390971			
90°	BTC							228862	274102	322004			
45°	RTC							160079	191723	225228			
0°	ETC							263186	315211	370296			
160	450000	1500				0°	BTO	219841	291712	363583	435454		
			45°	RTO	133715	177430	221144	264859					
			90°	ETO	191170	253668	316166	378664					
			90°	BTC	161531	214340	267148	319956					
			45°	RTC	112984	149921	186858	223795					
			0°	ETC	185757	246485	307213	367942					
			170	450000	1250	0°	BTO	248180	329315	410451			
45°	RTO	150952				200301	249651						
90°	ETO	215813				286367	356922						
90°	BTC	186174				247039	307904						
45°	RTC	130221				172793	215365						
0°	ETC	214096				284089	354081						
190	450000	1000				0°	BTO	310010	411359				
			45°	RTO	188559	250204							
			90°	ETO	269580	357712							
			90°	BTC	239941	318383							
			45°	RTC	167828	222695							
			0°	ETC	275926	366133							
			200	450000	1000	0°	BTO	343501	455800				
45°	RTO	208930				277234							
90°	ETO	298703				396356							
90°	BTC	269064				357028							
45°	RTC	188199				249725							
0°	ETC	309417				410573							

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 100			SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi				
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
40	2071	1602	3213	2764	1333	1622	3955	2057	2813	5146	2780	4004	6407	3546	5266	7599	4269	6457	8790	4992	7648	9981	5715	8839	12433	7204	11292		
45	2071	1602	3213	4048	2113	2906	5556	3028	4414	7063	3944	5921	8659	4913	7518	10167	5828	9025	11675	6744	10533	13182	7659	12040					
50	2071	1602	3213	5483	2985	4342	7345	4115	6203	9206	5245	8064	11176	6441	10035	13038	7571	11896											
55	2071	1602	3213	7070	3948	5928	9322	5315	8180	11574	6682	10432	13958	8130	12817														
60	2071	1602	3213	8807	5003	7665	11487	6630	10346																				
65	2071	1602	3213	10696	6149	9554	13841	8059	12700																				
70	2071	1602	3213	12736	7388	11594																							
40	4071	2947	5895										5134	2624	3311	6427	3407	4604	7720	4190	5897	9014	4973	7190	11676	6584	9853		
45	4071	2947	5895				4209	2064	2386	5846	3055	4023	7579	4104	5756	9216	5095	7392	10853	6086	9029	12489	7076	10666					
50	4071	2947	5895				6151	3240	4328	8172	4463	6349	10312	5758	8488	12332	6981	10509											
55	4071	2947	5895	5853	3060	4030	8298	4539	6475	10743	6019	8920	13332	7586	11509														
60	4071	2947	5895	7739	4201	5916	10649	5963	8826	13559	7724	11736																	
65	4071	2947	5895	9790	5442	7967	13205	7509	11382																				
70	4071	2947	5895	12004	6783	10181																							
40	6921	5027	10125																			6164	2893	2960	8826	4504	5622		
45	6921	5027	10125																	8003	4006	4799	9639	4996	6435	13009	7036	9805	
50	6921	5027	10125										7462	3678	4258	9483	4901	6279	11503	6124	8299	13524	7348	10320					
55	6921	5027	10125							7893	3939	4689	10482	5506	7278	12927	6986	9723											
60	6921	5027	10125				7799	3883	4595	10709	5644	7505	13790	7509	10586														
65	6921	5027	10125				10355	5429	7151	13770	7497	10566																	
70	6921	5027	10125	9154	4703	5950	13115	7100	9911																				
75	6921	5027	10125	11533	6142	8329																							

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 400			SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																			
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi						
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°				
50	110	10400	7559	11878																											
		10400	7559	11878							12496	5328	5424	16497	7580	8447	14952	6711	7280	18076	8469	9640	21199	10227	12000	27629	13846	16859			
		10400	7559	11878							16848	7778	8713	21610	10458	12311	26107	12989	15709	30605	15521	19108	35102	18052	22506						
		10400	7559	11878				16301	7470	8299	21579	10441	12287	27167	13586	16510	32445	16557	20499												
		10400	7559	11878	14445	6425	6897	20567	9871	11522	26688	13316	16148	33169	16964	21046															
		10400	7559	11878	18121	8495	9675	25148	12450	14985	32175	16405	20295																		
		10400	7559	11878	22051	10706	12644	30046	15206	18686																					
55	160	14710	10701	16816															15966	6565	6364	19745	8692	9220	23524	10819	12075	31304	15198	17955	
60		14710	10701	16816															17300	7316	7372	21797	9847	10770	26294	12379	14169	30792	14910	17567	
65		14710	10701	16816							17269	7299	7348	22857	10444	11571	28135	13415	15560	33413	16385	19548									
70		14710	10701	16816				16256	6729	6584	22378	10174	11209	28859	13822	16107	34980	17267	20732												
75		14710	10701	16816	13811	5353	4736	20838	9308	10046	27865	13263	15356	35305	17450	20978															
80		14710	10701	16816	17741	7564	7705	25736	12064	13747	33731	16564	19788																		
85		14710	10701	16816	21924	9919	10866	30950	14999	17687																					
90	14710	10701	16816	26360	12416	14219	36479	18111	21865																						
60	220	20268	15179	23720																											
65		20268	15179	23720																22577	8936	8656	27855	11907	12645	33133	14878	16633			
70		20268	15179	23720										23301	9344	9203	29422	12789	13829	35543	16234	18454									
75		20268	15179	23720							22307	8784	8452	29747	12972	14075	36774	16927	19385												
80		20268	15179	23720							28173	12086	12885	36638	16851	19282															
85		20268	15179	23720				25391	10520	10783	34417	15600	17603																		
95		20268	15179	23720	25492	10577	10859	36767	16923	19379																					
105	20268	15179	23720	35633	16285	18522																									

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 900				SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:															
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi			
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	
65	12630	9444	15046				21699	9878	10895	28485	13698	16023	35670	17742	21452	42456	21562	26580	49243	25381	31708	56029	29201	36836	70000	37064	47394	
70	12630	9444	15046				27184	12965	15039	35054	17395	20987	43387	22085	27284	51257	26515	33231	59127	30945	39178	66998	35375	45125				
75	12630	9444	15046	24040	11196	12664	33075	16281	19491	42109	21366	26318	51675	26750	33547	60710	31836	40374	69745	36921	47201	78779	42006	54028				
80	12630	9444	15046	29092	14040	16482	39372	19825	24249	49651	25611	32017	60535	31737	40242	70815	37523	48009										
85	12630	9444	15046	34471	17067	20546	46075	23598	29315	57680	30130	38084	69967	37046	47369													
90	12630	9444	15046	40175	20277	24856	53185	27600	34687	66195	34923	44518	79970	42676	54928													
100	12630	9444	15046	52561	27249	34216	68623	36289	46353																			
110	12630	9444	15046	66251	34954	44561																						
70	18241	12842	21693							29443	13996	14340	37776	18687	20637	45646	23116	26584	53516	27546	32531	61386	31976	38478	77590	41096	50722	
75	18241	12842	21693				27463	12882	12844	36498	17967	19671	46064	23352	26900	55099	28437	33727	64133	33522	40554	73168	38607	47381				
80	18241	12842	21693				33760	16427	17602	44040	22212	25370	54924	28338	33595	65203	34124	41363	75483	39910	49130							
85	18241	12842	21693	28859	13668	13899	40664	20200	22668	52068	26731	31437	64355	33647	40722	75960	40179	49491										
90	18241	12842	21693	34563	16879	18209	47573	24201	28040	60583	31524	37871	74358	39277	48281													
95	18241	12842	21693	40594	20273	22766	55089	28432	33720	69585	36590	44673																
100	18241	12842	21693	46950	23850	27569	63011	32891	39706	79073	41931	51843																
110	18241	12842	21693	60640	31556	37914	80074	42494	52600																			
70	26003	18144	30624										30014	13385	11706	37884	17815	17653	45754	22245	23601	53624	26674	29548	69827	35794	41792	
75	26003	18144	30624										38302	18050	17969	47337	23135	24796	56371	28220	31624	65406	33306	38451				
85	26003	18144	30624							44306	21430	22507	56593	28345	31791	68198	34877	40560	79802	41409	49329							
90	26003	18144	30624				39811	18900	19110	52821	26222	28941	66596	33976	39350	79606	41298	49181										
95	26003	18144	30624	32832	14971	13836	47327	23130	24789	61823	31289	35743	77171	39928	47341													
100	26003	18144	30624	39188	18549	18639	55249	27589	30776	71311	36629	42913																
105	26003	18144	30624	45870	22310	23688	63578	32277	37069	81286	42243	50450																
115	26003	18144	30624	60212	30382	34526	81453	42338	50577																			
75	35014	24402	41315																	47361	21963	20932	56396	27048	27759	74996	37517	41815
80	35014	24402	41315													48431	22565	21740	58711	28351	29508	68990	34137	37276				
85	35014	24402	41315										47583	22088	21100	59188	28619	29869	70792	35151	38638							
90	35014	24402	41315							43811	19965	18249	57586	27718	28659	70596	35041	38490										
95	35014	24402	41315							52813	25031	25051	68161	33670	36649													
105	35014	24402	41315				54568	26019	26378	72275	35986	39759																
110	35014	24402	41315	43868	19997	18292	63302	30935	32978																			
120	35014	24402	41315	58862	28436	29622	81990	41454	47100																			

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 1600				SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																		
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi						
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°				
80	40315	28508	44183												54800	25027	27691	68163	32548	37790	81526	40070	47888	94889	47591	57986	122402	63077	78776		
85	40315	28508	44183							51087	22937	24886	67061	31928	36957	82146	40419	48356	97232	48910	59756	112318	57401	71156	143377	74883	94626				
90	40315	28508	44183				45244	19649	20471	62157	29168	33251	80065	39247	46783	96977	48767	59563	113890	58286	72344	130803	67805	85124							
100	40315	28508	44183				65313	30945	35636	86193	42697	51414	108302	55141	68121	129182	66893	83899													
105	40315	28508	44183	53120	24082	26422	76140	37039	43818	99161	49995	61213	123535	63715	79632																
110	40315	28508	44183	62230	29209	33307	87495	43430	52398	112760	57650	71490	139511	72707	91705																
120	40315	28508	44183	81723	40181	48036	111790	57104	70757	141857	74027	93477																			
130	40315	28508	44183	102910	52106	64046	138197	71967	90712																						
80	45413	35633	58052																		76428	32945	34018	89791	40467	44117	117304	55952	64907		
85	45413	35633	58052												77048	33294	34487	92134	41785	45887	107220	50276	57287	138279	67758	80757					
95	45413	35633	58052							68761	28630	28225	88714	39860	43302	107558	50466	57542	126402	61073	71782	145246	71679	86022							
100	45413	35633	58052				60215	23820	21767	81095	35572	37545	103204	48016	54252	124084	59768	70030	144964	71520	85808										
105	45413	35633	58052				71042	29914	29949	94063	42871	47344	118437	56590	65763	141457	69547	83158													
115	45413	35633	58052	66667	27451	26642	94281	42993	47509	121894	58536	68376																			
125	45413	35633	58052	87006	38899	42012	119631	57262	66665																						
135	45413	35633	58052	109041	51301	58663	147095	72720	87418																						
90	57778	44404	71682															79515	32871	32064	96428	42390	44845	113341	51909	57625	148161	71508	83937		
95	57778	44404	71682															95193	41695	43912	114038	52302	58152	132882	62908	72391					
100	57778	44404	71682										90839	39245	40622	111719	50997	56400	132599	62749	72178										
110	57778	44404	71682							95298	41754	43991	122049	56811	64205	147314	71031	83297													
115	57778	44404	71682				81916	34222	33879	109530	49765	54745	138768	66221	76840																
125	57778	44404	71682				107267	48491	53035	139892	66854	77689																			
135	57778	44404	71682	96676	42530	45032	134730	63949	73788																						
150	57778	44404	71682	132906	62922	72410																									

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 3500				SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:														
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi		
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
100	54317	40997	65611				72076	30143	29900	97061	44206	48779	123515	59096	68770	148500	73158	87650	173485	87221	106530	198469	101284	125410	249908	130236	164280
110	54317	40997	65611				98619	45083	49957	128850	62099	72801	160860	80115	96990	191091	97131	119835	221323	114147	142679	251554	131163	165524	313796	166195	212557
120	54317	40997	65611	91711	41195	44737	127689	61445	71924	163667	81695	99111	201761	103137	127897	237739	123387	155084	273717	143637	182272	309695	163887	209459			
125	54317	40997	65611	104134	48187	54124	143172	70160	83624	182211	92133	113124	223546	115398	144359	262584	137371	173859	301623	159344	203359						
135	54317	40997	65611	130500	63027	74048	176034	88656	108457	221569	114285	142865	269782	141422	179298	315317	167051	213707									
145	54317	40997	65611	158894	79009	95504	211424	108576	135199	263955	138142	174895															
155	54317	40997	65611	189317	96132	118494	249342	129918	163853	309368	163703	209212															
170	54317	40997	65611	238753	123958	155851	310959	164598	210414																		
100	69248	52609	84162										108584	47484	50219	133569	61546	69099	158553	75609	87979	183538	89671	106859	234977	118624	145729
110	69248	52609	84162							113919	50486	54250	145929	68503	78439	176160	85519	101283	206392	102535	124128	236623	119550	146973	298864	154583	194006
125	69248	52609	84162				128241	58548	65073	167280	80520	94573	208615	103786	125808	247653	125759	155308	286692	147731	184808						
130	69248	52609	84162	102132	43852	45343	144356	67618	77250	186580	91384	109157	231288	116548	142941	273512	140313	174848	315736	164079	206755						
140	69248	52609	84162	129512	59263	66034	178482	86826	103038	227452	114389	140043	279303	143573	179224												
145	69248	52609	84162	143963	67397	76953	196493	96963	116648	249024	126530	156343	304644	157836	198373												
160	69248	52609	84162	190357	93510	112012	254318	129510	160344	318279	165510	208677															
170	69248	52609	84162	223822	112345	137300	296028	152986	191863																		
100	93579	69815	112015																134223	58403	60125	159207	72466	79005	210646	101418	117876
115	93579	69815	112015										141604	62558	65703	174646	81155	90672	207689	99753	115641	240731	118351	140609			
125	93579	69815	112015							142949	63315	66719	184284	86580	97955	223322	108553	127454	262361	130526	156954	301400	152498	186454			
135	93579	69815	112015				136773	59838	62052	182307	85467	96461	230520	112604	132894	276055	138233	167302									
140	93579	69815	112015				154152	69620	75185	203122	97183	112189	254972	126367	151371	303942	153929	188375									
150	93579	69815	112015	134590	58610	60403	190806	90251	102883	247021	121891	145363	306543	155394	190341												
160	93579	69815	112015	166027	76304	84158	229987	112304	132491	293948	148304	180824															
180	93579	69815	112015	234984	115117	136267	315935	160679	197438																		

