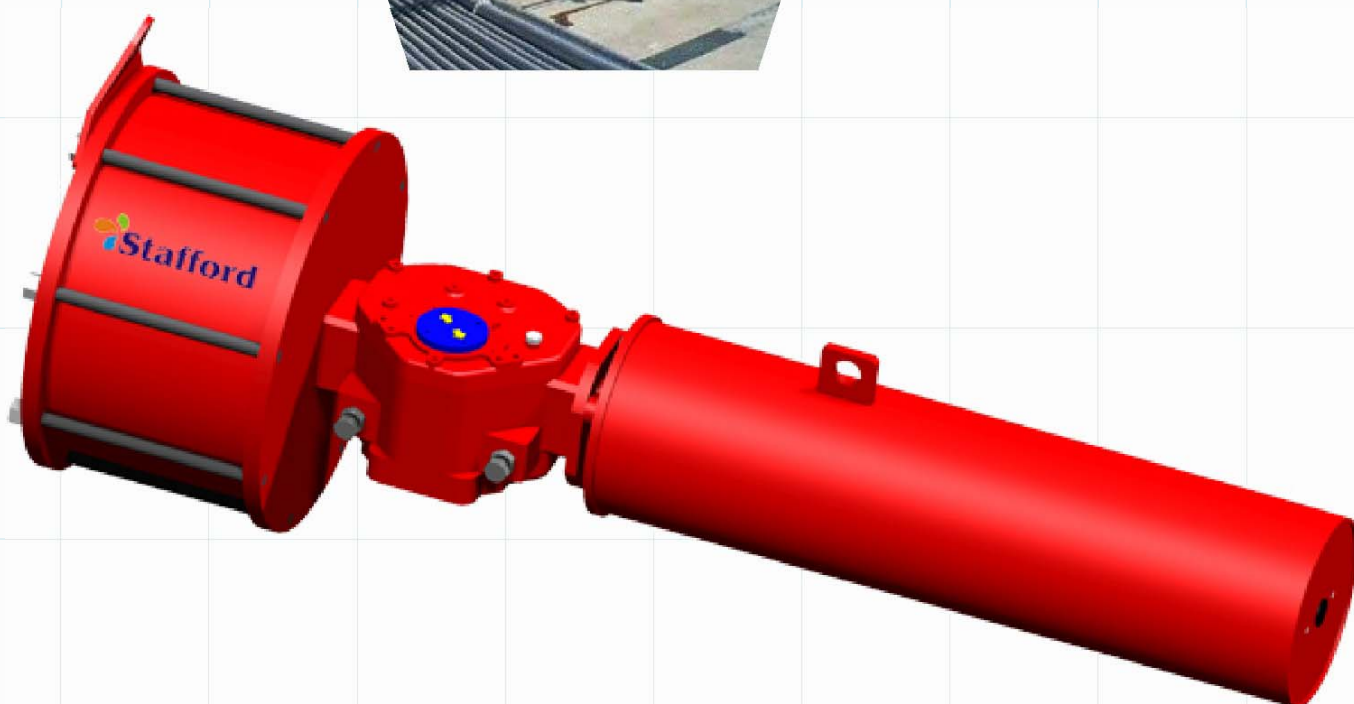
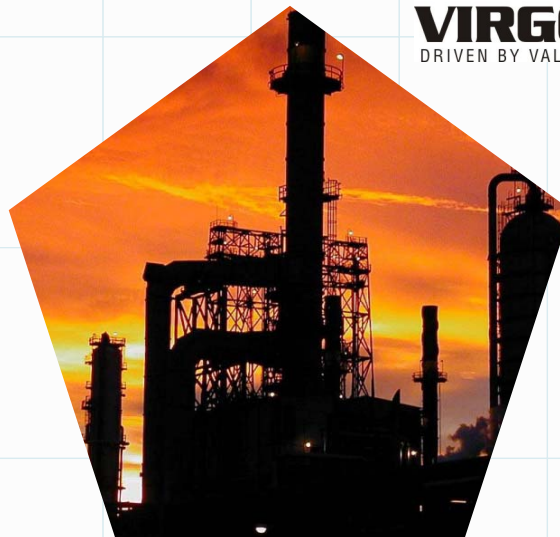


