

HIGH PERFORMANCE
HEAVY DUTY ACTUATOR
DRS

ATEX **CE**
P.E.D. SIL3



Engineering For The Future

Only Rotex brings to its customers, a comprehensive range of products manufactured under an undivided roof

ECF

- Superior V-seal technology
- Rack and Pinion design
- Extruded Aluminium, Hard Anodized Body
- 1 Nm to 5000 Nm



CSF

- Rack and Pinion design
- WCB/ Carbon Steel body and covers
- 1 Nm to 5000 Nm



SSF

- Rack and Pinion design
- CF8M body, covers SS316 Pinion
- 1 Nm to 5000 Nm



DRC

- Heavy Duty, High Performance, Rack and Pinion Construction, Male Shaft
- 200 Nm to 20720 Nm

DRS

- Scotch yoke, Pneumatic and Hydraulic Actuator
- Heavy Duty, High Performance, Internal tie rods, Female shaft drive
- 63 Nm to 600000 Nm

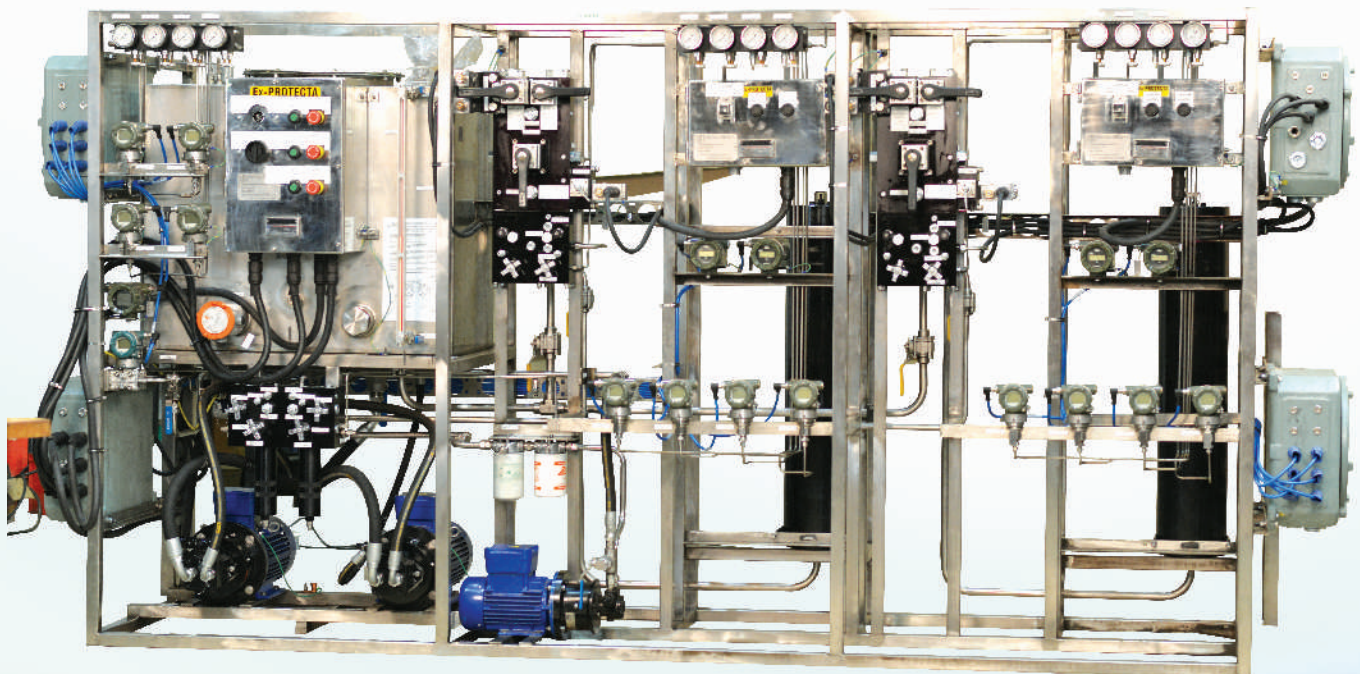




Side hand wheel manual override inbuilt indicator



Dual cylinder double acting actuator



Hydraulic power pack for twin actuators

- Proportional
- Redundant hydraulic pump