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 5000			SYMMETRIC FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:															
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi		
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
110	100890	86215	154065													174869	81511	85731	208839	102173	115271	242810	122835	144811	312749	165375	205628
125	100890	86215	154065							164890	75442	77053	211337	103693	117443	255204	130374	155588	299070	157055	193734	342937	183736	231880	433251	238668	310415
140	100890	86215	154065				177478	83098	88000	232505	116567	135850	290768	152005	186514	345794	185474	234364	400820	218943	282214						
150	100890	86215	154065				218666	108150	123815	281834	146571	178745	348717	187252	236906	411885	225673	291836									
160	100890	86215	154065	190822	91215	99603	262693	134929	162101	334564	178644	224599	410663	224930	290773												
170	100890	86215	154065	228426	114086	132303	309561	163436	202857	390697	212786	273411															
190	100890	86215	154065	310470	163988	203647	411819	225633	291779																		
200	100890	86215	154065	354910	191019	242291																					
110	123211	100465	175369																186518	87924	93967	220488	108586	123507	290427	151125	184325
125	123211	100465	175369										189016	89443	96139	232882	116124	134285	276749	142805	172430	320616	169487	210576	410929	224419	289111
140	123211	100465	175369							210183	102318	114546	268446	137755	165211	323473	171224	213061	378499	204693	260911	433525	238162	308760			
150	123211	100465	175369				196344	93900	102512	259512	132321	157441	326396	173002	215602	389563	211423	270532									
160	123211	100465	175369				240372	120679	140797	312243	164394	203295	388341	210680	269470												
170	123211	100465	175369	206104	99837	110999	287240	149186	181553	368375	198536	252107															
190	123211	100465	175369	288148	149739	182343	389497	211383	270475																		
200	123211	100465	175369	332589	176769	220988																					
125	160021	130478	227747																239939	112793	120052	283805	139474	158197	374119	194406	236733
140	160021	130478	227747										231636	107743	112832	286662	141212	160682	341689	174680	208532	396715	208149	256382			
150	160021	130478	227747							222702	102308	105063	289585	142989	163224	352753	181410	218153	415921	219831	273083						
160	160021	130478	227747							275432	134381	150917	351531	180667	217091	423402	224382	279589									
170	160021	130478	227747				250429	119173	129174	331565	168523	199729	417473	220776	274433												
190	160021	130478	227747	251338	119726	129964	352687	181370	218096																		
220	160021	130478	227747	391496	204975	251844																					
135	196805	164119	289862																			320874	150752	160304	426216	214825	251908
140	196805	164119	289862																304905	141039	146417	359931	174508	194267	473220	243414	292782
150	196805	164119	289862													315970	147769	156039	379137	186190	210969	442305	224611	265899			
160	196805	164119	289862										314747	147025	154976	386618	190740	217474	458490	234455	279972						
170	196805	164119	289862							294781	134881	137614	380690	187134	212319	461825	236484	282873									
190	196805	164119	289862				315903	147729	155982	417253	209373	244113															
220	196805	164119	289862	354713	171334	189729	490594	253981	307889																		
230	196805	164119	289862	405990	202522	234319																					

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 100			SYMMETRIC FAIL OPEN									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																
MODEL	Spring Torque			1000psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi			
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	
40	2071	1602	3213	2764	1333	1622	3955	2057	2813	5146	2780	4004	6407	3546	5266	7599	4269	6457	8790	4992	7648	9981	5715	8839	12433	7204	11292	
45	2071	1602	3213	4048	2113	2906	5556	3028	4414	7063	3944	5921	8659	4913	7518	10167	5828	9025	11675	6744	10533	13182	7659	12040				
50	2071	1602	3213	5483	2985	4342	7345	4115	6203	9206	5245	8064	11176	6441	10035	13038	7571	11896										
55	2071	1602	3213	7070	3948	5928	9322	5315	8180	11574	6682	10432	13958	8130	12817													
60	2071	1602	3213	8807	5003	7665	11487	6630	10346																			
65	2071	1602	3213	10696	6149	9554	13841	8059	12700																			
70	2071	1602	3213	12736	7388	11594																						
40	4071	2947	5895							3764	1795	1941	5134	2624	3311	6427	3407	4604	7720	4190	5897	9014	4973	7190	11676	6584	9853	
45	4071	2947	5895				4209	2064	2386	5846	3055	4023	7579	4104	5756	9216	5095	7392	10853	6086	9029	12489	7076	10666				
50	4071	2947	5895	4131	2017	2307	6151	3240	4328	8172	4463	6349	10312	5758	8488	12332	6981	10509										
55	4071	2947	5895	5853	3060	4030	8298	4539	6475	10743	6019	8920	13332	7586	11509													
60	4071	2947	5895	7739	4201	5916	10649	5963	8826	13559	7724	11736																
65	4071	2947	5895	9790	5442	7967	13205	7509	11382																			
70	4071	2947	5895	12004	6783	10181																						
40	6921	5027	10125																			6164	2893	2960	8826	4504	5622	
45	6921	5027	10125													6366	3015	3162	8003	4006	4799	9639	4996	6435	13009	7036	9805	
50	6921	5027	10125										7462	3678	4258	9483	4901	6279	11503	6124	8299	13524	7348	10320				
55	6921	5027	10125							7893	3939	4689	10482	5506	7278	12927	6986	9723										
60	6921	5027	10125				7799	3883	4595	10709	5644	7505	13790	7509	10586													
65	6921	5027	10125	6940	3362	3736	10355	5429	7151	13770	7497	10566																
70	6921	5027	10125	9154	4703	5950	13115	7100	9911																			
75	6921	5027	10125	11533	6142	8329																						

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 400			SYMMETRIC FAIL OPEN									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			1000psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi				
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
50	7859	7559	15710												8938	4953	6519	11298	6711	9642	13658	8469	12765	16018	10226	15888	20877	13846	22318
55	7859	7559	15710							9442	5328	7186	12466	7580	11187	15321	9707	14966	18177	11834	18745	21032	13961	22524	26911	18340	30304		
60	7859	7559	15710				9332	5247	7041	12731	7778	11538	16329	10458	16300	19727	12989	20797	23126	15521	25294	26524	18052	29791					
65	7859	7559	15710	8329	4499	5712	12317	7470	10990	16305	10441	16268	20528	13586	21857	24517	16557	27135	28505	19527	32413								
70	7859	7559	15710	10915	6425	9135	15541	9871	15256	20166	13316	21377	25064	16964	27859	29689	20409	33980											
75	7859	7559	15710	13693	8495	12811	19003	12450	19838	24313	16405	26865	29935	20592	34305														
80	7859	7559	15710	16662	10706	16741	22704	15206	24736	28745	19706	32731																	
90	7859	7559	15710	23176	15558	25360	30822	21253	35479																				
55	11117	10701	22251															12064	6565	8425	14920	8692	12204	17775	10819	15983	23654	15198	23763
60	11117	10701	22251												13072	7316	9759	16470	9847	14256	19869	12379	18753	23267	14910	23251	30264	20121	32510
65	11117	10701	22251							13048	7299	9728	17271	10444	15316	21260	13415	20594	25248	16385	25872	29236	19356	31150					
70	11117	10701	22251				12283	6729	8716	16909	10174	14837	21807	13822	21318	26432	17267	27439	31058	20713	33561	35683	24158	39682					
75	11117	10701	22251	10436	5353	6270	15746	9308	13297	21056	13263	20324	26678	17450	27765	31988	21406	34791											
80	11117	10701	22251	13405	7564	10200	19447	12064	18195	25488	16564	26190	31885	21329	34655														
85	11117	10701	22251	16566	9919	14383	23386	14999	23409	30207	20079	32434																	
90	11117	10701	22251	19919	12416	18820	27565	18111	28938																				
60	15816	15179	31535																	15169	7900	9469	18567	10431	13966	25564	15643	23225	
65	15816	15179	31535															16560	8936	11310	20548	11907	16588	24537	14878	21866	32748	20994	32732
70	15816	15179	31535										17107	9344	12034	21733	12789	18155	26358	16234	24276	30984	19680	30397					
75	15816	15179	31535							16356	8784	11040	21978	12972	18480	27288	16927	25507	32598	20882	32534								
80	15816	15179	31535				14747	7586	8911	20789	12086	16906	27185	16851	25371	33227	21351	33366											
85	15816	15179	31535	11866	5440	5099	18687	10520	14124	25507	15600	23150	32729	20979	32707														
95	15816	15179	31535	18763	10577	14225	27283	16923	25500	35802	23269	36774																	
105	15816	15179	31535	26426	16285	24366																							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 900			SYMMETRIC FAIL OPEN									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																		
MODEL	Spring Torque			1000psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi					
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
65	9541	8886	19914	11272	6617	7629	16400	10436	14415	21528	14256	21201	26958	18300	28386	32086	22119	35172	37213	25939	41958	42341	29758	48744	52899	37622	62716			
70	9541	8886	19914	14597	9093	12029	20545	13523	19900	26492	17953	27770	32789	22643	36103	38736	27073	43973	44683	31502	51843	50630	35932	59713	62874	45052	75917			
75	9541	8886	19914	18169	11753	16756	24996	16839	25790	31823	21924	34825	39052	27308	44391	45879	32393	53426	52706	37478	62460	59533	42563	71495						
80	9541	8886	19914	21987	14597	21808	29754	20383	32088	37522	26169	42367	45747	32295	53251	53515	38081	63530	61282	43866	73810									
85	9541	8886	19914	26051	17624	27186	34820	24156	38791	43589	30687	50395	52874	37603	62682	61643	44135	74287												
90	9541	8886	19914	30361	20835	32891	40192	28158	45900	50023	35480	58910	60433	43233	72686															
100	9541	8886	19914	39721	27807	45277	51858	36847	61338	63995	45887	77400																		
110	9541	8886	19914	50066	35512	58967	64752	46451	78402																					
70	13781	12780	28588							22252	14058	19096	28549	18749	27429	34496	23178	35299	40444	27608	43170	46391	32038	51040	58635	41158	67243			
75	13781	12780	28588				20757	12944	17117	27584	18029	26151	34812	23414	35717	41639	28499	44752	48467	33584	53787	55294	38669	62821	69349	49138	81422			
80	13781	12780	28588	17747	10703	13134	25515	16489	23414	33283	22274	33693	41507	28400	44577	49275	34186	54857	57043	39972	65136	64811	45758	75416						
85	13781	12780	28588	21811	13730	18513	30580	20262	30117	39349	26793	41722	48634	33709	54009	57403	40240	65613	66172	46772	77218									
90	13781	12780	28588	26122	16941	24217	35953	24263	37227	45784	31586	50237	56193	39339	64012	66024	46662	77022												
95	13781	12780	28588	30679	20335	30247	41632	28493	44743	52586	36652	59238	64184	45291	74586															
100	13781	12780	28588	35482	23912	36603	47619	32952	52665	59756	41993	68726																		
110	13781	12780	28588	45827	31618	50293	60513	42556	69728																					
70	18905	17648	39589													29372	18310	24298	35319	22740	32168	41266	27170	40038	53510	36290	56242			
75	18905	17648	39589										29688	18546	24716	36515	23631	33751	43342	28716	42785	50169	33801	51820	64225	44271	70421			
85	18905	17648	39589							34225	21925	30720	43510	28841	43007	52279	35373	54612	61048	41904	66216	69817	48436	77821						
90	18905	17648	39589				30828	19395	26225	40659	26718	39235	51069	34471	53010	60900	41794	66020	70731	49116	79030									
95	18905	17648	39589	25554	15467	19246	36508	23626	33741	47461	31784	48237	59059	40423	63585	70013	48582	78081												
100	18905	17648	39589	30357	19044	25602	42494	28085	41663	54631	37125	57725	67482	46697	74731															
105	18905	17648	39589	35406	22805	32284	48788	32772	49992	62169	42739	67700																		
115	18905	17648	39589	46244	30878	46626	62295	42833	67867																					
75	25924	24207	54299													29496	17073	19041	36323	22158	28075	43150	27243	37110	57206	37712	55711			
80	25924	24207	54299													37132	22760	29145	44900	28546	39425	52667	34331	49704	68660	46243	70868			
85	25924	24207	54299										36491	22283	28297	45260	28814	39902	54029	35346	51506	62798	41877	63111						
90	25924	24207	54299							33641	20159	24525	44050	27913	38300	53881	35235	51310	63712	42558	64320	73543	49881	77330						
95	25924	24207	54299							40443	25226	33527	52041	33865	48875	62995	42024	63371	73948	50182	77866									
105	25924	24207	54299				41769	26214	35282	55150	36181	52990	69318	46734	71739															
110	25924	24207	54299	33684	20191	24582	48369	31130	44016	63055	42069	63451																		
120	25924	24207	54299	45014	28631	39576	62491	41649	62705																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 1600				SYMMETRIC FAIL OPEN									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																						
MODEL	Spring Torque			1000psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi										
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC								
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°					
80	30464	26835	58468										41410	26700	36647	51508	34221	50010	61606	41743	63373	71704	49264	76736	92494	64750	104249								
85	30464	26835	58468							38605	24610	32934	50675	33601	48908	62075	42092	63993	73475	50583	79079	84874	59074	94165	108344	76555	125224								
90	30464	26835	58468				34189	21321	27091	46970	30841	44004	60502	40920	61912	73282	50439	78824	86062	59959	95737	98843	69478	112650											
100	30464	26835	58468	33577	20865	26280	49355	32617	47160	65133	44370	68041	81839	56813	90149	97618	68566	111029	113396	80318	131909														
105	30464	26835	58468	40141	25754	34967	57536	38711	57987	74932	51668	81008	93351	65387	105382	110746	78344	128402																	
110	30464	26835	58468	47025	30882	44078	66117	45102	69342	85209	59323	94607	105423	74379	121358																				
120	30464	26835	58468	61755	41853	63570	84475	58777	93637	107196	75700	123704																							
130	30464	26835	58468	77765	53778	84757	104430	73640	120044																										
80	34323	33535	76816													47649	27521	31662	57747	35043	45026	67845	42564	58389	88635	58050	85901								
85	34323	33535	76816										46816	26901	30560	58216	35392	45646	69616	43883	60732	81015	52374	75818	104486	69855	106877								
95	34323	33535	76816							51953	30727	37358	67031	41958	57311	81271	52564	76155	95511	63170	95000	109750	73777	113844											
100	34323	33535	76816				45496	25917	28813	61274	37670	49693	77981	50113	71801	93759	61866	92681	109537	73618	113561	125315	85370	134441											
105	34323	33535	76816				53677	32011	39640	71073	44968	62660	89492	58687	87034	106887	71644	110055	124283	84601	133075														
115	34323	33535	76816	50371	29548	35264	71238	45091	62878	92104	60633	90492	114198	77090	119730																				
125	34323	33535	76816	65741	40997	55604	90394	59360	88229	115048	77723	120854																							
135	34323	33535	76816	82391	53399	77638	111147	74817	115692																										
90	43661	41793	94853													60086	35482	42439	72866	45001	59352	85646	54520	76265	111959	74119	111085								
95	43661	41793	94853										57693	33700	39273	71933	44306	58118	86173	54913	76962	100413	65519	95806	129730	87356	134603								
100	43661	41793	94853							51937	29412	31655	68643	41856	53763	84421	53608	74643	100199	65360	95523	115978	77112	116404											
110	43661	41793	94853							72012	44365	58222	92227	59422	84973	111318	73642	110238	130410	87862	135503														
115	43661	41793	94853				61900	36833	44840	82767	52376	72454	104861	68832	101692	125728	84375	129306																	
125	43661	41793	94853	56403	32739	37566	81057	51102	70191	105710	69465	102816	131814	88908	137360																				
135	43661	41793	94853	73054	45141	59601	101810	66560	97654	130565	87978	135708																							
150	43661	41793	94853	100431	65533	95831	135932	91976	142811																										