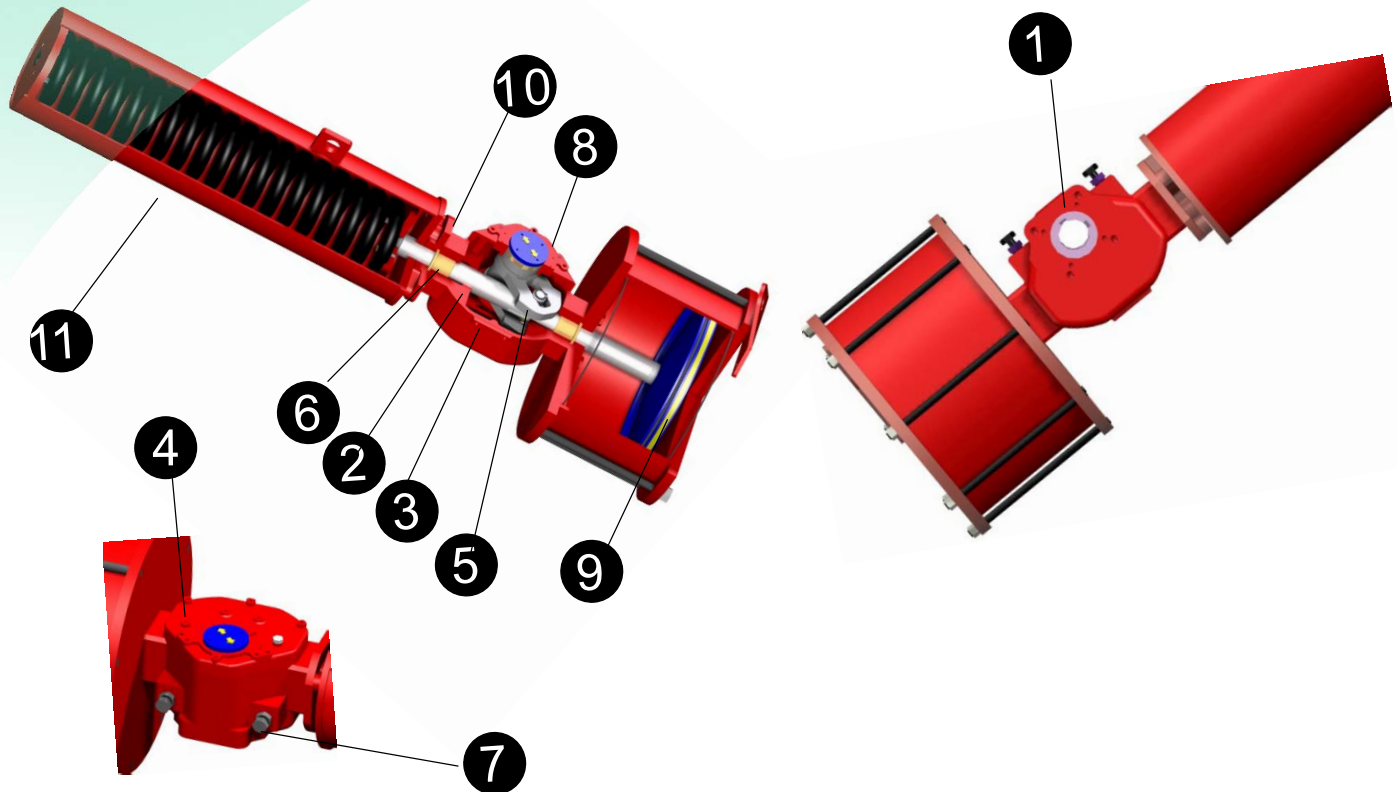


VIRGO
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Heavy Duty Scotch Yoke Actuator Series 21