ROTEX Integration

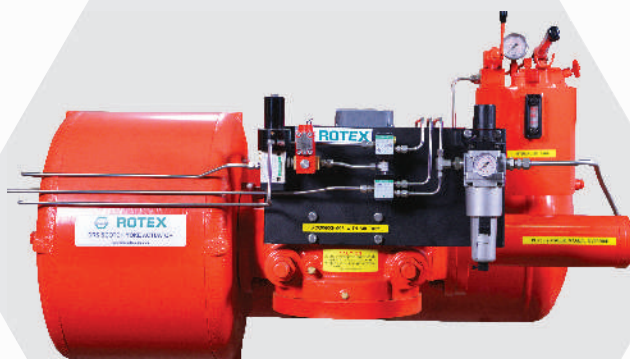
We have inhouse capability of integrating complete automation system.

EVERYTHING ABOVE VALVE

We can provide solutions to your needs with complete tubing. Time calculation and Factory Acceptance Testing is done by ROTEX.

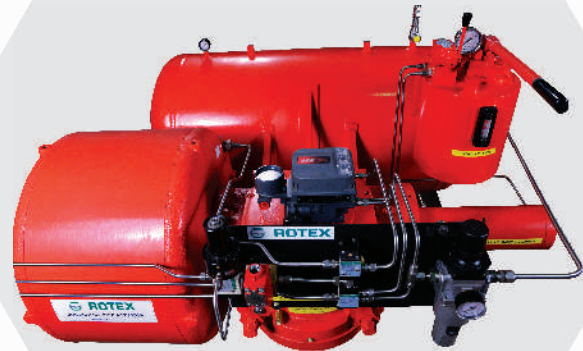
We can provide, positioners from Fisher, Metso etc. Accessories like Limitswitch, AFR, Air Relays, Solenoid valves, Volume boosters etc. can be installed.

High performance scotch yoke actuator
for water treatment plant.
Volume tank, Air relay, AFR, Limitswitch



Proportional double acting actuator.
Safety air tank, Hydraulic override with air
relay, Fisher DVC, Volume tank, Junction
box, Limitswitch, Solenoid valve

High cycle, Continuous duty
Scotch Yoke Actuator.
Two cycle Safety air tank, Shut down
relay, Quick exhaust valve, Partial stroke
Fisher DVC positioner (PST device),
complete with software & diagnosis