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC SYMMETRIC FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 3500				SYMMETRIC FAIL OPEN									HYDRAULIC STROKE TORQUES (lb. In.) AT OPERATING PRESSURE:																
MODEL	Spring Torque			1000psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi				
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
100	41041	40997	86826							73349	44206	64552	93340	59096	91006	112219	73158	115991	131099	87221	140976	149979	101284	165960	188850	130236	217399		
110	41041	40997	86826				74526	45083	66110	97371	62099	96341	121559	80115	128351	144404	97131	158582	167249	114147	188814	190094	131162	219045	237127	166195	281287		
120	41041	40997	86826	69307	41195	59202	96494	61445	95180	123681	81695	131158	152467	103137	169252	179654	123387	205230	206841	143637	241208	234028	163887	277186					
125	41041	40997	86826	78694	48187	71625	108194	70160	110663	137693	92133	149702	168929	115398	191037	198428	137371	230075	227928	159343	269114								
135	41041	40997	86826	98618	63027	97991	133026	88656	143526	167435	114285	189060	203868	141422	237273	238276	167051	282808											
145	41041	40997	86826	120074	79009	126385	159769	108575	178916	199464	138142	231446	241494	169448	267066														
155	41041	40997	86826	143063	96132	156808	188422	129917	216833	233781	163703	276859																	
170	41041	40997	86826	180420	123957	206244	234983	164598	278450																				
100	52733	52609	111378										81648	47484	66454	100528	61546	91439	119408	75609	116424	138287	89671	141408	177158	118624	192847		
110	52733	52609	111378							85679	50486	71789	109868	68503	103799	132712	85519	134031	155557	102535	164262	178402	119550	194493	225435	154583	256735		
125	52733	52609	111378				96502	58548	86111	126002	80520	125150	157237	103786	166485	186737	125758	205523	216236	147731	244562	245736	169704	283600					
130	52733	52609	111378	76772	43852	60002	108679	67618	102226	140586	91384	144451	174370	116547	189158	206277	140313	231383	238184	164079	273607								
140	52733	52609	111378	97462	59263	87383	134467	86826	136353	171472	114388	185323	210653	143572	237173	247658	171135	286143											
145	52733	52609	111378	108382	67397	101833	148077	96963	154364	187772	126530	206894	229802	157836	262514														
160	52733	52609	111378	143441	93510	148228	191773	129510	212188	240106	165510	276149																	
170	52733	52609	111378	168729	112345	181692	223291	152986	253898																				
100	69523	69815	148232														83738	44340	54585	102618	58403	79569	121498	72466	104554	160368	101418	155993	
115	69523	69815	148232							81758	42866	51965	108196	62558	86951	133164	81155	119993	158133	99753	153035	183102	118351	186077	234508	156640	254105		
125	69523	69815	148232							109212	63315	88295	140447	86580	129630	169947	108553	168669	199447	130525	207707	228946	152498	246746					
135	69523	69815	148232				104545	59838	82119	138953	85467	127654	175386	112604	175867	209794	138233	221401	244203	163862	266936	278612	189491	312470					
140	69523	69815	148232	80673	42057	50528	117677	69620	99498	154682	97183	148468	193863	126367	200319	230868	153929	249289	267872	181492	298259								
150	69523	69815	148232	102895	58610	79937	145375	90251	136152	187855	121891	192368	232833	155393	251890	275313	187034	308105											
160	69523	69815	148232	126651	76304	111373	174983	112304	175334	223316	148304	239295																	
180	69523	69815	148232	178759	115117	180331	239930	160679	261281																				

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC CANTED
DOUBLE ACTING TORQUES**

KSY 400		CANTED			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi		
200	36000	140	0°	BTO-ETC	9825	14738	17194	19650	22107	24563	29475	31932	34388	
			45°	RTO-RTC	4463	6695	7811	8927	10043	11159	13390	14506	15622	
			90°	ETO-BTC	5471	8206	9574	10942	12309	13677	16413	17780	19148	
235	36000	100	0°	BTO-ETC	13565	20347	23739	27130	30521	33912				
			45°	RTO-RTC	6162	9243	10784	12325	13865	15406				
			90°	ETO-BTC	7553	11330	13218	15106	16995	18883				
280	36000	80	0°	BTO-ETC	19257	28886	33700	38515						
			45°	RTO-RTC	8748	13122	15310	17497						
			90°	ETO-BTC	10723	16084	18765	21446						
335	36000	40	0°	BTO-ETC	27566									
			45°	RTO-RTC	12523									
			90°	ETO-BTC	15349									
385	36000	40	0°	BTO-ETC	36408									
			45°	RTO-RTC	16540									
			90°	ETO-BTC	20273									

KSY 900		CANTED			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi		
235	80000	140	0°	BTO-ETC					41353	45948	55137	59732	64327	
			45°	RTO-RTC					17670	19633	23560	25523	27486	
			90°	ETO-BTC					21272	23636	28363	30727	33090	
280	80000	120	0°	BTO-ETC		39138	45661	52184	58707	65230	78276			
			45°	RTO-RTC		16723	19510	22298	25085	27872	33446			
			90°	ETO-BTC		20133	23488	26844	30199	33554	40265			
335	80000	90	0°	BTO-ETC	37349	56024	65361	74698	84035					
			45°	RTO-RTC	15959	23938	27928	31918	35907					
			90°	ETO-BTC	19213	28819	33622	38425	43228					
385	80000	60	0°	BTO-ETC	49330	73995								
			45°	RTO-RTC	21078	31617								
			90°	ETO-BTC	25376	38063								
435	80000	40	0°	BTO-ETC	62975									
			45°	RTO-RTC	26908									
			90°	ETO-BTC	32395									

****Safety factor is not included. 25% is recommended****

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**SCOTCH YOKE PNEUMATIC CANTED
DOUBLE ACTING TORQUES**

KSY 1600		CANTED			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:								
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi	
300	150000	140	0°	BTO-ETC					84291	93656	112388	121753	131119
			45°	RTO-RTC					37819	42022	50426	54628	58830
			90°	ETO-BTC					46042	51158	61389	66505	71621
335	150000	120	0°	BTO-ETC			81749	93428	105106	116784	140141		
			45°	RTO-RTC			36679	41919	47159	52399	62878		
			90°	ETO-BTC			44654	51033	57412	63791	76549		
385	150000	90	0°	BTO-ETC	61699	92548	107973	123398	138822				
			45°	RTO-RTC	27683	41524	48445	55366	62286				
			90°	ETO-BTC	33702	50552	58978	67403	75829				
435	150000	70	0°	BTO-ETC	78765	118148	137839						
			45°	RTO-RTC	35340	53010	61845						
			90°	ETO-BTC	43024	64535	75291						
485	150000	60	0°	BTO-ETC	97913	146869							
			45°	RTO-RTC	43931	65897							
			90°	ETO-BTC	53483	80224							
535	150000	40	0°	BTO-ETC	119141								
			45°	RTO-RTC	53456								
			90°	ETO-BTC	65078								
KSY 3500		CANTED			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:								
Ø AIR CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi	
335	310000	140	0°	BTO-ETC					142354	170824	185060	199295	
			45°	RTO-RTC					62408	74890	81131	87372	
			90°	ETO-BTC					75545	90653	98208	105762	
385	310000	140	0°	BTO-ETC			150415	169217	188018	225622	244424	263226	
			45°	RTO-RTC			65942	74185	82428	98913	107156	115399	
			90°	ETO-BTC			79822	89800	99778	119734	129711	139689	
435	310000	130	0°	BTO-ETC		168018	192020	216023	240025	288031	312033		
			45°	RTO-RTC		73660	84182	94705	105228	126274	136796		
			90°	ETO-BTC		89164	101902	114640	127377	152853	165590		
485	310000	100	0°	BTO-ETC		179025	208862	238700	268537	298375			
			45°	RTO-RTC		78485	91566	104647	117728	130809			
			90°	ETO-BTC		95005	110840	126674	142508	158342			
535	310000	90	0°	BTO-ETC	145227	217840	254147	290453	326760				
			45°	RTO-RTC	63668	95502	111419	127336	143253				
			90°	ETO-BTC	77069	115604	134871	154138	173406				

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC CANTED
DOUBLE ACTING TORQUES**

KSY 5000	CANTED			PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø AIR CILYNDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	40 psi	60 psi	70 psi	80 psi	90 psi	100 psi	120 psi	130 psi	140 psi
435	450000	140	0°	BTO-ETC							351189	380454	409720
			45°	RTO-RTC							150572	163120	175667
			90°	ETO-BTC							183483	198773	214064
485	450000	120	0°	BTO-ETC						363801	436561		
			45°	RTO-RTC						155980	187176		
			90°	ETO-BTC						190073	228087		
535	450000	100	0°	BTO-ETC	177071	265607	309875	354143	398410	442678			
			45°	RTO-RTC	75919	113879	132859	151839	170818	189798			
			90°	ETO-BTC	92513	138770	161898	185026	208155	231283			
585	450000	80	0°	BTO-ETC	211715	317573	370502	423431					
			45°	RTO-RTC	90773	136159	158853	181546					
			90°	ETO-BTC	110613	165920	193574	221227					
635	450000	70	0°	BTO-ETC	249453	374179	436542						
			45°	RTO-RTC	106953	160429	187167						
			90°	ETO-BTC	130330	195495	228077						
685	450000	60	0°	BTO-ETC	290283	435425							
			45°	RTO-RTC	124459	186688							
			90°	ETO-BTC	151662	227493							
735	450000	40	0°	BTO-ETC	334207								
			45°	RTO-RTC	143291								
			90°	ETO-BTC	174611								

****Safety factor is not included. 25% is recommended****

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**SCOTCH YOKE PNEUMATIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYM 400				CANTED FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:														
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi		
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
235	12798	7576	10745										14332	4748	4362	17723	6289	6250	21114	7830	8138	27896	10911	11915	31288	12451	13803
280	12798	7576	10745				16088	5546	5340	20902	7733	8020	25716	9920	10701	30531	12108	13382	35345	14295	16062						
335	12798	7576	10745	14768	4946	4604	28550	11208	12279	35442	14339	16116															
235	18100	10718	15206																			22595	7769	7454	25986	9309	9342
280	18100	10718	15206										20415	6778	6240	25229	8965	8921	30044	11153	11602	39672	15527	16963			
335	18100	10718	15206				23249	8066	7818	30140	11197	11656	37032	14327	15493												
385	18100	10718	15206	18309	5822	5067	36513	14091	15204																		
280	25738	15206	21906																			32034	11039	10263	36848	13226	12944
335	25738	15206	21906										29393	9840	8793	36285	12971	12630									
385	25738	15206	21906				28875	9604	8504																		
435	25738	15206	21906	20741	5909	3975																					