Features & Constructional Details

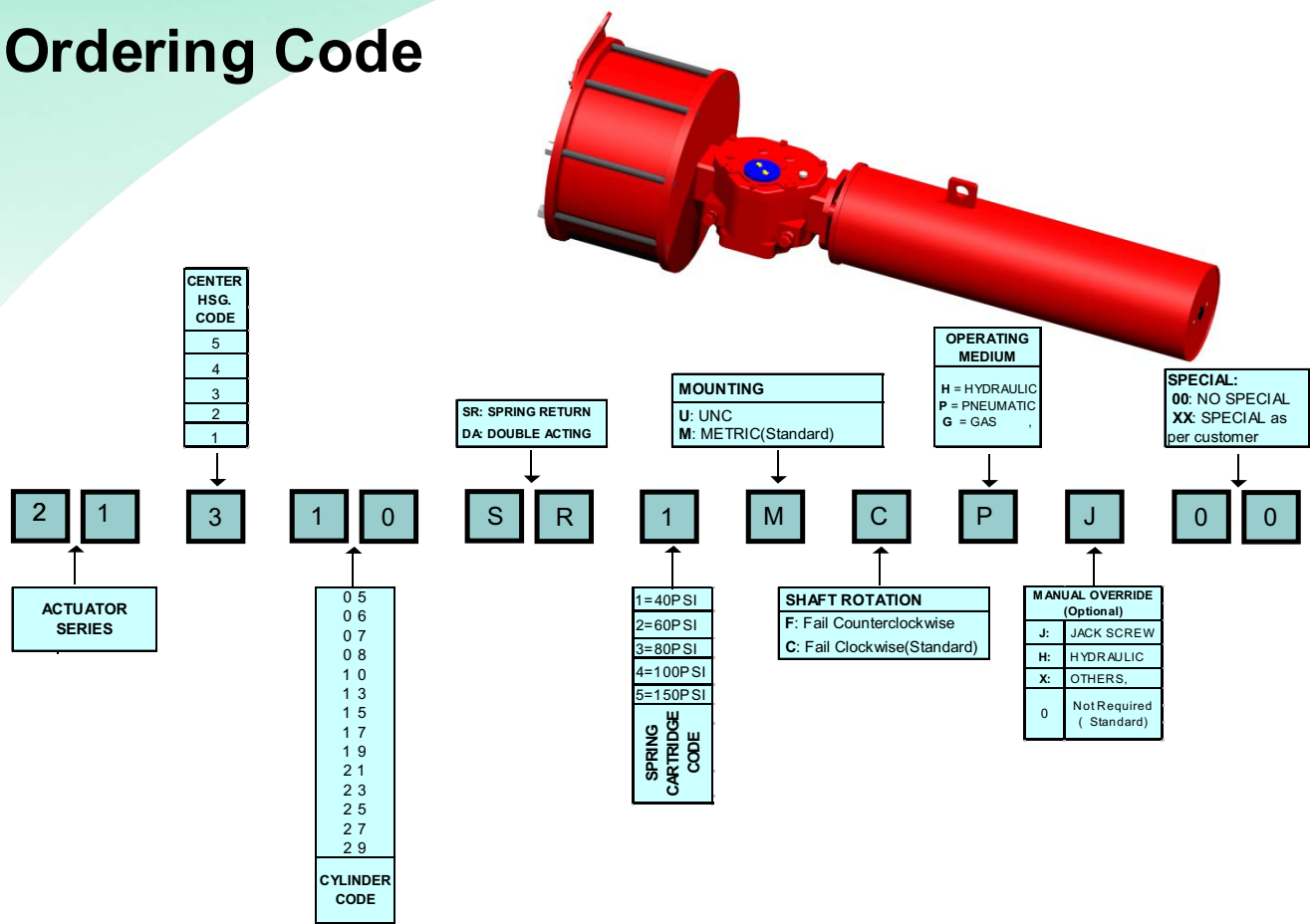


Model S2,S3

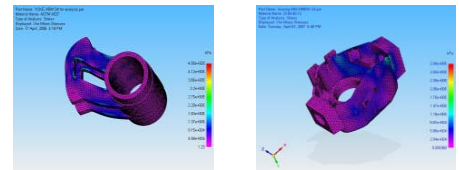
• **Torque Range: 600 To 10,000 Nm**

1. Mounting Flange Details : (EN ISO 5211):F1 4/1 6/25.
 2. Integral guide in housing for piston rod.
 3. Totally encapsulated, weather proof cast housing in SG Iron/Cast Steel/Stainless Steel.
 4. Easily removable housing top cover for inspection.
 5. Symmetric scotch yoke
 6. Internal piston bearing ensures perfect alignment under all loading conditions.
 7. Stroke adjustment bolt in housing away from pressure chamber for safety, easy and precise angular stroke
 8. Standard mounting pads for all controls accessories.
 9. Guide band and O-ring seal on piston provide low hysteresis and high sensitivity.
 10. Interchanging of spring module and cylinder is possible due to modular construction.
 11. Inherently safe , spring module to provide fail safe operation. The spring pack incorporates up to 2 springs for high torque, fully encapsulated in a factory welded cartridge; this ensures safety to personnel & simplifies assembly.
- Available with jack screw & compact hydraulic manual override.
 - Actuators available for extreme ambient temperatures -30 deg to 100 deg Celsius
 - Supply medium: air, nitrogen, sweet gas.
 - Standard supply pressure: 10 bar std. / 12 bar on request.

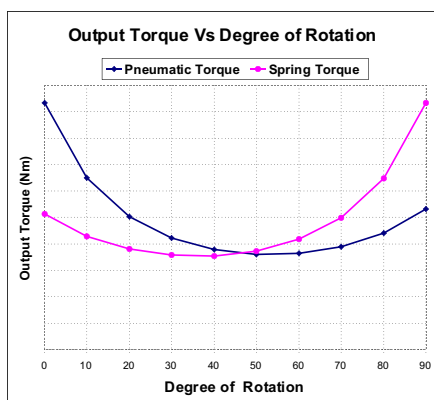
Ordering Code



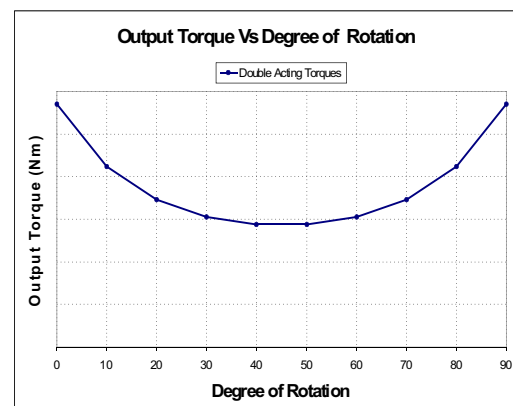
Each Component is critically analyzed for economical & reliable product using latest FEA tools.



Torque Characteristic of Scotch Yoke Actuator.