Single acting Scotch Yoke Actuator for
steel plant.
Solenoid valve, air relay

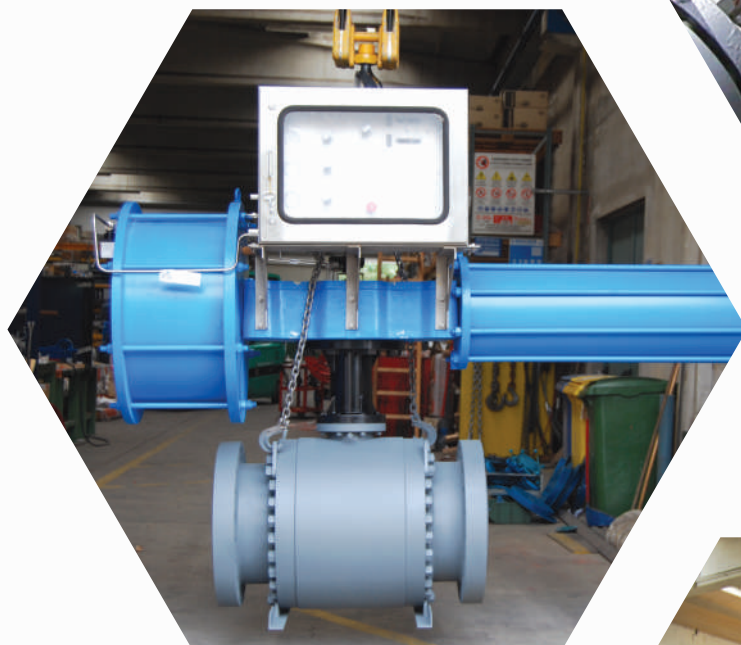
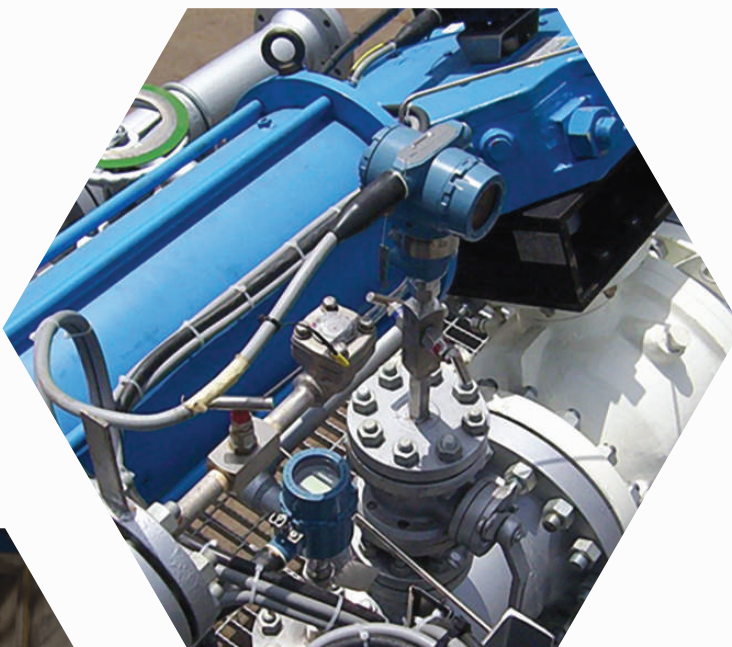
High torque Hydraulic actuator for city gas
distribution.
ESD, Hydraulic manual override with
inbuilt power pack, Communication system
diagnosis for oil temperature, oil level,
pressure, Health of Pump etc.



ROTEX conforms product designs

With innovative design, latest technology, highly proficient manpower, excellent reliability and superior performance, ROTEX promises dedication to all critical applications

Compact scotch yoke
Actuator for skid



Hi/ Low pressure shut off valve 16", 110 bar
Gas pressure, Jet at 30 bar/ 60 bar

Gas over oil for
Gas pipeline

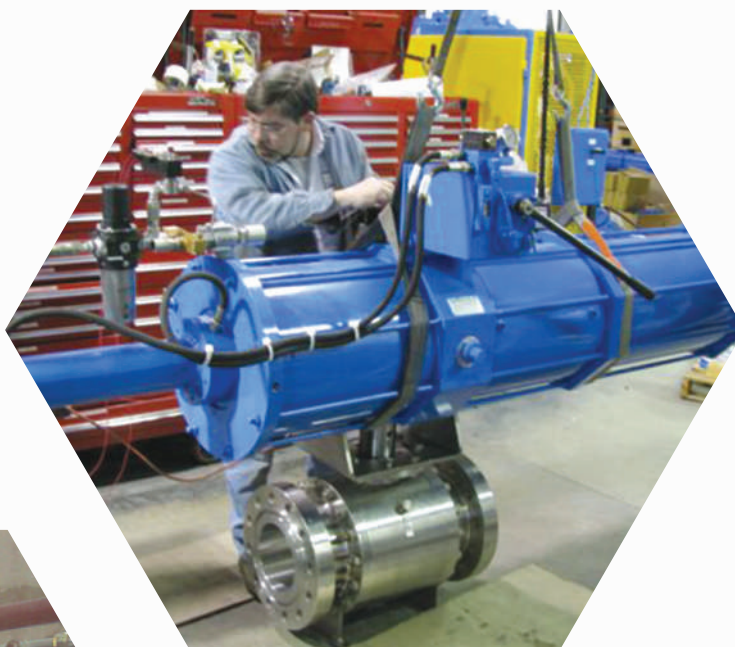


beyond International design standards

During 45 years of engineering and manufacturing excellence, ROTEX has had numerous valve actuator installations done Worldwide, including hostile ambient temperature conditions

With time and advancing technology, we promise new product developments for our privileged customers. ROTEX also ensures guaranteed reliability to its customers as per their evolving needs

"<1sec" shutdown valve



Installation at - 45 °C, Upper Mongolia,
(Installed since 2006)

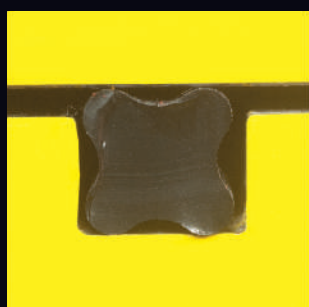
Gas processing, High speed,
Application for Upstream oil & gas



In continuation of the tradition of constant innovation and virtue in engineering, ROTEX....