KSYM 900				CANTED FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
235	16489	9577	13320										20269	6130	5588	24864	8093	7952	29459	10056	10315	38649	13983	15043	43243	15946	17406			
280	16489	9577	13320				22649	7147	6812	29172	9934	10168	35695	12721	13523	42218	15508	16879	48741	18295	20234	61787	23870	26945						
335	16489	9577	13320	20860	6382	5892	39535	14362	15498	48872	18351	20302	58209	22341	25105															
235	23809	13763	19118																			31329	9797	9245	35924	11760	11609			
280	23809	13763	19118										28375	8535	7726	34898	11322	11081	41421	14109	14437	54467	19683	21148	60990	22471	24503			
335	23809	13763	19118				32215	10175	9701	41552	14165	14504	50890	18155	19307	60227	22144	24111	69564	26134	28914									
385	23809	13763	19118	25522	7315	6258	50187	17854	18946	62519	23124	25290	74852	28393	31634															
435	23809	13763	19118	39167	13146	13277	70654	26600	29474																					
280	32677	19330	26481																			45599	14116	13784	52122	16903	17139			
335	32677	19330	26481										42021	12588	11944	51358	16577	16747	60696	20567	21550	79370	28546	31156						
385	32677	19330	26481				41318	12287	11582	53651	17557	17926	65983	22826	24270	78316	28096	30614												
435	32677	19330	26481				61786	21033	22110	77529	27760	30209																		
485	32677	19330	26481	45607	14120	13788	84749	30845	33923																					
335	44820	26083	36323																			48552	13814	11708	67227	21793	21314	76564	25783	26117
385	44820	26083	36323										53840	16073	14428	66172	21343	20772	78505	26612	27115									
435	44820	26083	36323							65386	21007	20367	81130	27734	28466															
485	44820	26083	36323				72606	24092	24081																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYM 1600				CANTED FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
335	50237	28791	39793													54869	18367	17619	66548	23607	23998	89904	34087	36756	101583	39327	43135			
385	50237	28791	39793							57736	19654	19185	73161	26574	27610	88586	33495	36036	104010	40416	44461	134860	54257	61312						
435	50237	28791	39793				67911	24219	24743	87602	33054	35498	107293	41889	46254	126985	50724	57010												
485	50237	28791	39793	47676	15140	13690	96632	37105	40431	121110	48088	53802	145588	59071	67172															
535	50237	28791	39793	68905	24665	25285	128475	51393	57825																					
335	57025	36385	52503																						83116	26493	24046	94794	31733	30425
385	57025	36385	52503													81797	25901	23326	97222	32822	31751	128071	46663	48602	143496	53584	57028			
435	57025	36385	52503							80814	25460	22789	100505	34295	33545	120196	43130	44301	139887	51965	55057									
485	57025	36385	52503				89844	29511	27721	114322	40494	41092	138800	51477	54463															
535	57025	36385	52503	62116	17071	12576	121687	43799	45115																					
385	72435	45254	64779																	81813	23953	19475	112662	37795	36326	128087	44716	44752		
435	72435	45254	64779										85096	25426	21269	104787	34261	32025	124478	43097	42781									
485	72435	45254	64779							98913	31626	28816	123391	42609	42187	147869	53591	55557												
535	72435	45254	64779				106278	34930	32839	136063	48294	49108																		

KSYM 3500				CANTED FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
485	69425	41740	58689				109600	36745	36316	139437	49826	52150	169275	62907	67985	199112	75988	83819	228950	89068	99653	288625	115230	131321	318462	128311	147156			
535	69425	41740	58689	75801	21928	18380	148415	53762	56915	184721	69679	76182	221028	85596	95449	257335	101512	114716	293641	117429	133984									
385	89180	53556	75276																	98838	28872	24502	136442	45358	44458	155244	53600	54436		
435	89180	53556	75276										102840	30626	26626	126843	41149	39364	150845	51672	52102	198850	72718	77577	222853	83240	90315			
485	89180	53556	75276							119682	38010	35564	149520	51091	51398	179357	64172	67232	209195	77253	83067	268870	103414	114735						
535	89180	53556	75276				128660	41946	40328	164967	57863	59596	201273	73780	78863	237580	89697	98130												
435	117644	71125	100217																	122381	34103	27160	170386	55149	52636	194389	65672	65373		
485	117644	71125	100217													150893	46603	42291	180731	59684	58125	240406	85846	89794	270243	98926	105628			
535	117644	71125	100217							136503	40294	34654	172809	56211	53921	209116	72128	73189	245423	88045	92456	318036	119879	130991						
585	117644	71125	100217				142816	43062	38005	186226	62093	61042	229636	81124	84079	273047	100155	107116												
635	117644	71125	100217				189242	63415	62642	240390	85839	89785	291538	108262	116929															
685	117644	71125	100217	120434	33250	26127	239473	85437	89299	298993	111530	120885																		

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



SCOTCH YOKE PNEUMATIC CANTED FAIL CLOSE SPRING RETURN TORQUES

KSYM 5000			CANTED FAIL CLOSE									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi				
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
485	132009	83613	123158													195412	56769	47907	231792	72367	66915	304553	103563	104929	340933	119161	123936		
535	132009	83613	123158							177866	49246	38740	222134	68226	61868	266402	87205	84997	310669	106185	108125	399205	144145	154382	443473	163125	177510		
585	132009	83613	123158							238493	75240	70415	291422	97933	98069	344351	120626	125722	397280	143319	153376								
635	132009	83613	123158				242170	76816	72337	304533	103554	104919	366896	130293	137501	429260	157031	170084											
685	132009	83613	123158	158274	40846	28504	303416	103075	104335	375987	134190	142251																	
535	172377	101730	145869													226033	69088	62286	270301	88068	85414	358837	126027	131671	403105	145007	154799		
585	172377	101730	145869							198125	57122	47704	251054	79815	75358	303982	102509	103011	356911	125202	130665	462769	170588	185971					
635	172377	101730	145869				201802	58699	49626	264165	85437	82208	326528	112175	114790	388891	138913	147373											
685	172377	101730	145869				263048	84958	81624	335618	116073	119540	408189	147187	157455	480760	178302	195371											
735	172377	101730	145869	161830	41561	28742	328933	113206	116047	412485	149029	159700																	
585	223862	126548	189450																305427	100384	87083	411284	145771	142390					
635	223862	126548	189450										275043	87358	71209	337407	114096	103792	399770	140834	136374								
685	223862	126548	189450							284134	91255	75959	356704	122370	113874	429275	153485	151790											
735	223862	126548	189450				277448	88389	72466	361000	124212	116119	444552	160034	159771														
785	223862	126548	189450				347974	118627	109313	443280	159489	159107																	
635	276037	166783	241351																347595	100599	84474	472321	154075	149638					
685	276037	166783	241351													377100	113249	99889	449671	144364	137805								
735	276037	166783	241351							308825	83976	64218	392377	119799	107871	475928	155622	151523											
785	276037	166783	241351							391105	119253	107206																	
835	276037	166783	241351				370964	110618	96683																				

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYM 400			CANTED FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																			
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi						
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC				
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°				
235	7125	7576	19286										7981	4748	7844	9870	6289	11235	11758	7829	14626	15535	10911	21408	17423	12451	24800				
280	7125	7576	19286				8959	5546	9600	11640	7733	14414	14321	9920	19229	17001	12107	24043	19682	14294	28857										
335	7125	7576	19286	8224	4946	8280	15899	11208	22062	19736	14338	28954	23573	17469	35845																
235	10081	10718	27313																				12578	7769	13381	14467	9309	16772			
280	10081	10718	27313										11365	6778	11201	14045	8965	16015	16726	11152	20830	22087	15527	30458	24768	17714	35272				
335	10081	10718	27313				12943	8066	14035	16780	11196	20926	20617	14327	27818	24454	17458	34709													
385	10081	10718	27313	10192	5821	9095	20328	14091	27299																						
280	14329	15206	38704																				12478	6665	9439	17839	11039	19067	20520	13226	23881
335	14329	15206	38704							12532	6709	9535	16369	9840	16427	20206	12970	23318	24043	16101	30209										
385	14329	15206	38704				16080	9604	15908	21148	13739	25010	26216	17874	34112																
435	14329	15206	38704	11551	5909	7774	24491	16466	31014																						

KSYM 900			CANTED FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi			
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	
235	8488	9577	25897										10421	6130	10861	12784	8093	15455	15148	10056	20050	19875	13983	29240	22238	15946	33834	
280	8488	9577	25897				11645	7147	13240	15000	9934	19763	18355	12721	26286	21711	15508	32809	25066	18295	39332	31777	23870	52378				
335	8488	9577	25897	10724	6382	11451	20331	14361	30126	25134	18351	39463	29937	22341	48800													
235	12249	13763	37164																	11386	5870	8783	16113	9796	17973	18477	11760	22567
280	12249	13763	37164							11238	5747	8496	14594	8534	15019	17949	11322	21542	21305	14109	28065	28016	19683	41111	31371	22470	47634	
335	12249	13763	37164				16569	10175	18859	21372	14165	28196	26175	18154	37533	30978	22144	46870	35781	26134	56208							
385	12249	13763	37164	13126	7315	12165	25814	17854	36830	32157	23124	49163																
435	12249	13763	37164	20145	13145	25810	36342	26599	57298																			
280	16808	19011	51485							16814	8916	13876	21617	12906	23213	26420	16896	32550	31223	20885	41887	40829	28865	60561	45633	32854	69899	
335	16808	19011	51485																	16747	8860	13744	23457	14435	26790	26813	17222	33313
385	16808	19011	51485				21255	12606	22510	27599	17875	34842	33943	23145	47174	40287	28414	59507	46631	33683	71839							
435	16808	19011	51485	15587	7897	11490	31784	21351	42977	39883	28078	58721	47981	34805	74464													
485	16808	19011	51485	23462	14438	26799	43596	31163	65940																			
335	23056	26083	70620																	24975	13814	22752	34581	21793	41426	39384	25783	50763
385	23056	26083	70620													27695	16073	28039	34038	21342	40372	40382	26612	52704	53070	37151	77369	
435	23056	26083	70620				25535	14279	23842	33634	21006	39585	41732	27733	55329	49831	34460	71073										
485	23056	26083	70620				37348	24091	46805	47415	32454	66376																

Safety factor is not included. 25% is recommended
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**SCOTCH YOKE PNEUMATIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYM 1600			CANTED FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																							
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi										
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC								
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°								
335	27446	28791	72842													29965	18367	32263	36344	23607	43942	49102	34086	67299	55481	39326	78977								
385	27446	28791	72842							31531	19653	35130	39956	26574	50555	48382	33495	65980	56807	40415	81404	73658	54257	112253	82083	61177	127678								
435	27446	28791	72842				37089	24218	45305	47845	33053	64996	58600	41888	84687	69356	50723	104378	80112	59558	124070														
485	27446	28791	72842	26036	15139	25070	52777	37105	74026	66148	48088	98504	79518	59070	122982																				
535	27446	28791	72842	37632	24664	46299	70171	51392	105869																										
335	31155	36385	96119																32636	16013	20664	45394	26492	44021	51773	31732	55699								
385	31155	36385	96119										36248	18980	27278	44673	25901	42702	53099	32821	58127	69949	46663	88976	78375	53583	104400								
435	31155	36385	96119							44136	25459	41719	54892	34294	61410	65648	43129	81101	76404	51964	100792	97915	69634	140174											
485	31155	36385	96119				49069	29511	50749	62439	40494	75227	75810	51476	99705	89180	62459	124183																	
535	31155	36385	96119	33923	17070	23021	66462	43798	82592																										
385	39563	45254	118591																44690	23953	35655	61541	37794	66504	69966	44715	81928								
435	39563	45254	118591							35728	16591	19247	46484	25426	38938	57240	34261	58629	67995	43096	78320	89507	60766	117702	100263	69601	137393								
485	39563	45254	118591							54031	31625	52755	67401	42608	77233	80772	53591	101711	94142	64573	126188														
535	39563	45254	118591				58054	34930	60120	74323	48294	89905	90593	61658	119690	106862	75021	149475																	

KSYM 3500			CANTED FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																							
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi										
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC								
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°								
485	36846	41740	110599				58159	36744	68425	73993	49825	98262	89827	62906	128099	105661	75987	157936	121495	89067	187773	153164	115229	247448	168998	128310	277285								
535	36846	41740	110599	40223	21927	34627	78757	53761	107239	98024	69678	143546	117292	85594	179852																				
385	47325	53556	141851																52452	28871	46166	72408	45357	83769	82385	53599	102571								
435	47325	53556	141851										54576	30626	50168	67314	41148	74170	80051	51671	98173	105527	72717	146177	118264	83239	170180								
485	47325	53556	141851							63514	38009	67010	79348	51090	96847	95182	64171	126684	111016	77252	156521	142684	103413	216196											
535	47325	53556	141851				68278	41945	75987	87545	57862	112294	106812	73779	148600	126079	89696	184906																	
435	62433	71125	188848																64943	34102	51175	90418	55148	99180	103156	65671	123182								
485	62433	71125	188848										64240	33521	49850	80074	46602	79687	95908	59683	109524	127576	85844	169199	143410	98925	199036								
535	62433	71125	188848							72437	40293	65296	91704	56210	101603	110971	72127	137909	130238	88044	174215	168773	119877	246828											
585	62433	71125	188848				75787	43061	71610	98824	62092	115020	121861	81123	158429	144898	100154	201839	167935	119185	245249														
635	62433	71125	188848				100425	63414	118035	127568	85837	169183	154711	108260	220330	181854	130684	271477																	
685	62433	71125	188848	63910	33249	49228	127081	85436	168266	158667	111529	227785																							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE PNEUMATIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYM 5000				CANTED FAIL OPEN									PNEUMATIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																
MODEL	Spring Torque			40 psi			60 psi			70 psi			80 psi			90 psi			100 psi			120 psi			130 psi				
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
485	74231	87932	245776										77826	36851	45262	96833	52448	81642	115840	68046	118022	153854	99242	190781	172861	114840	227161		
535	74231	87932	245776							87666	44926	64096	110794	63905	108363	133922	82885	152631	157050	101865	196898	203306	139824	285433	226434	158804	329701		
585	74231	87932	245776				91688	48226	71794	119341	70919	124722	146994	93612	177651	174647	116305	230579	202300	138998	283508								
635	74231	87932	245776				121262	72496	128400	153844	99234	190762	186426	125972	253125	219008	152710	315487											
685	74231	87932	245776	77430	36526	44504	153260	98755	189645	191175	129869	262215	229091	160984	334785														
535	90056	101730	279197										94969	50107	74943	118097	69087	119210	141225	88066	163478	187481	126026	252013	210609	145005	296280		
585	90056	101730	279197							103516	57121	91302	131169	79814	144230	158822	102507	197159	186475	125200	250087	241781	170586	355944					
635	90056	101730	279197				105437	58697	94979	138019	85435	157342	170601	112173	219704	203183	138911	282067	235765	165649	344430								
685	90056	101730	279197				137435	84956	156224	175350	116071	228794	213266	147185	301365	251181	178300	373935											
735	90056	101730	279197	84553	41559	55007	171858	113204	222109	215510	149027	305660																	
585	116963	132124	362597															131916	72114	113758	159569	94807	166687	214875	140193	272543	242528	162886	325472
635	116963	132124	362597							111113	55042	73941	143695	81780	136304	176277	108518	198666	208859	135256	261029	274024	188732	385754					
685	116963	132124	362597							148444	85677	145394	186359	116792	217964	224275	147906	290534	262190	179021	363104								
735	116963	132124	362597				144951	82811	138709	188604	118634	222260	232256	154456	305811	275908	190278	389362											
785	116963	132124	362597				181798	113049	209234	231591	153911	304539	281385	194773	399844														
635	144223	166783	461947																181599	100596	161679	246763	154072	286405	279345	180810	348767		
685	144223	166783	461947										159099	82132	118614	197014	113247	191185	234930	144361	263755	310760	206590	408895					
735	144223	166783	461947							161343	83974	122910	204996	119796	206461	248648	155619	290012	292300	191441	373563								
785	144223	166783	461947							204331	119251	205189	254125	160113	300494	303918	200975	395799											
835	144223	166783	461947				193808	110616	185049	250147	156849	292881	306485	203082	400714														