SPRING RETURN ACTUATOR



DOUBLE ACTING ACTUATOR

Torque Data S2 Spring Return

ACT. MODELS 21 2XXSRXXXXXX		SPRING TORQUE (Nm)	PNEUMATIC TORQUE WITH SUPPLY PRESSURE(Nm)									
			3 Bar	3.5 Bar	4 Bar	4.5 Bar	5 Bar	5.5 Bar	6 Bar	7 Bar	8.5 Bar	10 Bar
208 SR 40	BREAK	627	617	845	1,007	1,170	1,332	1,495	1,657	-	-	-
	RUN	233	232	346	427	508	589	671	752	-	-	-
	END	306	310	538	700	863	1,025	1,188	1,350	-	-	-
208 SR 60	BREAK	877	-	708	871	1,033	1,196	1,358	1,521	-	-	-
	RUN	332	-	252	333	414	496	577	658	-	-	-
	END	449	-	299	461	624	786	949	1,111	-	-	-
208 SR 80	BREAK	1,174	-	-	-	837	1,000	1,162	1,325	1,650	-	-
	RUN	457	-	-	-	294	376	457	538	701	-	-
	END	654	-	-	-	340	503	665	828	1,152	-	-
208 SR 100	BREAK	1,510	-	-	-	-	855	1,017	1,180	1,504	1,992	-
	RUN	579	-	-	-	-	259	340	422	584	828	-
	END	806	-	-	-	-	182	344	507	832	1,319	-
208 SR 150	BREAK	2,122	-	-	-	-	-	-	-	1,153	1,641	2,193
	RUN	824	-	-	-	-	-	-	-	350	594	870
	END	1,173	-	-	-	-	-	-	-	247	734	1,287
210 SR 40	BREAK	969	962	1,324	1,583	1,842	2,101	2,360	2,618	-	-	-
	RUN	370	371	552	682	811	941	1,070	1,200	-	-	-
	END	510	523	886	1,144	1,403	1,662	1,921	2,180	-	-	-
210 SR 60	BREAK	1,387	767	1,129	1,388	1,647	1,906	2,165	2,423	2,941	-	-
	RUN	525	223	404	533	663	792	921	1,051	1,310	-	-
	END	714	123	486	745	1,003	1,262	1,521	1,780	2,298	-	-
210 SR 80	BREAK	1,867	-	-	1,096	1,350	1,608	1,867	2,649	-	-	-
	RUN	723	-	-	343	474	603	733	1,120	-	-	-
	END	1,025	-	-	277	545	804	1,063	1,830	-	-	-
210 SR 100	BREAK	2,407	-	-	-	-	1,370	1,628	1,887	2,405	3,181	3,958
	RUN	921	-	-	-	-	414	544	673	932	1,320	1,708
	END	1,275	-	-	-	-	287	546	805	1,323	2,099	2,876
210 SR 150	BREAK	3,463	-	-	-	-	-	-	-	1,849	2,626	3,402
	RUN	1,330	-	-	-	-	-	-	-	541	929	1,317
	END	1,856	-	-	-	-	-	-	-	313	1,090	1,866
213 SR 40	BREAK	1,663	1,650	2,270	2,712	3,155	3,597	4,040	3,255	-	-	-
	RUN	632	635	945	1,166	1,387	1,609	1,830	2,051	-	-	-
	END	867	889	1,509	1,952	2,394	2,837	3,279	3,722	-	-	-
213 SR 60	BREAK	2,407	-	1,880	2,322	2,765	3,207	3,650	2,929	4,978	-	-
	RUN	921	-	669	891	1,112	1,333	1,554	1,776	2,218	-	-
	END	1,275	-	797	1,240	1,683	2,125	2,568	3,010	3,896	-	-
213 SR 80	BREAK	3,213	-	-	-	2,346	2,788	3,231	2,577	4,559	-	-
	RUN	1,257	-	-	-	814	1,036	1,257	1,478	1,921	-	-
	END	1,714	-	-	-	912	1,355	1,797	2,240	3,125	-	-
213 SR 100	BREAK	4,080	-	-	-	-	2,379	2,821	3,264	4,052	5,477	-
	RUN	1,581	-	-	-	-	670	891	1,113	1,587	2,219	-
	END	2,244	-	-	-	-	302	744	1,187	2,297	3,400	-
213 SR 150	BREAK	5,845	-	-	-	-	-	-	-	3,125	4,453	-
	RUN	2,264	-	-	-	-	-	-	-	934	1,598	-
	END	3,213	-	-	-	-	-	-	-	610	1,938	-
215 SR 40	BREAK	2,122	2,107	2,914	3,490	4,066	4,643	5,219	5,796	-	-	-
	RUN	824	827	1,230	1,518	1,807	2,095	2,383	2,671	-	-	-
	END	1,173	1,200	2,007	2,583	3,160	3,736	4,312	4,889	-	-	-
215 SR 60	BREAK	3,213	-	2,426	2,973	3,579	4,155	4,732	5,308	-	-	-
	RUN	1,232	-	899	1,128	1,475	1,763	2,051	2,340	-	-	-
	END	1,714	-	1,168	1,540	2,321	2,898	3,474	4,050	-	-	-
215 SR 80	BREAK	4,315	-	-	-	3,140	3,717	4,195	-	-	-	-
	RUN	1,614	-	-	-	1,051	1,339	1,659	-	-	-	-
	END	2,142	-	-	-	1,063	1,640	2,440	-	-	-	-
215 SR 100	BREAK	5,126	-	-	-	-	-	2,956	4,109	5,262	-	-
	RUN	2,016	-	-	-	-	-	955	1,532	2,108	-	-
	END	2,938	-	-	-	-	-	865	2,017	3,170	-	-
217 SR 40	BREAK	2,672	2,673	3,687	4,412	5,136	-	-	-	-	-	-
	RUN	1,030	1,044	1,551	1,913	2,276	-	-	-	-	-	-
	END	1,448	1,503	2,517	3,242	3,966	-	-	-	-	-	-
217 SR 60	BREAK	3,692	-	2,975	3,700	4,424	5,149	-	-	-	-	-
	RUN	1,471	-	1,129	1,492	1,854	2,216	-	-	-	-	-
	END	2,193	-	1,542	2,267	2,991	3,716	-	-	-	-	-
217SR 80	BREAK	5,126	-	-	-	3,713	4,437	5,162	-	-	-	-
	RUN	2,016	-	-	-	1,333	1,696	2,058	-	-	-	-
	END	2,938	-	-	-	1,621	2,346	3,070	-	-	-	-

Torque Data S3 Spring Return

ACT. MODELS 21 3XXSRXXXXXX		SPRING TORQUE (Nm)	PNEUMATIC TORQUE WITH SUPPLY PRESSURE(Nm)									
			3 Bar	3.5 Bar	4 Bar	4.5 Bar	5 Bar	5.5 Bar	6 Bar	7 Bar	8.5 Bar	10 Bar
315 SR 150	BREAK	8,408	-	-	-	-	-	-	-	3,823	5,781	8,318
	RUN	3,190	-	-	-	-	-	-	-	1,013	1,992	3,190
	END	4,352	-	-	-	-	-	-	-	229	2,187	4,441
317 SR 100	BREAK	6,899	-	-	-	-	3,977	4,746	5,628	6,900	9,361	11,977
	RUN	2,697	-	-	-	-	1,269	1,653	2,080	2,730	3,961	5,269
	END	3,887	-	-	-	-	1,098	1,867	2,690	4,021	6,483	9,098
317 SR 150	BREAK	9,966	-	-	-	-	-	-	-	5,047	7,414	9,929
	RUN	3,895	-	-	-	-	-	-	-	1,524	2,707	3,965
	END	5,614	-	-	-	-	-	-	-	1,047	3,414	5,929
319 SR 40	BREAK	3,537	3,541	4,880	5,837	6,794	7,750	8,707	9,861	-	-	-
	RUN	1,359	1,379	2,049	2,527	3,006	3,484	3,962	4,531	-	-	-
	END	1,901	1,977	3,316	4,273	5,229	6,186	7,143	8,265	-	-	-
319 SR 60	BREAK	5,079	-	3,972	4,929	5,886	6,842	7,799	8,935	10,478	-	-
	RUN	1,982	-	1,454	1,932	2,410	2,889	3,367	3,924	4,706	-	-
	END	2,851	-	1,842	2,799	3,756	4,712	5,669	6,761	8,348	-	-
319SR 80	BREAK	6,899	-	-	-	4,895	5,851	6,808	7,923	9,487	-	-
	RUN	2,697	-	-	-	1,728	2,206	2,684	3,227	4,024	-	-
	END	3,887	-	-	-	2,016	2,973	3,929	4,986	6,608	-	-
319 SR 100	BREAK	8,591	-	-	-	-	4,950	5,906	7,003	8,585	11,647	-
	RUN	3,355	-	-	-	-	1,576	2,055	2,585	3,394	4,925	-
	END	4,831	-	-	-	-	1,355	2,312	3,335	4,991	8,052	-
321 SR 40	BREAK	4,221	4,234	5,873	7,037	8,202	9,366	10,531	-	-	-	-
	RUN	1,654	1,680	2,504	3,086	3,668	4,251	4,833	-	-	-	-
	END	2,394	2,487	4,142	5,307	6,471	7,636	8,800	-	-	-	-
321 SR 60	BREAK	6,115	3,256	4,887	6,051	7,216	8,380	9,545	-	-	-	-
	RUN	2,365	1,000	1,815	2,381	2,980	3,562	4,144	-	-	-	-
	END	3,416	744	2,374	3,472	4,703	5,868	7,032	-	-	-	-
321 SR 80	BREAK	8,591	-	-	4,699	5,864	7,028	8,193	9,549	11,454	-	-
	RUN	3,355	-	-	1,451	2,033	2,616	3,198	3,857	4,828	-	-
	END	4,831	-	-	1,105	2,270	3,434	4,599	5,881	7,860	-	-
321 SR 100	BREAK	10,558	-	-	-	-	6,280	7,444	8,530	10,455	-	-
	RUN	4,108	-	-	-	-	2,100	2,682	3,123	4,109	-	-
	END	5,875	-	-	-	-	2,120	3,284	3,962	5,979	-	-
323 SR 40	BREAK	5,079	5,075	7,025	8,418	9,811	11,204	-	-	-	-	-
	RUN	1,982	2,005	2,980	3,677	4,373	5,070	-	-	-	-	-
	END	2,851	2,946	4,896	6,288	7,681	9,074	-	-	-	-	-
323 SR 60	BREAK	6,899	-	6,034	7,427	8,820	10,213	11,606	-	-	-	-
	RUN	2,697	-	2,297	2,994	3,690	4,387	5,083	-	-	-	-
	END	3,887	-	3,156	4,549	5,941	7,334	8,727	-	-	-	-
323SR 80	BREAK	9,966	-	-	-	7,170	8,563	9,955	-	-	-	-
	RUN	3,895	-	-	-	2,545	3,241	3,938	-	-	-	-
	END	5,614	-	-	-	3,010	4,403	5,795	-	-	-	-
325 SR 40	BREAK	6,115	5,927	8,226	9,867	11,509	-	-	-	-	-	-
	RUN	2,383	2,319	3,485	4,306	5,126	-	-	-	-	-	-
	END	3,416	3,348	5,713	7,355	8,996	-	-	-	-	-	-
325 SR 60	BREAK	8,591	-	6,874	8,515	10,157	11,799	-	-	-	-	-
	RUN	3,355	-	2,538	3,359	4,180	5,001	-	-	-	-	-
	END	4,831	-	3,279	4,921	6,563	8,204	-	-	-	-	-