FEATURES

- The actuator can easily be converted to fail open from fail close, by interchanging the spring and pneumatic modules
- Solid bearing for piston rod for better alignment and smooth operation
- Internally mounted hydraulic override
- Non buckling, lifetime lubricated, epoxy coated springs
- The tie rods are enclosed in the cylinder for the best performance, for high corrosion protection, and a longer life of the actuator
- The vent valve has built in non return function, for IP67
- Secondary vent valve function is to detect leakages in the rod seal area of pneumatic cylinder



PISTON SEAL AND GUIDE

- The piston is guided by PTFE thrust bearing, to ensure no metal to metal contact
- The seal is X shape with flexibility, to minimize the friction
- The seal flexibility ensures no leakage and very long life
- Due to inherent shape, it retains the grease for a longer period
- Guaranteed operation of 1 million cycles



YOKE BEARING

- The yoke is supported on life time lubricated ball bearings
- Very low coefficient of friction
- Provides 98% of the torque transmission
- Wear and tear of the yoke is reduced due to the alignment and support provided by the bearings



FLEXI JOINT

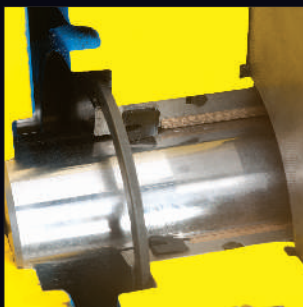
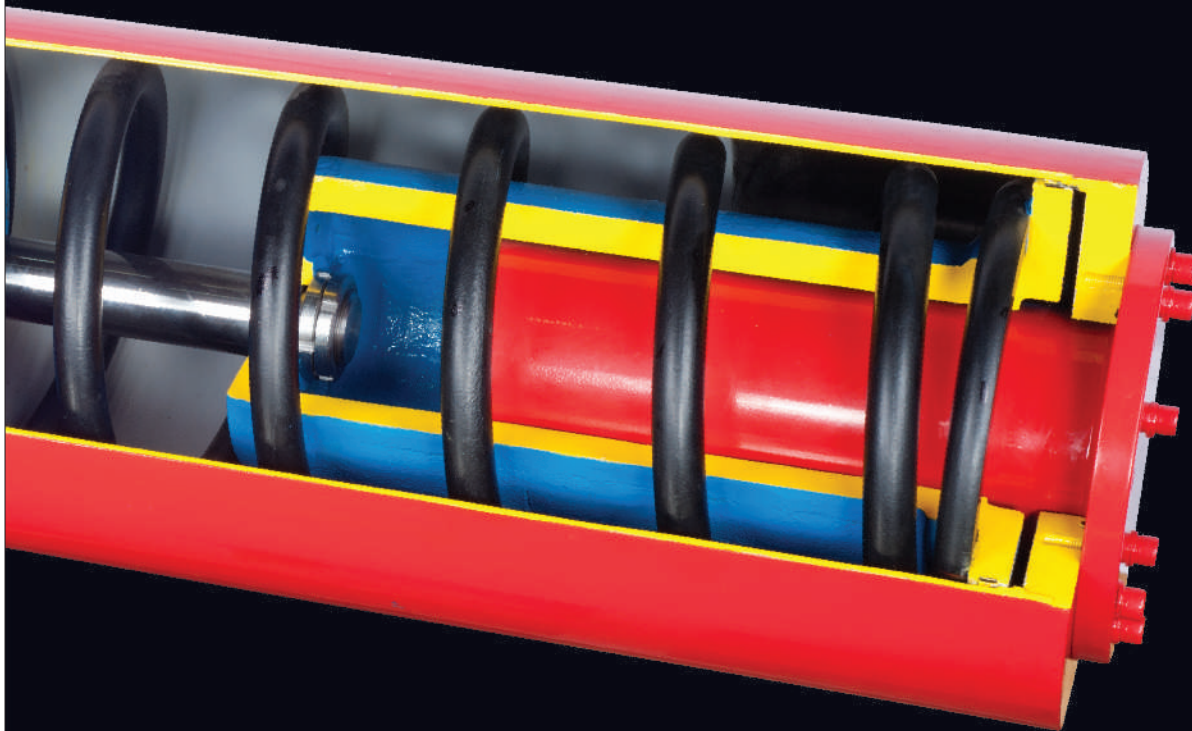
- The thrust transmitted through the Flexi joint ensures no side thrust on the cylinder walls and the bearings
- The Flexi joint provides an easy means to assemble/ dismantle the cylinder module to the frame
- In spring return actuators, dual Flexi joints allow the carrier to operate perfectly and smoothly