Safety factor is not included. 25% is recommended

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SCOTCH YOKE HYDRAULIC CANTED DOUBLE ACTING TORQUES

KSYH 400	CANTED			HYDRAULIC STROKE TORQUES (lb. In.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
40	36000	3000	0°	BTO	7410	9833	12255	14678	17243	19665	22088	24510	29498
			45°	RTO	3366	4467	5567	6668	7833	8934	10034	11135	13400
			90°	ETO	4126	5475	6824	8173	9601	10950	12299	13648	16425
			90°	BTC	1805	2395	2985	3576	4200	4791	5381	5971	7186
			45°	RTC	1473	1954	2436	2917	3427	3908	4390	4871	5863
			0°	ETC	3242	4302	5362	6421	7544	8604	9663	10723	12905
			45°	ETO	4126	5475	6824	8173	9601	10950	12299	13648	16425
45	36000	2500	0°	BTO	9378	12444	15510	18576	21823	24889	27955	31021	
			45°	RTO	4260	5653	7046	8439	9914	11307	12700	14092	
			90°	ETO	5222	6929	8637	10344	12151	13859	15566	17273	
			90°	BTC	2901	3850	4798	5747	6751	7699	8648	9596	
			45°	RTC	2367	3141	3915	4688	5508	6281	7055	7829	
			0°	ETC	5210	6914	8617	10320	12124	13827	15530	17234	
			45°	ETO	5222	6929	8637	10344	12151	13859	15566	17273	
50	36000	2250	0°	BTO	11578	15363	19149	22934	26942	30727	34512		
			45°	RTO	5260	6979	8699	10419	12239	13959	15678		
			90°	ETO	6447	8555	10662	12770	15002	17109	19217		
			90°	BTC	4126	5475	6824	8173	9601	10950	12299		
			45°	RTC	3366	4467	5567	6668	7833	8934	10034		
			0°	ETC	7410	9833	12255	14678	17243	19665	22088		
			45°	ETO	6447	8555	10662	12770	15002	17109	19217		
55	36000	1750	0°	BTO	14010	18590	23170	27750	32600				
			45°	RTO	6364	8445	10526	12606	14810				
			90°	ETO	7801	10351	12902	15452	18152				
			90°	BTC	5480	7272	9063	10855	12752				
			45°	RTC	4471	5933	7394	8856	10403				
			0°	ETC	9842	13059	16276	19494	22901				
			45°	ETO	7801	10351	12902	15452	18152				
60	36000	1500	0°	BTO	16673	22123	27574	33025					
			45°	RTO	7574	10050	12527	15003					
			90°	ETO	9284	12319	15354	18389					
			90°	BTC	6963	9239	11515	13792					
			45°	RTC	5681	7538	9395	11252					
			0°	ETC	12505	16593	20681	24769					
			45°	ETO	9284	12319	15354	18389					
65	36000	1250	0°	BTO	19567	25964	32361						
			45°	RTO	8889	11795	14701						
			90°	ETO	10896	14457	18019						
			90°	BTC	8575	11378	14181						
			45°	RTC	6996	9283	11570						
			0°	ETC	15399	20433	25468						
			45°	ETO	10896	14457	18019						
70	36000	1250	0°	BTO	22693	30112	37531						
			45°	RTO	10309	13680	17050						
			90°	ETO	12636	16767	20898						
			90°	BTC	10315	13688	17060						
			45°	RTC	8416	11167	13918						
			0°	ETC	18525	24582	30638						
			45°	ETO	12636	16767	20898						
75	36000	1000	0°	BTO	26051	34568							
			45°	RTO	11835	15704							
			90°	ETO	14506	19248							
			90°	BTC	12185	16168							
			45°	RTC	9941	13191							
			0°	ETC	21883	29037							
			45°	ETO	14506	19248							
80	36000	750	0°	BTO	29640								
			45°	RTO	13465								
			90°	ETO	16504								
			90°	BTC	14183								
			45°	RTC	11572								
			0°	ETC	25472								
			45°	ETO	16504								

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC CANTED
DOUBLE ACTING TORQUES**

KSYH 900	CANTED			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CILYNDER	Max. Operating Torque	Max. Allow able Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
55	80000	3000	0° BTO				37599	44169	50375	56581	62786	75563	
			45° RTO				16066	18873	21525	24176	26828	32287	
			90° ETO				19341	22721	25913	29105	32298	38870	
			90° BTC				9111	10703	12207	13711	15215	18311	
			45° RTC				7568	8891	10140	11389	12638	15210	
			0° ETC				17712	20807	23730	26654	29577	35596	
60	80000	2500	0° BTO				44746	52565	59950	67336	74721		
			45° RTO				19119	22461	25616	28772	31927		
			90° ETO				23017	27040	30839	34638	38437		
			90° BTC				12787	15022	17133	19243	21354		
			45° RTC				10622	12478	14231	15984	17737		
			0° ETC				24859	29203	33306	37409	41512		
65	80000	2250	0° BTO			43847	52514	61691	70359	79026			
			45° RTO				18735	22439	26360	30063	33767		
			90° ETO				22555	27013	31734	36193	40651		
			90° BTC				14013	16783	19717	22487	25257		
			45° RTC				11640	13941	16377	18678	20979		
			0° ETC				27242	32627	38329	43714	49099		
70	80000	1750	0° BTO	30748	40800	50852	60904	71547					
			45° RTO	13138	17433	21728	26023	30571					
			90° ETO	15817	20987	26158	31329	36804					
			90° BTC	10652	14134	17617	21099	24786					
			45° RTC	8848	11741	14633	17526	20589					
			0° ETC	20708	27477	34247	41017	48185					
75	80000	1500	0° BTO	35297	46836	58376	69915						
			45° RTO	15082	20013	24943	29874						
			90° ETO	18157	24093	30029	35965						
			90° BTC	12992	17240	21487	25735						
			45° RTC	10792	14320	17848	21376						
			0° ETC	25257	33514	41771	50028						
80	80000	1500	0° BTO	40160	53289	66419	79548						
			45° RTO	17160	22770	28380	33990						
			90° ETO	20658	27412	34166	40920						
			90° BTC	15494	20559	25624	30690						
			45° RTC	12870	17077	21285	25492						
			0° ETC	30120	39967	49814	59661						
85	80000	1250	0° BTO	45337	60159	74980							
			45° RTO	19372	25705	32038							
			90° ETO	23322	30946	38570							
			90° BTC	18157	24093	30029							
			45° RTC	15082	20013	24943							
			0° ETC	35297	46836	58376							
90	80000	1000	0° BTO	50828	67444								
			45° RTO	21718	28818								
			90° ETO	26146	34694								
			90° BTC	20981	27841								
			45° RTC	17428	23126								
			0° ETC	40788	54122								
100	80000	750	0° BTO	62750									
			45° RTO	26812									
			90° ETO	32279									
			90° BTC	27114									
			45° RTC	22522									
			0° ETC	52710									

Safety factor is not included. 25% is recommended

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SCOTCH YOKE HYDRAULIC CANTED DOUBLE ACTING TORQUES

KSYH 1600	CANTED			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:											
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi		
65	150000	3000	0°	BTO					77159	88000	98840	109681	132000		
			45°	RTO					34620	39484	44348	49211	59225		
			90°	ETO						42147	48068	53989	59911	72102	
			90°	BTC						19163	21855	24548	27240	32783	
			45°	RTC						15741	17952	20164	22375	26928	
			0°	ETC							35082	40011	44940	49869	60017
			0°	BTO							87445	102727	117160	131592	146025
75	150000	2500	0°	BTO					87445	102727	117160	131592	146025		
			45°	RTO					39235	46091	52567	59043	65518		
			90°	ETO						47765	56112	63996	71879	79763	
			90°	BTC						28200	33129	37783	42438	47092	
			45°	RTC						23164	27212	31036	34859	38682	
			0°	ETC							51628	60650	69171	77692	86213
			0°	BTO							83072	99493	116880	133302	
80	150000	2000	0°	BTO					83072	99493	116880	133302			
			45°	RTO					37273	44640	52442	59809			
			90°	ETO						45376	54346	63843	72813		
			90°	BTC						29041	34781	40860	46600		
			45°	RTC						23854	28570	33563	38278		
			0°	ETC							53166	63676	74903	85313	
			0°	BTO							75243	93781	112319	131947	
85	150000	1750	0°	BTO					75243	93781	112319	131947			
			45°	RTO					33760	42077	50395	59202			
			90°	ETO						41100	51225	61351	72073		
			90°	BTC						27993	34890	41787	49089		
			45°	RTC						22994	28659	34324	40323		
			0°	ETC							51248	63875	76501	89870	
			0°	BTO	63572	84355	105138	125921							
90	150000	1500	0°	BTO	63572	84355	105138	125921							
			45°	RTO	28523	37848	47173	56498							
			90°	ETO	34725	46077	57429	68782							
			90°	BTC	24847	32971	41094	49217							
			45°	RTC	20410	27082	33755	40427							
			0°	ETC	45489	60361	75232	90104							
			0°	BTO	70832	93988	117145	140301							
95	150000	1500	0°	BTO	70832	93988	117145	140301							
			45°	RTO	31781	42170	52560	62950							
			90°	ETO	38690	51339	63988	76636							
			90°	BTC	28813	38233	47652	57072							
			45°	RTC	23667	31405	39142	46879							
			0°	ETC	52749	69994	87239	104483							
			0°	BTO	86528	114816	143105								
105	150000	1250	0°	BTO	86528	114816	143105								
			45°	RTO	38823	51516	64208								
			90°	ETO	47264	62716	78168								
			90°	BTC	37387	49610	61832								
			45°	RTC	30710	40750	50790								
			0°	ETC	68446	90822	113199								
			0°	BTO	103795	137728									
115	150000	1000	0°	BTO	103795	137728									
			45°	RTO	46570	61795									
			90°	ETO	56696	75231									
			90°	BTC	46818	62124									
			45°	RTC	38457	51030									
			0°	ETC	85712	113733									
			0°	BTO	132638										
130	150000	750	0°	BTO	132638										
			45°	RTO	59512										
			90°	ETO	72450										
			90°	BTC	62573										
			45°	RTC	51398										
			0°	ETC	114555										
			0°	BTO											

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED
DOUBLE ACTING TORQUES**

KSYH 3500	CANTED			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
90	310000	3000	0° BTO				153491	180314	205648	230981	256315	308472	
			45° RTO				67291	79050	90157	101263	112369	135235	
			90° ETO				81455	95690	109134	122578	136022	163700	
			90° BTC				58285	68471	78091	87711	97331	117137	
			45° RTC				48150	56565	64512	72459	80406	96768	
			0° ETC				109831	129025	147152	165280	183407	220729	
			0° BTO										
100	310000	2500	0° BTO			158219	189495	222610	253886	285162	316438		
			45° RTO			69364	83075	97593	111304	125016	138727		
			90° ETO			83964	100561	118135	134733	151330	167928		
			90° BTC			64619	77392	90917	103690	116464	129237		
			45° RTC			53382	63935	75108	85660	96212	106765		
			0° ETC			121765	145835	171321	195391	219461	243530		
			0° BTO										
110	310000	2000	0° BTO		153601	191445	229289	269358	307202				
			45° RTO		67339	83930	100521	118088	134678				
			90° ETO		81513	101596	121679	142944	163027				
			90° BTC		65992	82251	98510	115725	131984				
			45° RTC		54517	67949	81380	95602	109034				
			0° ETC		124353	154991	185629	218069	248707				
			0° BTO										
120	310000	1500	0° BTO	137761	182798	227835	272872						
			45° RTO	60395	80139	99884	119628						
			90° ETO	73107	97008	120908	144809						
			90° BTC	61410	81486	101563	121639						
			45° RTC	50732	67317	83902	100488						
			0° ETC	115719	153550	191382	229213						
			0° BTO										
130	310000	1250	0° BTO	161678	214534	267390							
			45° RTO	70880	94052	117225							
			90° ETO	85799	113849	141899							
			90° BTC	74102	98328	122554							
			45° RTC	61217	81230	101243							
			0° ETC	139636	185286	230936							
			0° BTO										
140	310000	1000	0° BTO	187508	248808								
			45° RTO	82204	109078								
			90° ETO	99507	132038								
			90° BTC	87810	116517								
			45° RTC	72541	96256								
			0° ETC	165466	219561								
			0° BTO										
150	310000	1000	0° BTO	215251	285622								
			45° RTO	94367	125218								
			90° ETO	114230	151574								
			90° BTC	102533	136053								
			45° RTC	84704	112395								
			0° ETC	193210	256374								
			0° BTO										
160	310000	750	0° BTO	244908									
			45° RTO	107368									
			90° ETO	129968									
			90° BTC	118271									
			45° RTC	97705									
			0° ETC	222866									
			0° BTO										