Double Acting Torque Data

ACT. MODELS 21 2XXDAXXXXXXX	POSITION	PNEUMATIC TORQUE WITH SUPPLY PRESSURE (Nm)									
		3 Bar	3.5 Bar	4 Bar	4.5 Bar	5 Bar	5.5 Bar	6 Bar	7 Bar	8.5 Bar	10 Bar
208	BREAK / END	874	1,115	1,274	1,433	1,592	1,752	1,950	2,225	2,705	3,244
	RUN	437	557	637	717	796	876	975	1,112	1,352	1,622
210	BREAK / END	1,420	1,776	2,029	2,283	2,537	2,790	3,106	3,551	4,312	5,073
	RUN	710	888	1,015	1,141	1,268	1,395	1,553	1,776	2,156	2,537
213	BREAK / END	2,429	3,036	3,470	3,904	4,338	4,771	5,311	-	-	-
	RUN	1,215	1,518	1,735	1,952	2,169	2,386	2,656	-	-	-
215	BREAK / END	3,163	3,954	4,519	5,084	-	-	-	-	-	-
	RUN	1,582	1,977	2,260	2,542	-	-	-	-	-	-
217	BREAK / END	3,976	4,970	5,680	-	-	-	-	-	-	-
	RUN	1,988	2,485	2,840	-	-	-	-	-	-	-
219	BREAK / END	5,250	-	-	-	-	-	-	-	-	-
	RUN	2,625	-	-	-	-	-	-	-	-	-

ACT. MODELS 21 3XXDAXXXXXXX	POSITION	PNEUMATIC TORQUE WITH SUPPLY PRESSURE (Nm)									
		3 Bar	3.5 Bar	4 Bar	4.5 Bar	5 Bar	5.5 Bar	6 Bar	7 Bar	8.5 Bar	10 Bar
315	BREAK / END	3,357	4,196	4,795	5,395	5,994	6,594	7,340	8,272	10,190	-
	RUN	1,678	2,098	2,398	2,697	2,997	3,297	3,670	4,136	5,095	-
317	BREAK / END	4,222	5,277	6,031	6,785	7,539	8,293	9,231	10,403	-	-
	RUN	2,111	2,639	3,015	3,392	3,769	4,146	4,616	5,202	-	-
319	BREAK / END	5,250	6,563	7,501	8,438	9,376	10,313	-	-	-	-
	RUN	2,625	3,282	3,750	4,219	4,688	5,157	-	-	-	-
321	BREAK / END	6,391	7,989	9,130	10,272	-	-	-	-	-	-
	RUN	3,196	3,995	4,565	5,136	-	-	-	-	-	-
323	BREAK / END	7,644	9,555	10,920	-	-	-	-	-	-	-
	RUN	3,822	4,778	5,460	-	-	-	-	-	-	-
325	BREAK / END	9,009	11,261	-	-	-	-	-	-	-	-
	RUN	4,505	5,631	-	-	-	-	-	-	-	-

Important note:

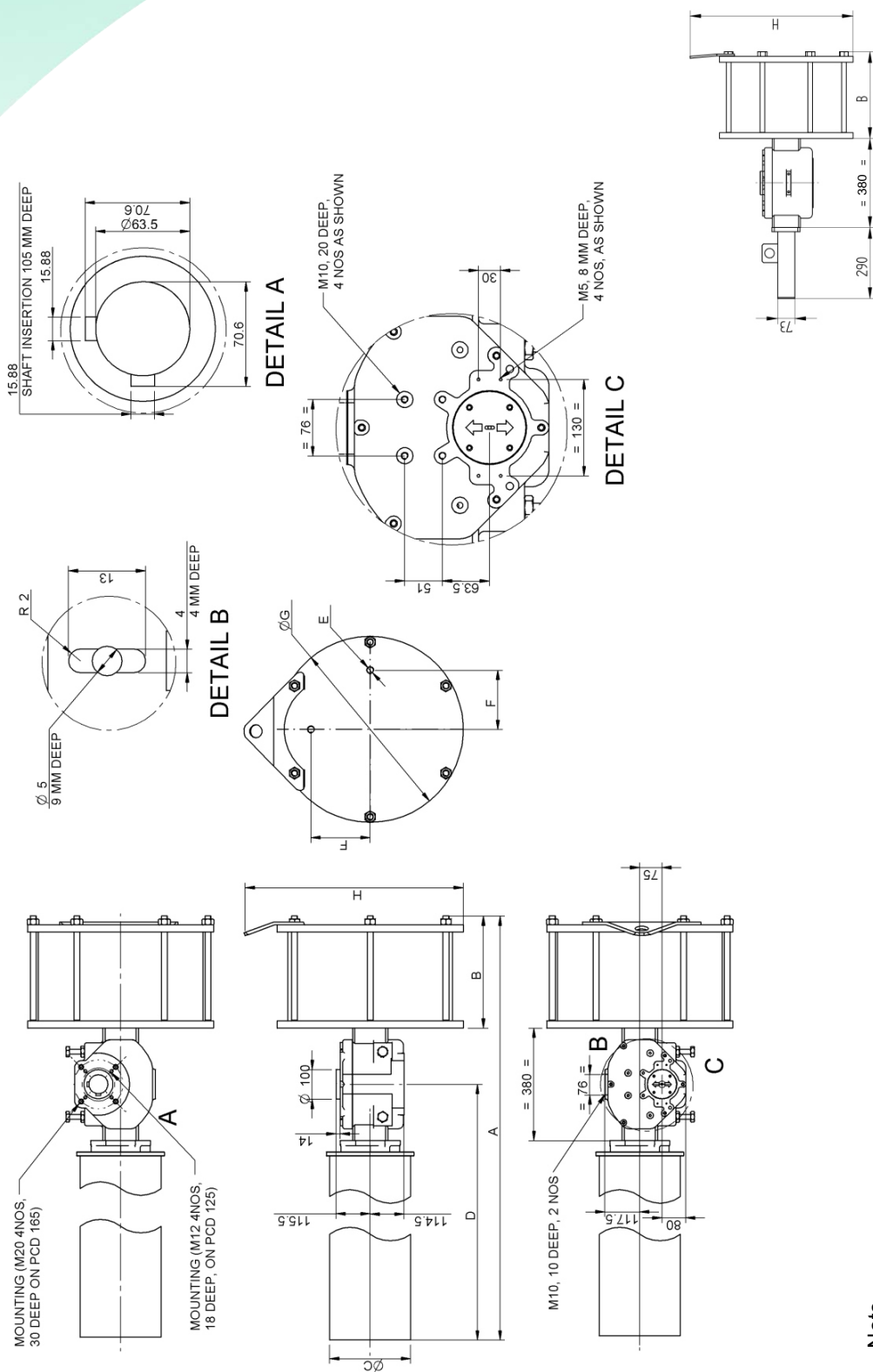
Due to Stafford's continuing commitment to engineered product advancement, the product specifications and the data Presented in this publication are subject to change without notice.

* Valve Torque requirements must not exceed the maximum allowable S2 body center torque = 5500 Nm. (48700 lb inch)

* Valve Torque requirements must not exceed the maximum allowable S3 body center torque = 10000 Nm. (88500 lb inch)

The output torque of actuator may vary by $\pm 5\%$ of the above values.

S2 Dimensional Data



Note

1, All dimensions are in mm

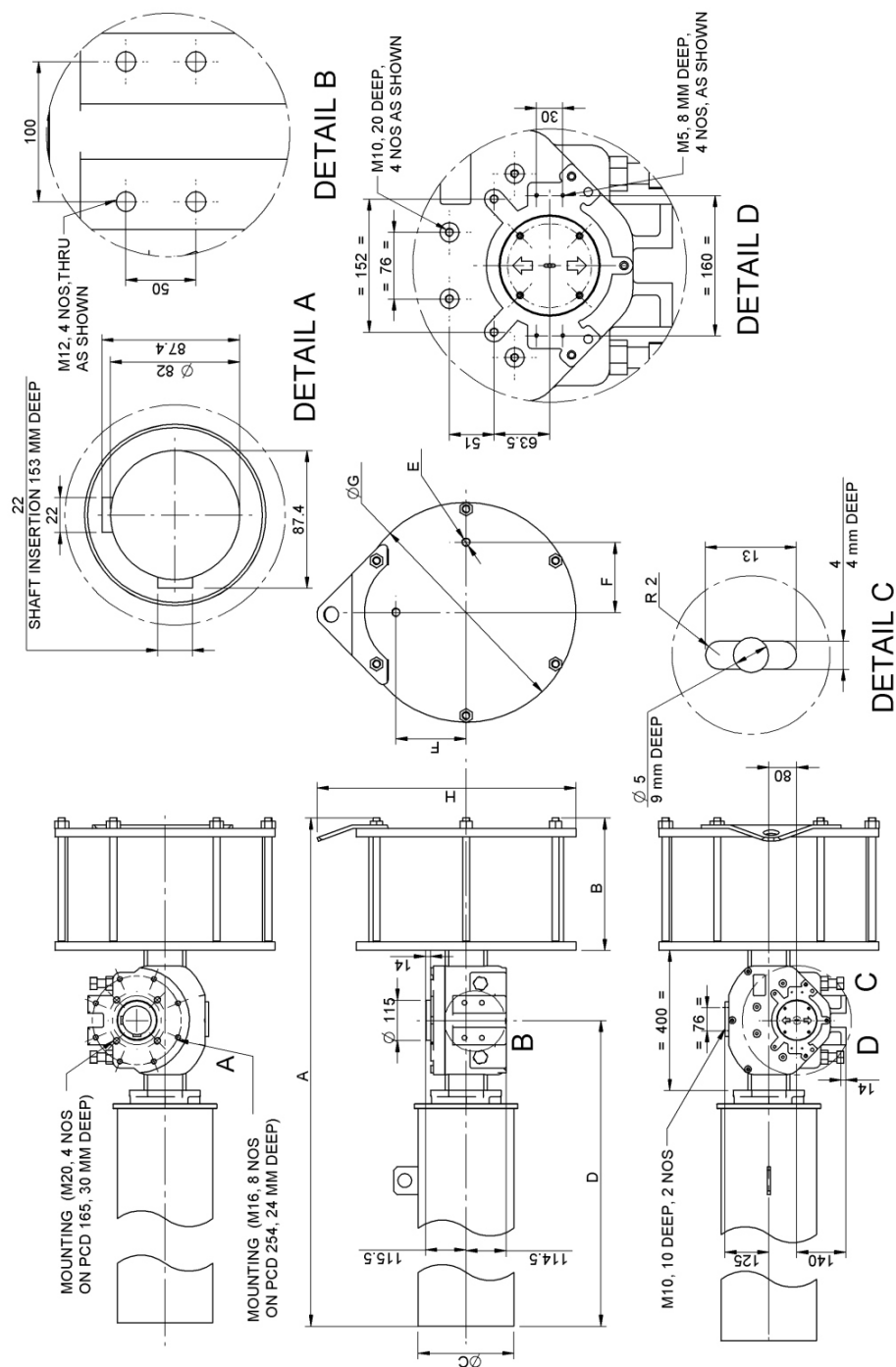
2. Actuator is shown at air fail to close position for clockwise rotation of shaft.