....bring a new generation, Compact, Heavy duty Scotch Yoke Actuator series "DRS"

SUPER EFFICIENT !

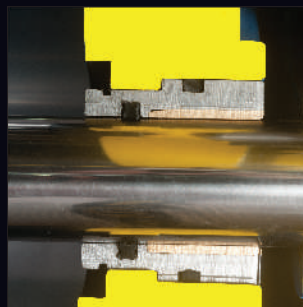
Ball Bearing, Flexi joint, and the hardened yoke thrust pin bearing, are all incorporated into the actuator for longer, smoother operation. The ROTEX DRS actuator gives you greater efficiency and higher torque output, with less maintenance

Superior design with lower costs!



HEAVY DUTY BEARING

- The piston rod is guided on the heavy duty bearing
- V - Seal at the rod end ensures a very long life
- The bearing is built with a high grade bronze metal
- Low friction for smooth operation



X SEAL ON TIE ROD

- The X seal provides the flexibility in sealing
- Due to additional linear bearings, the tie rod is not under wear and tear
- The X seal provides extremely low friction and a long life



INTERNAL TIE ROD

- Easy to change modules
- No need to disassemble frame to change spring or air module - no need to remove cover
- Converting from DA to SA is very simple
- No external tie rod
- Internal tie rod avoids corrosion on tie rod, improving safety
- Mirror finished, burnished Shaft gives long life to seals.