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED
DOUBLE ACTING TORQUES**

KSYH 5000	CANTED			HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:									
	Ø OIL CYLINDER	Max. Operating Torque	Max. Allowable Pressure	Position of Stroke	750 psi	1000 psi	1250 psi	1500 psi	1750 psi	2000 psi	2250 psi	2500 psi	3000 psi
95	450000	3000	0°	BTO						279375	313791	348207	419063
			45°	RTO						119782	134538	149294	179673
			90°	ETO						145963	163944	181925	218945
			90°	BTC						81772	91845	101918	122658
			45°	RTC						67105	75371	83638	100657
			0°	ETC						156512	175793	195073	234768
			0°	BTO							328422	374564	420706
110	450000	2250	45°	RTO					140811	160594	180378		
			90°	ETO					171588	195696	219803		
			90°	BTC					115305	131504	147704		
			45°	RTC					94623	107917	121211		
			0°	ETC					220694	251701	282708		
			0°	BTO				332707	390849	445762			
			45°	RTO				142648	167577	191121			
120	450000	2000	90°	ETO					173827	204204	232894		
			90°	BTC					125916	147921	168703		
			45°	RTC					103331	121388	138443		
			0°	ETC					241004	283122	322899		
			0°	BTO				326022	390468	458705			
			45°	RTO				139782	167413	196670			
			90°	ETO				170334	204005	239657			
130	450000	1750	90°	BTC					130331	156094	183373		
			45°	RTC					106954	128096	150482		
			0°	ETC					249455	298766	350977		
			0°	BTO				303366	378108	452851			
			45°	RTO				130068	162114	194160			
			90°	ETO				158498	197548	236598			
			90°	BTC				126402	157544	188687			
140	450000	1500	45°	RTC					103729	129286	154842		
			0°	ETC					241934	301541	361148		
			0°	BTO	262451	348252	434053						
			45°	RTO	112526	149313	186100						
			90°	ETO	137121	181949	226777						
			90°	BTC	112933	149853	186773						
			45°	RTC	92676	122974	153272						
150	450000	1250	0°	ETC	216154	286820	357486						
			0°	BTO	298610	396233							
			45°	RTO	128029	169885							
			90°	ETO	156013	207017							
			90°	BTC	131825	174921							
			45°	RTC	108180	143546							
			0°	ETC	252314	334801							
160	450000	1000	0°	BTO	337103	447310							
			45°	RTO	144533	191784							
			90°	ETO	176124	233703							
			90°	BTC	151936	201607							
			45°	RTC	124683	165445							
			0°	ETC	290807	385878							
			0°	BTO	262451	348252	434053						
170	450000	750	45°	RTO	144533	191784							
			90°	ETO	176124	233703							
			90°	BTC	151936	201607							
			45°	RTC	124683	165445							
			0°	ETC	290807	385878							
			0°	BTO	337103	447310							
			45°	RTO	144533	191784							

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 400			CANTED FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. In.) AT OPERATING PRESSURE:															
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi		
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
45	12798	7576	10745													12091	3730	3114	15157	5123	4821	18223	6516	6528	24535	9384	10043
50	12798	7576	10745										14144	4663	4257	17929	6383	6365	21714	8102	8472	25499	9822	10580	33292	13362	14919
55	12798	7576	10745							14952	5030	4707	19801	7233	7407	24381	9314	9958	28962	11395	12508	33542	13475	15058			
60	12798	7576	10745				14776	4950	4609	20227	7426	7644	25998	10048	10858	31449	12524	13893									
65	12798	7576	10745	13166	4219	3713	19563	7125	7275	25960	10031	10837	32733	13108	14608												
70	12798	7576	10745	17314	6103	6022	24733	9474	10154	32152	12844	14285															
75	12798	7576	10745	21770	8127	8503	30286	11996	13246																		
80	12798	7576	10745	26532	10291	11155	36223	14693	16551																		
50	18100	10718	15206																16412	4960	4012	20198	6680	6119	27991	10220	10459
55	18100	10718	15206										14500	4091	2947	19080	6172	5497	23660	8253	8047	28240	10333	10597			
60	18100	10718	15206							14925	4284	3183	20696	6906	6397	26147	9382	9432	31598	11859	12467	37048	14335	15502			
65	18100	10718	15206							20659	6889	6376	27432	9966	10147	33829	12872	13709									
70	18100	10718	15206				19432	6332	5693	26851	9702	9824	34706	13271	14198												
75	18100	10718	15206	16468	4985	4043	24985	8854	8785	33502	12723	13527															
80	18100	10718	15206	21231	7149	6695	30921	11551	12090																		
85	18100	10718	15206	26301	9452	9518	37240	14422	15609																		
55	25738	15206	21906																			20602	5846	3897	30032	10130	9148
60	25738	15206	21906																23960	7371	5767	29410	9847	8802			
65	25738	15206	21906													26191	8385	7009	32588	11291	10571						
70	25738	15206	21906							19213	5215	3124	27068	8783	7498	34487	12154	11629									
75	25738	15206	21906							25863	8236	6827	34881	12333	11848												
80	25738	15206	21906				23283	7064	5390	32973	11466	10786															
85	25738	15206	21906				29602	9934	8909																		
95	25738	15206	21906	29724	9990	8977																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 900			CANTED FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi				
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO		
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°		
60	16489	9577	13320				20871	6387	5898	28257	9543	9697	36076	12884	13719	43462	16040	17518	50847	19195	21317	58232	22351	25116	73437	28848	32938		
65	16489	9577	13320	18690	5455	4776	27358	9159	9235	36025	12862	13693	45202	16783	18414	53870	20487	22872	62537	24190	27331	71204	27894	31789					
70	16489	9577	13320	24311	7857	7667	34363	12152	12838	44415	16447	18009	55058	20995	23484	65110	25290	28655	75162	29585	33825								
75	16489	9577	13320	30347	10436	10772	41887	15367	16708	53426	20297	22644	65644	25518	28929	77184	30449	34865											
80	16489	9577	13320	36800	13193	14092	49930	18803	20846	63059	24413	27599	76960	30353	34750														
85	16489	9577	13320	43670	16129	17625	58491	22462	25250	73313	28795	32874																	
90	16489	9577	13320	50955	19242	21373	67572	26342	29921																				
100	16489	9577	13320	66776	26001	29511																							
65	23809	13763	19118							28705	8676	7896	37883	12597	12617	46550	16300	17075	55217	20004	21534	63885	23707	25992	81729	31332	35171		
70	23809	13763	19118				27043	7965	7041	37095	12261	12212	47739	16808	17687	57791	21103	22857	67843	25399	28028	77895	29694	33199					
75	23809	13763	19118	23028	6250	4975	34567	11180	10911	46107	16111	16847	58325	21332	23132	69864	26262	29068											
80	23809	13763	19118	29481	9007	8295	42610	14617	15048	55739	20227	21802	69641	26167	28953														
85	23809	13763	19118	36350	11942	11828	51172	18275	19453	65994	24608	27077	81687	31314	35150														
90	23809	13763	19118	43636	15055	15576	60252	22155	24124	78869	29255	32671																	
95	23809	13763	19118	51338	18346	19538	69852	26257	29062																				
100	23809	13763	19118	59456	21815	23714	79970	30581	34267																				
65	32677	19330	26481													37682	10733	9711	46349	14437	14170	55016	18140	18628	72861	25765	27808		
70	32677	19330	26481										38870	11241	10323	48922	15536	15494	58974	19831	20664	69026	24127	25835					
75	32677	19330	26481							37238	10544	9483	49456	15765	15768	60996	20695	21704	72535	25626	27640								
85	32677	19330	26481				42303	12708	12089	57125	19041	19713	72819	25747	27786														
90	32677	19330	26481	34767	9488	8212	51384	16588	16760	68001	23688	25308																	
95	32677	19330	26481	42469	12779	12174	60984	20690	21698	79498	28601	31222																	
100	32677	19330	26481	50588	16248	16350	71102	25013	26903																				
105	32677	19330	26481	59122	19895	20740	81739	29559	32375																				
70	44820	26083	36323																46831	13078	10822	56883	17374	15993	77579	26216	26639		
75	44820	26083	36323										37313	9011	5926	48852	13942	11862	60392	18873	17798	71931	23803	23734					
80	44820	26083	36323										48629	13847	11747	61758	19457	18501	74888	25067	25255								
85	44820	26083	36323							44982	12288	9871	60675	18994	17944	75497	25327	25568											
90	44820	26083	36323				39241	9835	6918	55858	16935	15466	73452	24453	24516														
95	44820	26083	36323				48840	13937	11856	67355	21848	21380																	
105	44820	26083	36323	46979	13142	10898	69596	22806	22533																				
110	44820	26083	36323	55930	16966	15503	80752	27573	28272																				

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 1600				CANTED FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:														
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi		
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
75	50237	28791	39793										52490	17300	16319	66923	23775	24203	81356	30251	32086	95788	36727	39970	125503	50059	56201
80	50237	28791	39793							49256	15849	14553	66644	23650	24050	83065	31018	33020	99486	38386	41990	115907	45754	50959			
85	50237	28791	39793				43544	13286	11433	62082	21603	21559	81710	30410	32280	100248	38728	42406	118786	47045	52532	137324	55363	62658			
90	50237	28791	39793				54901	18382	17636	75684	27707	28989	97690	37580	41009	118473	46905	52361	139256	56230	63713						
100	50237	28791	39793	53905	17935	17092	79563	29447	31107	105221	40959	45123	132389	53149	59962												
105	50237	28791	39793	64580	22724	22923	92868	35416	38375	121156	48109	53826															
110	50237	28791	39793	75775	27747	29038	106821	41677	45996	137868	55607	62955															
120	50237	28791	39793	99728	38494	42122	136675	55072	62304																		
75	57025	36385	52503													60134	16182	11493	74567	22657	19377	89000	29133	27260	118714	42465	43491
80	57025	36385	52503										59855	16056	11341	76276	23424	20310	92697	30792	29280	109119	38160	38250			
85	57025	36385	52503							55293	14009	8849	74922	22816	19570	93460	31134	29696	111998	39451	39822	130536	47769	49948			
95	57025	36385	52503				60119	16175	11485	83276	26565	24134	107794	37565	37526	130951	47955	50175									
100	57025	36385	52503				72775	21853	18398	98433	33365	32413	125600	45555	47252												
105	57025	36385	52503	57791	15130	10213	86079	27822	25665	114367	40515	41117															
110	57025	36385	52503	68986	20153	16328	100033	34083	33287	131079	48013	50245															
120	57025	36385	52503	92939	30900	29412	129887	47478	49594																		
80	72435	45254	64779																77288	21923	17004	93710	29291	25974	127518	44460	44441
85	72435	45254	64779													78051	22265	17420	96589	30583	27546	115127	38901	37672	153293	56025	58520
90	72435	45254	64779										75492	21118	16023	96275	30443	27375	117058	39767	38728	137842	49092	50080			
95	72435	45254	64779							67867	17696	11858	92385	28697	25250	115542	39087	37899	138698	49477	50548						
100	72435	45254	64779							83024	24497	20137	110191	36686	34977	135849	48198	48992									
110	72435	45254	64779				84624	25215	21011	115670	39144	37969															
120	72435	45254	64779	77530	22032	17136	114478	38609	37318																		
130	72435	45254	64779	103565	33713	31357																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 3500				CANTED FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
100	69425	41740	58689							120069	41335	41872	153185	55853	59446	184461	69564	76044	215737	83276	92641	247012	96987	109239	311404	125217	143410			
110	69425	41740	58689	84176	25599	22824	122020	42190	42907	159863	58781	62990	199933	76347	84254	237777	92938	104337	275621	109529	124420	313464	126120	144503						
120	69425	41740	58689	113373	38399	38318	158410	58144	62219	203447	77888	86119	251134	98794	111426	296171	118538	135326												
125	69425	41740	58689	128923	45216	46571	177792	66641	72504	226660	88065	98438	278403	110749	125897															
135	69425	41740	58689	161928	59686	64086	218929	84675	94335	275929	109664	124584																		
145	69425	41740	58689	197472	75269	82949	263230	104097	117845																					
155	69425	41740	58689	235555	91964	103159	310696	124906	143034																					
170	69425	41740	58689	297440	119095	136000																								
100	89180	53556	75276							100315	29519	25286	133430	44037	42860	164706	57749	59457	195982	71460	76055	227258	85171	92652	291649	113401	126824			
110	89180	53556	75276				102265	30374	26321	140108	46965	46404	180178	64532	67668	218022	81123	87751	255866	97713	107834	293710	114304	127917						
125	89180	53556	75276	109168	33401	29984	158037	54825	55918	206905	76249	81852	258648	98933	109311	307517	120367	135245												
130	89180	53556	75276	125354	40496	38574	178210	63669	66623	231066	86841	94673	287031	111376	124373															
140	89180	53556	75276	159628	55523	56763	220929	82397	89294	282229	109271	121825																		
145	89180	53556	75276	177718	63453	66362	243475	92281	101259	309232	121109	136155																		
160	89180	53556	75276	235794	88914	97182	315860	124015	139672																					
170	89180	53556	75276	277685	107279	119413																								
100	117644	71125	100217										104966	26468	17918	136242	40180	34516	167518	53891	51113	198794	67603	67711	263185	95832	101882			
115	117644	71125	100217							132963	38742	32776	176758	57942	56017	218120	76076	77967	259482	94209	99917	300845	112342	121868						
125	117644	71125	100217				129573	37256	30977	178441	58680	56910	230184	81365	84369	279053	102789	110303												
135	117644	71125	100217	113710	30302	22558	170710	55291	52807	227710	80280	83056	288063	106739	115085															
140	117644	71125	100217	131164	37954	31821	192465	64828	64352	253765	91703	96884																		
150	117644	71125	100217	167978	54093	51357	238348	84944	88702	308719	115794	126046																		
160	117644	71125	100217	207330	71345	72241	287396	106446	114731																					
180	117644	71125	100217	293651	109189	118050																								

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL CLOSE
SPRING RETURN TORQUES**