DIMENSIONAL TABLE

MODEL 21-2XXSRXX XXXXX	A (mm)	A" (inch)	B (mm)	B" (inch)	C (mm)	C" (inch)	D (mm)	D" (inch)	E NPT	F (mm)	G" (inch)	H (mm)	H" (inch)	WT (kg)	WT (lbf)	swept volume (Litres)	swept volume (US gallons)
208 SR 40	1255	49	330	13	168	7	735	29	1/2"	80	10	410	16	157	346	5.0	1.3
208 SR 60	1229	48	330	13	168	7	709	28	1/2"	80	10	410	16	160	352	5.0	1.3
208 SR 80	1200	47	330	13	273	11	680	27	1/2"	80	10	410	16	171	377	5.0	1.3
208 SR 100	1216	48	330	13	273	11	696	27	1/2"	80	10	410	16	175	386	5.0	1.3
208 SR 150	1561	61	330	13	323	13	1041	41	1/2"	80	10	410	16	226	496	5.0	1.3
210 SR 40	1211	48	336	13	219	9	685	27	1/2"	110	13	468	18	164	360	8.0	2.1
210 SR 60	1240	49	336	13	219	9	714	28	1/2"	110	13	468	18	183	402	8.0	2.1
210 SR 80	1204	47	336	13	323	13	678	27	1/2"	110	13	468	18	198	437	8.0	2.1
210 SR 100	1215	48	336	13	323	13	689	27	1/2"	110	13	468	18	207	456	8.0	2.1
210 SR 150	1567	62	336	13	219	9	1041	41	1/2"	110	13	468	18	235	516	8.0	2.1
213 SR 40	1199	47	340	13	273	11	669	26	1/2"	150	16	548	22	218	481	13.6	3.6
213 SR 60	1219	48	340	13	323	13	689	27	1/2"	150	16	548	22	245	539	13.6	3.6
213 SR 80	1565	62	340	13	219	9	1035	41	1/2"	150	16	548	22	282	620	13.6	3.6
213 SR 100	1675	66	340	13	219	9	1145	45	1/2"	150	16	548	22	294	646	13.6	3.6
213 SR 150	1794	71	340	13	273	11	1264	50	1/2"	150	16	548	22	323	711	13.6	3.6
215 SR 40	1208	48	354	14	323	13	664	26	1/2"	170	18	599	24	257	565	17.8	4.7
215 SR 60	1579	62	354	14	219	9	1035	41	1/2"	170	18	599	24	319	702	17.8	4.7
215 SR 80	1689	66	354	14	219	9	1145	45	1/2"	170	18	599	24	331	727	17.8	4.7
215 SR 100	1749	69	354	14	273	11	1205	47	1/2"	170	18	599	24	361	794	17.8	4.7
217 SR 40	1223	48	358	14	355	14	675	27	1/2"	190	20	645	25	321	707	22.3	5.9
217 SR 60	1667	66	358	14	273	11	1119	44	1/2"	190	20	645	25	392	862	22.3	5.9
217 SR 80	1753	69	358	14	273	11	1205	47	1/2"	190	20	645	25	414	912	22.3	5.9

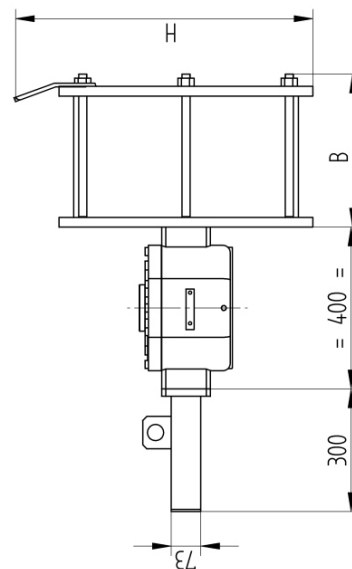
S2 Dimensional Data

S3 Dimensional Data



Note

- 1, All dimensions are in mm
2. Actuator is shown at air fail to close position for clockwise rotation of shaft