DOUBLE ACTING TORQUE

ACTUATOR MODEL	MOP (bar)	STROKE POSITION	Operating Pressure (bar)											
			3	4	5	5.5	6	7	8	9	10	11	12	13
			Pressure Torque Output Start/ Min./ End (Nm)											
DRSAA063	14.0	Start/End	52	71	89	99	108	127	145	164	182	201	220	238
		Minimum	27	37	47	52	57	67	76	86	96	106	116	125
DRSAA080	14.0	Start/End	79	107	135	149	163	191	219	248	276	304	332	360
		Minimum	41	56	71	78	86	101	116	130	145	160	175	190
DRSAA0100	14.0	Start/End	135	183	231	255	279	327	375	423	472	520	568	616
		Minimum	71	96	122	134	147	172	198	223	248	274	299	324
DRSAA0125	10.4	Start/End	190	258	325	359	393	461	529	597	664	732	-	-
		Minimum	100	136	171	189	207	243	278	314	350	385	-	-
DRSA080	14.0	Start/End	147	200	253	279	305	358	411	463	516	569	621	674
		Minimum	78	105	133	147	161	188	216	244	272	299	327	355
DRSA0100	14.0	Start/End	263	357	451	498	545	639	734	828	922	1016	1110	1204
		Minimum	139	188	238	262	287	337	386	436	485	535	584	634
DRSA0125	14.0	Start/End	377	512	647	714	782	917	1051	1186	1321	1456	1591	1725
		Minimum	199	270	341	376	411	482	553	624	695	766	837	908
DRSA0150	14.0	Start/End	592	803	1015	1120	1226	1437	1649	1860	2072	2283	2494	2706
		Minimum	312	423	534	590	645	757	868	979	1090	1202	1313	1424
DRSA0200	14.0	Start/End	909	1234	1559	1721	1884	2209	2533	2858	3183	3508	3833	4157
		Minimum	479	650	821	906	991	1162	1333	1504	1675	1846	2017	2188
DRSA0250	9.0	Start/End	1444	1960	2476	2734	2992	3508	4024	-	-	-	-	-
		Minimum	760	1032	1303	1439	1575	1846	2118	-	-	-	-	-
DRSA0300	6.0	Start/End	2078	2820	3562	3933	4304	-	-	-	-	-	-	-
		Minimum	1094	1484	1875	2070	2266	-	-	-	-	-	-	-
DRSA0350	5.0	Start/End	2851	3869	4887	-	-	-	-	-	-	-	-	-
		Minimum	1500	2036	2572	-	-	-	-	-	-	-	-	-
DRSB0200	14.0	Start/End	1131	1534	1938	2140	2342	2746	3150	3553	3957	4361	4765	5169
		Minimum	595	808	1020	1126	1233	1445	1658	1870	2083	2295	2508	2720
DRSB0250	11.0	Start/End	1822	2473	3124	3449	3775	4426	5076	5727	6378	7029	-	-
		Minimum	959	1302	1644	1815	1987	2329	2672	3014	3357	3699	-	-
DRSB0300	9.0	Start/End	2642	3585	4529	5000	5472	6416	7359	-	-	-	-	-
		Minimum	1390	1887	2384	2632	2880	3377	3873	-	-	-	-	-
DRSB0350	6.0	Start/End	3641	4941	6241	6892	-	-	-	-	-	-	-	-
		Minimum	1916	2601	3285	3627	-	-	-	-	-	-	-	-
DRSB0400	4.0	Start/End	4771	6475	-	-	-	-	-	-	-	-	-	-
		Minimum	2511	3408	-	-	-	-	-	-	-	-	-	-
DRSC0250	14.0	Start/End	2187	2968	3749	4139	4530	5311	6092	6873	7654	8435	9216	9997
		Minimum	1151	1562	1973	2179	2384	2795	3206	3617	4028	4439	4850	5261
DRSC0300	14.0	Start/End	3170	4302	5434	6000	6567	7699	8831	9963	11095	12227	13360	14492
		Minimum	1668	2264	2860	3158	3456	4052	4648	5244	5840	6435	7031	7627
DRSC0350	9.0	Start/End	4369	5929	7490	8270	9050	10610	12171	13731	-	-	-	-
		Minimum	2299	3121	3942	4353	4763	5584	6406	7227	-	-	-	-
DRSC0400	7.0	Start/End	5725	7770	9814	10836	11859	13903	-	-	-	-	-	-
		Minimum	3013	4089	5165	5703	6241	7318	-	-	-	-	-	-
DRSC0500	4.0	Start/End	9045	12275	-	-	-	-	-	-	-	-	-	-
		Minimum	4761	6461	-	-	-	-	-	-	-	-	-	-
DRSD0300	14.0	Start/End	3804	5163	6521	7201	7880	9238	10597	11956	13314	14673	16031	17390
		Minimum	2002	2717	3432	3790	4147	4862	5577	6292	7008	7723	8438	9153
DRSD0350	14.0	Start/End	5243	7115	8988	9924	10860	12733	14605	16477	18350	20222	22095	23967
		Minimum	2759	3745	4730	5223	5716	6701	7687	8672	9658	10643	11629	12614
DRSD0400	14.0	Start/End	6870	9323	11777	13004	14231	16684	19138	21591	24045	26498	28952	31405
		Minimum	3616	4907	6198	6844	7490	8781	10072	11364	12655	13946	15238	16529
DRSD0500	8.0	Start/End	10854	14731	18607	20545	22483	26360	30236	-	-	-	-	-
		Minimum	5713	7753	9793	10813	11833	13874	15914	-	-	-	-	-