KSYHM 5000			CANTED FAIL CLOSE									HYDRAULIC STROKE TORQUES (lb. in.) AT OPERATING PRESSURE:																		
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi					
	ETC	RTC	BTC	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO	BTO	RTO	ETO			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
100	132009	83613	123158										139414	32760	18651	177548	49110	38574	215682	65459	58498	253816	81809	78421	332327	115471	119440			
110	132009	83613	123158									147557	36251	22905	196413	57198	48430	242555	76981	72538	288697	96765	96645	334839	116548	120753	429837	157278	170386	
125	132009	83613	123158				169417	45623	34326	229001	71170	65456	292090	98219	98418	351674	123766	129548	411258	149313	160679									
140	132009	83613	123158	171357	46455	35339	246099	78501	74390	320842	110547	113440	399981	144478	154787															
150	132009	83613	123158	216243	65700	58791	302044	102487	103619	387845	139274	148446																		
160	132009	83613	123158	284224	86272	83859	361847	128128	134863																					
170	132009	83613	123158	315301	108171	110545	425508	155422	168124																					
190	132009	83613	123158	426742	155951	168768																								
105	172377	101730	145869														168910	44596	32441	210952	62622	54406	252995	80648	76372	339553	117760	121595		
120	172377	101730	145869							160329	40917	27958	218472	65846	58335	273385	89390	87025	328298	112934	115715	383211	136478	144405						
130	172377	101730	145869				153645	38051	24465	218091	65683	58136	286328	94939	93787	350774	122571	127458	415221	150202	161129									
140	172377	101730	145869				205731	60383	51679	280474	92429	90729	359612	126360	132076	434355	158406	171126												
150	172377	101730	145869	175875	47582	36080	261676	84370	80907	347477	121157	125735	438325	160108	173200															
160	172377	101730	145869	223856	68154	61148	321479	110010	112152	419101	151866	163157																		
170	172377	101730	145869	274933	90054	87834	385140	137305	145413																					
190	172377	101730	145869	386373	137834	146057																								
115	223862	126548	189450																235959	70600	50789	286391	92223	77138	390222	136740	131386			
125	223862	126548	189450										200237	55284	32126	259821	80831	63256	319405	106378	94387	378989	131924	125517						
140	223862	126548	189450							228989	67612	47148	308128	101543	88495	382870	133588	127545												
150	223862	126548	189450				210191	59552	37326	295992	96339	82154	386840	135291	129619															
160	223862	126548	189450				269994	85193	68571	367616	127048	119575																		
170	223862	126548	189450	223448	65236	44253	333655	112487	101832	443862	159739	159411																		
190	223862	126548	189450	334889	113016	102476																								
115	276037	166783	241351																						234216	51988	25238	338047	96505	79485
125	276037	166783	241351																267230	66142	42486	326814	91689	73617						
130	276037	166783	241351														247114	57518	31976	311561	85149	65647	376007	112780	99318					
140	276037	166783	241351										255953	61307	36594	330695	93353	75644	405437	125399	114694									
150	276037	166783	241351							243817	56104	30254	334665	95055	77718	420466	131842	122546												
160	276037	166783	241351							315441	86813	67675	418806	131131	121679															
170	276037	166783	241351				281480	72252	49931	391687	119503	107510																		
190	276037	166783	241351	282714	72781	50576	420377	131804	122500																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 400				CANTED FAIL OPEN									HYDRAULIC STROKE TORQUES (Lb. In.) AT OPERATING PRESSURE:														
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi		
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°
45	7125	7576	19286																8441	5123	8669	10148	6516	11735	13663	9384	18048
	7125	7576	19286													9985	6383	11441	12092	8102	15226	14200	9822	19012	18539	13362	26805
	7125	7576	19286									11027	7233	13314	13578	9314	17894	16128	11395	22474	18678	13475	27054				
60	7125	7576	19286							11264	7426	13739	14478	10048	19510	17513	12524	24961	20548	15001	30412	23583	17477	35862			
	7125	7576	19286				10895	7125	13076	14457	10031	19473	18228	13108	26246	21790	16014	32643									
	7125	7576	19286	9642	6103	10827	13773	9474	18246	17905	12844	25665	22279	16413	33520												
65	7125	7576	19286																								
	7125	7576	19286	12123	8127	15282	16866	11996	23799	21608	15865	32316															
	7125	7576	19286	17598	12594	25115	23690	17564	36054																		
55	10081	10718	27313																13172	8253	14446	15722	10333	19026	20973	14617	28456
	10081	10718	27313													14557	9382	16933	17592	11859	22384	20627	14335	27835			
	10081	10718	27313									15272	9966	18218	18834	12872	24615	22396	15778	31012							
70	10081	10718	27313							14948	9702	17637	19322	13271	25492	23454	16641	32912									
	10081	10718	27313				13909	8854	15771	18652	12723	24288	23673	16820	33306												
	10081	10718	27313	11819	7149	12017	17215	11551	21707	22610	15953	31397															
85	10081	10718	27313	14642	9452	17087	20733	14422	28026																		
	10081	10718	27313	17636	11895	22464	24465	17466	34728																		
65	14329	15206	38704																18148	11291	19621	21710	14197	26018	29043	20180	39189
	14329	15206	38704													19205	12154	21521	23336	15524	28940	27467	18894	36359			
	14329	15206	38704									19425	12333	21915	24167	16202	30431	28909	20071	38948							
75	14329	15206	38704							18362	11466	20007	24075	16127	30267												
	14329	15206	38704				16485	9934	16635	22576	14904	27575	29026	20166	39157												
	14329	15206	38704	13388	7408	11073	20217	12979	23337	27046	18551	35602															
80	14329	15206	38704																								
	14329	15206	38704	16553	9990	16758	24162	16198	30423																		
	14329	15206	38704	19890	12712	22750	28320	19590	37891																		
90	14329	15206	38704																								
	14329	15206	38704																								
	14329	15206	38704																								
95	14329	15206	38704																								
	14329	15206	38704																								
	14329	15206	38704																								
100	14329	15206	38704																								
	14329	15206	38704																								
	14329	15206	38704																								

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 900				CANTED FAIL OPEN									HYDRAULIC STROKE TORQUES (Lb. in.) AT OPERATING PRESSURE:																							
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi											
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC									
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°									
60	8488	9577	25897									14067	9159	17949	18526	26617	23246	16783	35794	27705	20487	44461	32163	24190	53129	36622	27894	61796	45801	35519	79641					
	8488	9577	25897	12500	7857	14902	17670	12152	24954	22841	16447	35007	28316	20995	45650	33487	25290	55702	38658	29585	65754	43829	33880	75806												
	8488	9577	25897	15605	10436	20939	21541	15367	32478	27477	20297	44018	33762	25518	56236	39698	30449	67775	45634	35379	79315															
	8488	9577	25897	18924	13193	27392	25678	18803	40521	32432	24413	53651	39583	30353	67552																					
	8488	9577	25897	22458	16129	34261	30082	22462	49083	37707	28795	63905	45779	35500	79598																					
	8488	9577	25897	26206	19242	41547	34753	26342	58164	43301	33442	74780																								
65	12249	13763	37164												19485	12597	24527	23943	16300	33194	28402	20004	41862	32860	23707	50529	42040	31332	68374							
70	12249	13763	37164									19080	12261	23740	24555	16808	34383	29726	21103	44435	34896	25399	54487	40067	29694	64539										
75	12249	13763	37164						17779	11180	21211	23715	16111	32751	30000	21332	44969	35936	26262	56508	41872	31193	68048													
80	12249	13763	37164	15163	9007	16125	21917	14617	29254	28670	20227	42384	35821	26167	56285	42575	31777	69414																		
85	12249	13763	37164	18696	11942	22994	26321	18275	37816	33945	24608	52638	42018	31314	68331																					
90	12249	13763	37164	24444	15055	30280	30992	22155	46897	39540	29255	63513	48590	36773	81108																					
95	12249	13763	37164	26406	18346	37982	35930	26257	56496	45454	34168	75011																								
105	12249	13763	37164	34972	25462	54635	46607	35126	77252																											
70	16808	19011	51485												19997	11560	20062	25167	15855	30114	30338	20150	40167	35509	24445	50219	46155	33288	70914							
75	16808	19011	51485									19157	10862	18430	25442	16083	30648	31378	21014	42188	37314	25944	53727	43250	30875	65267										
85	16808	19011	51485						21763	13027	23496	29387	19360	38317	37460	26066	54011	45084	32399	68832																
90	16808	19011	51485	17886	9807	15959	26434	16907	32576	34981	24007	49193	44032	31525	66787																					
95	16808	19011	51485	21848	13098	23661	31372	21009	42176	40896	28920	60690	50980	37296	80293																					
100	16808	19011	51485	26024	16567	31780	36577	25332	52294	47129	34098	72809																								
105	16808	19011	51485	30414	20213	40314	42049	29877	62932																											
115	16808	19011	51485	39837	28040	58633																														
75	23056	26083	70620															25129	13942	23053	31065	18873	34592	37001	23803	46131	49222	33955	69889							
80	23056	26083	70620												25015	13847	22829	31768	19457	35959	38522	25067	49088	45276	30677	62217										
85	23056	26083	70620									23138	12288	19182	31211	18994	34875	38835	25327	49697	46460	31660	64519	54084	37993	79341										
90	23056	26083	70620						20185	9835	13441	28733	16935	30058	37783	24453	47652	46331	31553	64268	54879	38653	80885													
95	23056	26083	70620						25123	13937	23040	34647	21848	41555	44731	30224	61158	54255	38135	79672																
105	23056	26083	70620	24166	13142	21179	35800	22806	43796	47434	32470	66413																								
110	23056	26083	70620	28770	16966	30130	41539	27573	54952	54308	38179	79775																								
120	23056	26083	70620	38621	25149	49281	53817	37772	78822																											

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 1600				CANTED FAIL OPEN									HYDRAULIC STROKE TORQUES (Lb. In.) AT OPERATING PRESSURE:															
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi			
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	
450	80	27446	28791	72842						26900	15849	26652	36397	23650	44039	45367	31018	60460	54337	38386	76881	63306	45754	93302	81773	60923	127111	
	85	27446	28791	72842						33905	21603	39477	44627	30410	59105	54753	38728	77643	64879	47045	96181	75005	55363	114719				
	95	27446	28791	72842				29983	18382	32296	41335	27707	53080	53355	37580	75085	64708	46905	95868	76060	56230	116651	87412	65555	137434			
	100	27446	28791	72842	29439	17935	31300	43454	29447	56958	57469	40959	82617	72309	53149	109784	86324	64661	135442									
	105	27446	28791	72842	35270	22724	41975	50721	35416	70263	66173	48109	98551	82534	61547	128503												
	110	27446	28791	72842	41385	27747	53170	58343	41677	84216	75302	58607	115263	93258	70356	148135												
120	27446	28791	72842	54468	38494	77123	74650	55072	114070																			
130	27446	28791	72842	68690	50176	103158	92375	69631	146520																			
510	80	31155	36385	96119									32689	16056	20761	41658	23424	37183	50628	30792	53604	59598	38160	70025	78065	53329	103833	
	85	31155	36385	96119									40918	22816	35828	51044	31134	54366	61170	39451	72904	71296	47769	91442	92144	64894	129608	
	95	31155	36385	96119						45482	26565	44182	58874	37565	68701	71523	47955	91857	84172	58345	115014	96820	68735	138170				
	100	31155	36385	96119				39746	21853	33681	53761	33365	59339	68600	45555	86507	82616	57067	112165	96631	68579	137823						
	105	31155	36385	96119	31561	15130	18697	47013	27822	46985	62465	40515	75274	78825	53954	105226	94277	66646	133514									
	115	31155	36385	96119	44076	25410	41609	62611	40635	75541	81146	55860	109474	100772	71980	145403												
125	31155	36385	96119	57728	36624	66603	79627	54612	106693	101526	72600	146784																
135	31155	36385	96119	72519	48773	93680	98061	69754	140441																			
650	90	39563	45254	118591									41239	21118	29336	52591	30443	50119	63943	39767	70902	75296	49092	91685	98668	68291	134474	
	95	39563	45254	118591						37073	17696	21710	50466	28697	46229	63115	39087	69385	75764	49477	92541	88412	59866	115698				
	100	39563	45254	118591						45353	24497	36867	60192	36686	64035	74207	48198	89693	88223	59711	115351	102238	71223	141009				
	110	39563	45254	118591				46227	25215	38467	63185	39144	69513	81141	53894	102386	98099	67823	133432									
	115	39563	45254	118591	35668	16541	19137	54203	31766	53069	72738	46991	87002	92363	63112	122931												
	125	39563	45254	118591	49320	27756	44131	71219	45744	84221	93118	63732	124312															
135	39563	45254	118591	64110	39905	71207	89653	60886	117969																			
150	39563	45254	118591	88429	59880	115728																						

Safety factor is not included. 25% is recommended

Radius reserves the right to make technical and or dimensional changes without prior notice.