DIMENSIONAL TABLE

MODEL 21- 3XXSRXXXXXX	A (mm)	A" (inch)	B (mm)	B" (inch)	C (mm)	C" (inch)	D (mm)	D" (inch)	E NPT	F (mm)	F" (inch)	G (mm)	G" (inch)	H (mm)	H" (inch)	WT (kg)	WT (lbf)	swept volume (Litres)	swept volume (US gallons)
315 SR 150	1673	66	364	14	273	11	1109	44	1/2"	170	7	463	18	599	24	397	873	19.0	5.0
317 SR 100	1534	60	368	14	273	11	966	38	1/2"	190	7	520	20	645	25	435	956	23.8	6.3
317 SR 150	1613	63	368	14	323	13	1045	41	1/2"	190	7	520	20	645	25	480	1056	23.8	6.3
319 SR 40	1460	57	382	15	219	9	878	35	3/4"	210	8	570	22	695	27	407	896	29.6	7.8
319 SR 60	1516	60	382	15	219	9	934	37	3/4"	210	8	570	22	695	27	438	964	29.6	7.8
319 SR 80	1548	61	382	15	273	11	966	38	3/4"	210	8	570	22	695	27	483	1063	29.6	7.8
319 SR 100	1539	61	382	15	273	11	957	38	3/4"	210	8	570	22	695	27	508	1119	29.6	7.8
321 SR 40	1526	60	390	15	219	9	936	37	3/4"	430	17	628	25	800	31	478	1051	36.0	9.5
321 SR 60	1630	64	390	15	219	9	1040	41	3/4"	430	17	628	25	800	31	520	1145	36.0	9.5
321 SR 80	1547	61	390	15	273	11	957	38	3/4"	430	17	628	25	800	31	569	1251	36.0	9.5
321 SR 100	1574	62	390	15	323	13	984	39	3/4"	430	17	628	25	800	31	610	1341	36.0	9.5
323 SR 40	1537	61	403	16	219	9	934	37	1"	450	18	670	26	758	30	552	1214	43.0	11.4
323 SR 60	1569	62	403	16	273	11	966	38	1"	450	18	670	26	758	30	596	1310	43.0	11.4
323 SR 80	1648	65	403	16	323	13	1045	41	1"	450	18	670	26	758	30	670	1473	43.0	11.4
325 SR 40	1647	65	407	16	219	9	1040	41	1"	480	19	728	29	913	36	653	1436	50.7	13.4
325 SR 60	1564	62	407	16	273	11	957	38	1"	480	19	728	29	913	36	701	1543	50.7	13.4

S3 Dimensional Data

Bill of Material for S2,S3

CENTRAL HOUSING ASSEMBLY			
SR NO	Title	Material	Quantity
1	BOTTOM HOUSING	DUCTILE IRON / STEEL	1
2	YOKE	DUCTILE IRON / STEEL	1
3	YOKE BEARING #	PHOSPHOR BRONZE / STEEL +PTFE	2
4	YOKE PIN	CARBON STEEL INDUCTION HARDENING	1
5	YOKE PIN ROLLER. #	PHOSPHOR BRONZE	2
6	YOKE O RING *	NITRILE	2
7	CIRCLIP #	SPRING STEEL	1
8	GASKET (HOUSING TOP) *	CAF	1
9	HOUSING TOP COVER	DUCTILE IRON / STEEL	1
10	HEX HEAD BOLT (TOP COVER)	ALLOY STEEL	6
11	WASHER	ALLOY STEEL	6
12	DOWEL PIN #	ALLOY STEEL	2
13	INDICATION PLATE GASKET *	CAF	1
14	INDICATION PLATE	MS	1
15	INDICATION PLATE BOLT	HTS	4
16	GREASING PLUG	ALLOY STEEL	1
17	PRESSURE RELIEF VALVE	MS	1
18	PRESSURE PLATE	MS	1
19	STROKE ADJUSTMENT BOLT	ALLOY STEEL	2
20	STROKE ADJUSTMENT NUT	ALLOY STEEL	2
21	STROKE ADJUSTMENT WASHER	ALLOY STEEL	2
22	STROKE ADJUSTMENT BOLT O RING*	NITRILE	2
23	GASKET (HOUSING SIDE) *	CAF	2
24	DRAIN PLUG	MS	1
PNEUMATIC CYLINDER ASSEMBLY			
25	ADAPTOR PLATE	MS	1
26	O RING ENDCAP/ADAPTOR PLATE*	NITRILE	2
27	O RING ADAPTOR (PISTON ROD) *	NITRILE	1
28	O RING ADAPTOR (SCREW) *	NBR	4
29	ADAPTOR & HOUSING BOLT	ALLOY STEEL	4
30	ADAPTOR & HOUSING BOLT WASHER	ALLOY STEEL	4
31	PISTON ROD	CARBON STEEL CROME PLATED	1
32	PISTON ROD BRG #	PHOSPHOR BRONZE / STEEL +PTFE	2
33	PISTON BOLT	HTS	1
34	SPRING WASHER (PISTON)	SPRING STEEL	1
35	PISTON	DUCTILE IRON	1
36	PISTON GUIDE BAND #	BRONZE FILLED TEFLON	1
37	PISTON O RING *	NITRILE	1
38	PISTON O RING ID *	NITRILE	1
39	END PLATE	MS	1
40	CYLINDER	MS	1
41	LIFTING LUG	MS	1
42	TIE ROD $\triangle$	ALLOY STEEL	--
43	TIE ROD NUT $\triangle$	ALLOY STEEL	--
SPRING CARTRIDGE ASSEMBLY			
44	SPRING CARTRIDGE CYLINDER	MS	1
45	SPRING CARTRIDGE MTG FLANGE.	DUCTILE IRON	1
46	SCH.HEAD BOLT (MOUNTING FLANGE)	ALLOY STEEL	4
47	STUD (MOUNTING FLANGE)	ALLOY STEEL	4
48	NUT (MOUNTING FLANGE)	ALLOY STEEL	4
49	SPRING CARTRIDGE MTG PLATE	MS	1
50	SPRING(POWDER COATED)	SPRING STEEL	2
51	SPRING COMP PLATE	MS	1
52	SPRING CARTRIDGE BASE PLATE	MS	1
53	CATION PLATE	ALUMINIUM	1
54	NAME PLATE	ALUMINIUM	1
NOTE:			
#	REPAIR KIT		
*	SEAL KIT		
$\triangle$	QTY VARIES ACCORDING TO SIZE		