**SCOTCH YOKE HYDRAULIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 3500				CANTED FAIL OPEN									HYDRAULIC STROKE TORQUES (Lb. In.) AT OPERATING PRESSURE:																				
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi								
	ETO	RTO	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC						
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°						
100 110 120 125 135 145 155 170	610	36846	41740	110599									63716	41335	78896	81290	55853	112011	97887	69564	143287	114485	83276	174563	131082	96987	205839	165254	125217	270230			
		36846	41740	110599				64751	42190	80846	84834	58781	118690	106098	76347	158759	126181	92938	196603	146264	109529	234447	166347	126120	272291								
		36846	41740	110599	60162	38399	72199	84062	58144	117236	107963	77888	162273	133269	98794	209960	157170	118538	254997	181070	138283	300034											
		36846	41740	110599	68414	45216	87750	94348	66641	136618	120282	88065	185487	147741	110749	237230	173674	132173	286098														
		36846	41740	110599	85930	59686	120755	116179	84675	177755	146428	109664	234755	178456	136123	295108																	
		36846	41740	110599	104792	75269	156299	139689	104097	222056	174585	132925	287814																				
		36846	41740	110599	125002	91964	194382	164878	124906	269522																							
100		47325	53556	141851											70810	44037	80759	87408	57749	112035	104005	71460	143311	120603	85171	174587	154774	113401	238978				
110		47325	53556	141851						74354	46965	87438	95619	64532	127508	115702	81123	165351	135785	97713	203195	155868	114304	241039									
125		47325	53556	141851			83869	54825	105366	109802	76249	154235	137262	98933	205978	163195	120357	254846	189129	141781	303715												
130	782	47325	53556	141851	66524	40496	72683	94574	63669	125539	122624	86841	178395	152324	111376	234360	180374	134549	287217														
140		47325	53556	141851	84713	55523	106957	117244	82397	168258	149776	109271	229559	184220	137727	294465																	
145		47325	53556	141851	94313	63453	125047	129209	92281	190804	164106	121109	256562																				
160		47325	53556	141851	125133	88914	183123	167623	124015	263189																							
170		47325	53556	141851	147364	107279	225014	195331	146905	315402																							
100			62433	71125	188848													72300	40180	65038	88897	53891	96314	105495	67603	127589	139666	95832	191981				
115			62433	71125	188848											93801	57942	105554	115751	76076	146916	137701	94209	188278	159652	112342	229641	204843	149676	314798			
125		62433	71125	188848						94694	58680	107237	122153	81365	158980	148087	102789	207849	174021	124213	256717	199954	145637	305586									
135	1057	62433	71125	188848			90591	55291	99506	120840	80280	156506	152868	106739	216859	183117	131728	273859															
140		62433	71125	188848	69605	37954	59960	102136	64828	121261	134667	91703	182561	169112	120158	247468	201643	147032	308768														
150		62433	71125	188848	89141	54093	96773	126486	84944	167144	163830	115794	237515	203371	148460	312025																	
160		62433	71125	188848	110025	71345	136126	152515	106446	216192	195004	141548	296258																				
180		62433	71125	188848	155834	109189	222447																										

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE HYDRAULIC CANTED FAIL OPEN
SPRING RETURN TORQUES**

KSYHM 5000				CANTED FAIL OPEN									HYDRAULIC STROKE TORQUES (Lb. In.) AT OPERATING PRESSURE:																	
MODEL	Spring Torque			1000 psi			1250 psi			1500 psi			1750 psi			2000 psi			2250 psi			2500 psi			3000 psi					
	ETO	RTC	BTO	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC	BTC	RTC	ETC			
	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°	0°	45°	90°			
110	74231	87932	245776												97357	52879	82646	121465	72662	128788	145572	92446	174930	169680	112229	221072	219313	152959	316070	
125	74231	87932	245776							114383	66851	115233	147345	93900	178322	178475	119447	237907	209606	144994	297491	240736	170540	357075						
140	74231	87932	245776				123316	74182	132332	162367	106228	207074	203714	140158	286213	242764	172204	360956	281814	204250	435698									
150	74231	87932	245776	107717	61381	102475	152545	98168	188277	197373	134955	274078	244838	173906	364926	289666	210694	450727												
160	74231	87932	245776	132786	81953	150457	183790	123808	248079	234794	165664	345702	288799	209982	449067															
170	74231	87932	245776	159472	103852	201534	217051	151103	311740	274630	198354	421947																		
190	74231	87932	245776	217695	151632	312974	289619	210655	450637																					
200	74231	87932	245776	249233	177513	373338																								
110	90056	101730	279197													105640	58864	95367	129747	78647	141509	153855	98431	187651	203488	139161	282649			
125	90056	101730	279197												131520	80102	144902	162650	105649	204486	193781	131195	264070	224911	156742	323654	289003	209338	446328	
140	90056	101730	279197				107491	60383	98912	146541	92429	173654	187889	126360	252793	226939	158406	327535	265989	190452	402277									
150	90056	101730	279197	91892	47582	69055	136720	84370	154856	181548	121157	240657	229013	160108	331506	273841	196895	417307												
160	90056	101730	279197	116961	68154	117036	167965	110010	214659	218969	151866	312282	272974	196184	415647															
170	90056	101730	279197	143647	90054	168113	201226	137305	278320	258805	184556	388527																		
190	90056	101730	279197	201870	137834	279554	273794	196857	417217																					
200	90056	101730	279197	233408	163715	339917																								
125	116963	132124	362597													135744	75255	121086	166874	100802	180670	198005	126348	240254	262097	178945	362927			
140	116963	132124	362597							119635	62036	90253	160982	95967	169392	200032	128012	244135	239083	160058	318877	278133	192104	393619						
150	116963	132124	362597				109814	53976	71456	154642	90763	157257	202107	129715	248105	246935	166502	333906	291763	203289	419707									
160	116963	132124	362597				141059	79617	131258	192063	121472	228881	246068	165790	332246	297072	207646	429869												
170	116963	132124	362597	116740	59660	84713	174319	106911	194919	231898	154163	305126	292864	204193	421816															
190	116963	132124	362597	174964	107440	196153	246888	166463	333816																					
200	116963	132124	362597	206502	133321	256517	286196	198721	409052																					
135	144223	166783	461947													150534	75103	102221	186845	104901	171720	223155	134699	241219	297912	196047	384305			
140	144223	166783	461947													172772	93353	144785	211822	125399	219527	250872	157444	294270	331270	223421	448151			
150	144223	166783	461947										174847	95055	148755	219674	131842	234557	264502	168630	320358	309330	205417	406159						
160	144223	166783	461947							164803	86813	129531	218807	131131	232897	269811	172986	330519	320816	214842	428142									
170	144223	166783	461947				147059	72252	95570	204638	119503	205777	265604	169534	322466															
190	144223	166783	461947	147704	72781	96804	219628	131804	234467	291552	190827	372130																		
200	144223	166783	461947	179241	98662	157167	258936	164061	309703	338630	229461	462238																		
220	144223	166783	461947	247169	154405	287181	343599	233539	471749																					

Safety factor is not included. 25% is recommended

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**SCOTCH YOKE
DOUBLE ACTING OPENING AND CLOSING TIMES**

Actuator size	43		58		72		80		87		101		116		130		145	
	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE
KSY-100-160	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
KSY-100-180	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
KSY-100-235	1	1	1	1	1	1	1	1	1	1	1	1	1	1	1			
KSY-400-200	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	2	
KSY-400-235	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	
KSY-400-280	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	
KSY-400-335	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
KSY-400-385	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	
KSY-900-235												4	4	4	4	4	4	4
KSY-900-280					5	5	5	5	5	5	5	5	5	5	5	5	5	5
KSY-900-335			6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
KSY-900-385	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
KSY-900-435	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3	3
KSY-1600-300									6	6	6	6	6	6	6	6	6	6
KSY-1600-335									8	8	8	8	8	8	8	8	8	8
KSY-1600-385	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
KSY-1600-435	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4	4
KSY-1600-485	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5	5
KSY-1600-535	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6	6
KSY-3500-335															6	6	6	6
KSY-3500-385												5	6	6	6	6	6	6
KSY-3500-435							5	5	5	5	5	5	5	5	5	5	5	5
KSY-3500-485					6	6	6	6	6	6	6	6	6	6	6	6	6	6
KSY-3500-535	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7	7
KSY-5000-435												7	7	7	7	7	7	7
KSY-5000-485												8	8	8	8	8	8	8
KSY-5000-535	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9	9
KSY-5000-585	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10	10
KSY-5000-635	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12	12
KSY-5000-685	14	14	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13	13
KSY-5000-735	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15	15

Times are in seconds and are approximate.
 The following variables were used:
 - From Ø140 to Ø385, Solenoid valve 1/4" Cv = 0.9, Q.E. 1/2" Cv = 6.5, Øpipeline = 10
 - From Ø435 to Ø835, Solenoid valve 1/2" Cv = 3.2, Q.E. 1" Cv = 10.5, Øpipeline = 12
 Actuator without load.
 Ambient temperature of 68°F.
 If the parameters are modified, the time will be different.



SCOTCH YOKE SPRING RETURN OPENING AND CLOSING TIMES

Actuator size	43		58		72		80		87		101		116		130		145	
	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE
KSYM-100-140-023					2	1	2	1	2	1	2	1	2	1	2	1		
KSYM-100-160-023			2	1	2	1	2	1	2	1	2	1	2	1	2	1		
KSYM-100-180-023	3	1	2	1	2	1	2	1	2	1	2	1	2	1	2	1		
KSYM-100-160-046									2	1	2	1	2	1	2	1		
KSYM-100-180-046					3	1	2	1	2	1	2	1	2	1	2	1		
KSYM-100-235-046	5	1	3	1	3	1	3	1	3	1	3	1						
KSYM-100-160-078																2	1	
KSYM-100-180-078													2	1	2	1		
KSYM-100-235-078					3	1	3	1	3	1	2	1						
KSYM-400-235-110									5	2	5	2	5	2	4	2		
KSYM-400-280-110					6	3	6	3	6	3	6	3	5	3				
KSYM-400-235-110	9	3	7	3	7	3	7	3										
KSYM-400-235-160													5	2	5	2		
KSYM-400-280-160							6	3	6	3	6	3	6	3	6	3		
KSYM-400-335-160			8	3	8	3	7	3	7	3								
KSYM-400-385-160	5	3	4	3														
KSYM-400-280-220											7	3	6	3	6	3		
KSYM-400-335-220					9	3	8	3	8	3	7	3						
KSYM-400-385-220			4	3	4	3												
KSYM-400-435-220			5	3														
KSYM-900-235-140							6	3	6	3	5	3	5	3	5	3		
KSYM-900-280-140			8	3	7	3	7	3	7	3	7	3						
KSYM-900-335-140	11	3	9	3	9	3	8	3					6	3	6	3		
KSYM-900-235-200													6	3	6	3		
KSYM-900-280-200									7	3	7	3	7	3	7	3		
KSYM-900-335-200			10	3	9	3	9	3	9	3	8	3						
KSYM-900-385-200			5	3	4	3	4	3										
KSYM-900-435-200	6	3	5	3														
KSYM-900-280-290													7	3	7	3		
KSYM-900-335-290							10	3	9	3	9	3	9	3	8	3		
KSYM-900-385-290					5	3	5	3	4	3	4	3						
KSYM-900-435-290			5	3	5	3	5	3										
KSYM-900-485-290	7	3	6	4														
KSYM-900-335-390													9	3	9	3		
KSYM-900-385-390									5	3	5	3	4	3				
KSYM-900-435-390					6	3	5	3	5	3								
KSYM-900-485-390			6	3	6	3												
KSYM-1600-335-450											8	3	7	3	7	3		
KSYM-1600-385-450							5	3	5	3	5	3	5	3				
KSYM-1600-435-450			7	3	6	4	6	4	6	4								
KSYM-1600-485-450			7	4	7	4												
KSYM-1600-535-450	10	4	8	4														
KSYM-1600-335-510													8	3	8	3		
KSYM-1600-385-510									6	3	5	3	5	3	5	3		
KSYM-1600-435-510					7	3	6	3	6	3	6	4	6	4				
KSYM-1600-485-510			8	4	7	4	7	4	7	4								
KSYM-1600-535-510			9	4	8	4												
KSYM-1600-385-650													5	3	5	3		
KSYM-1600-435-650									7	3	6	3	6	4				

Times are in seconds and are approximate.

The following variables were used:

- From Ø140 to Ø385, Solenoid valve 1/4" Cv = 0.9, Q.E. 1/2" Cv = 6.5, Øpipeline = 10

- From Ø435 to Ø835, Solenoid valve 1/2" Cv = 3.2, Q.E. 1" Cv = 10.5, Øpipeline = 12

Actuator without load.

Ambient temperature of 68°F.

If the parameters are modified, the time will be different.



**SCOTCH YOKE
SPRING RETURN OPENING AND CLOSING TIMES**

Actuator size	43		58		72		80		87		101		116		130		145	
	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE	OPEN	CLOSE
KSYM-3500-485-610			9	4	8	4	8	4	8	4	8	4	8	4	8	4		
KSYM-3500-535-610	13	5	10	5	9	5	9	5	9	5	9	5	9	5				
KSYM-3500-385-782											7	3	6	3	6	3		
KSYM-3500-435-782							8	4	8	4	7	4	7	4	7	4		
KSYM-3500-485-782					9	4	9	4	8	4	8	4	8	4				
KSYM-3500-535-782			11	5	10	5	10	5	9	5								
KSYM-3500-435-1057											8	4	7	4	7	4		
KSYM-3500-485-1057									9	4	9	4	8	4	8	4		
KSYM-3500-535-1057					11	5	10	5	10	5	10	5	9	5				
KSYM-3500-585-1057			13	5	12	5	11	5	11	5	11	5						
KSYM-3500-635-1057			14	6	13	6	13	6										
KSYM-3500-685-1057	22	6	15	7	14	7												
KSYM-5000-485-1130									11	5	10	5	10	5	9	5		
KSYM-5000-535-1130					14	5	12	5	12	5	11	5	11	5	11	5		
KSYM-5000-585-1130			16	6	14	5	13	6	13	6	13	6						
KSYM-5000-635-1130			17	7	15	7	15	7	14	7								
KSYM-5000-685-1130	26	7	18	8	17	8												
KSYM-5000-535-1390							14	5	12	5	12	5	11	5	11	5		
KSYM-5000-585-1390					15	6	14	6	13	6	13	6	12	6				
KSYM-5000-635-1390			18	6	16	7	15	7	15	7	14	7						
KSYM-5000-685-1390			19	7	18	7	17	8	16	8								
KSYM-5000-735-1390	31	8	20	8	19	9												
KSYM-5000-585-1800									15	6	14	6	13	6	13	6		
KSYM-5000-635-1800							17	6	16	7	15	7	15	7				
KSYM-5000-685-1800					20	7	18	7	17	7	17	8						
KSYM-5000-735-1800			23	8	21	8	20	8	19	8	19	9						
KSYM-5000-785-1800			24	9	22	9	21	9	21	9	20	10						
KSYM-5000-635-2220											17	6	15	7				
KSYM-5000-685-2220									19	7	18	7						
KSYM-5000-735-2220					24	8	22	8	20	8								
KSYM-5000-785-2200					25	9	23	9										
KSYM-5000-835-2200			29	10	26	10	25	10										

Times are in seconds and are approximate.
 The following variables were used:
 - From Ø140 to Ø385, Solenoid valve 1/4" Cv = 0.9, Q.E. 1/2" Cv = 6.5, Øpipeline = 10
 - From Ø435 to Ø835, Solenoid valve 1/2" Cv = 3.2, Q.E. 1" Cv = 10.5, Øpipeline = 12
 Actuator without load.
 Ambient temperature of 68°F.
 If the parameters are modified, the time will be different.