DOUBLE ACTING TORQUE

ACTUATOR MODEL	MOP (bar)	STROKE POSITION	Operating Pressure (bar)											
			3	4	5	5.5	6	7	8	9	10	11	12	13
			Pressure Torque Output Start/ Min./ End (Nm)											
DRSD0600	6.2	Start/End	15684	21286	26887	29688	32489	-	-	-	-	-	-	-
		Minimum	8255	11203	14151	15625	17099	-	-	-	-	-	-	-
DRSD0700	4.6	Start/End	21439	29096	-	-	-	-	-	-	-	-	-	-
		Minimum	11284	15314	-	-	-	-	-	-	-	-	-	-
DRSE0400	14.0	Start/End	8269	11223	14176	15653	17129	20083	23036	25989	28943	31896	34849	37803
		Minimum	4352	5907	7461	8238	9015	10570	12124	13679	15233	16787	18342	19896
DRSE0500	14.0	Start/End	13065	17731	22397	24730	27063	31730	36396	41062	45728	50394	55060	59726
		Minimum	6876	9332	11788	13016	14244	16700	19156	21611	24067	26523	28979	31435
DRSE0600	11.2	Start/End	18879	25622	32364	35736	39107	45850	52592	59335	66077	72820	79563	-
		Minimum	9936	13485	17034	18808	20583	24131	27680	31229	34778	38326	41875	-
DRSE0700	8.2	Start/End	25806	35023	44240	48848	53456	62673	71889	-	-	-	-	-
		Minimum	13582	18433	23284	25709	28135	32986	37837	-	-	-	-	-
DRSE0800	6.3	Start/End	33703	45740	57777	63796	69814	-	-	-	-	-	-	-
		Minimum	17739	24074	30409	33577	36744	-	-	-	-	-	-	-
DRSE0900	4.0	Start/End	42706	57958	73211	-	-	-	-	-	-	-	-	-
		Minimum	22477	30504	38532	-	-	-	-	-	-	-	-	-
DRSG0500	14.0	Start/End	16008	21725	27442	30301	33159	38877	44594	50311	56028	61745	67462	73179
		Minimum	8425	11434	14443	15948	17452	20461	23470	26479	29488	32497	35506	38515
DRSG0600	14.0	Start/End	23164	31437	39709	43846	47982	56255	64528	72801	81074	89346	97619	105892
		Minimum	12192	16546	20900	23077	25254	29608	33962	38316	42670	47024	51379	55733
DRSG0700	10.7	Start/End	31690	43007	54325	59984	65643	76961	88278	99596	110914	122232	-	-
		Minimum	16679	22635	28592	31571	34549	40506	46462	52419	58376	64332	-	-
DRSG0800	8.2	Start/End	41409	56198	70987	78381	85776	100565	115354	-	-	-	-	-
		Minimum	21794	29578	37362	41253	45145	52929	60712	-	-	-	-	-
DRSG0900	6.5	Start/End	52489	71235	89982	99355	108728	127474	-	-	-	-	-	-
		Minimum	27626	37492	47359	52292	57225	67092	-	-	-	-	-	-
DRSG0700-2	5.4	Start/End	63379	86015	108650	119968	-	-	-	-	-	-	-	-
		Minimum	33358	45271	57184	63141	-	-	-	-	-	-	-	-
DRSH0600	14.0	Start/End	28560	38760	48960	54060	59160	69359	79559	89759	99959	110159	120359	130559
		Minimum	15031	20400	25768	28452	31137	36505	41873	47242	52610	57979	63347	68715
DRSH0700	13.6	Start/End	39110	53078	67046	74030	81014	94982	108950	122919	136887	150855	164823	178791
		Minimum	20584	27936	35288	38963	42639	49991	57342	64694	72046	79397	86749	94100
DRSH0800	10.4	Start/End	51138	69402	87665	96797	105929	124193	142456	160720	178984	197247	-	-
		Minimum	26915	36527	46140	50946	55752	65365	74977	84589	94202	103814	-	-
DRSH0900	8.2	Start/End	64850	88011	111171	122752	134332	157493	180653	-	-	-	-	-
		Minimum	34132	46321	58511	64606	70701	82891	95081	-	-	-	-	-
DRSH1000	6.6	Start/End	80075	108674	137272	151571	165870	194469	-	-	-	-	-	-
		Minimum	42145	57197	72248	79774	87300	102352	-	-	-	-	-	-
DRSH0800-2	5.2	Start/End	102276	138804	175331	193595	-	-	-	-	-	-	-	-
		Minimum	53830	73055	92279	101892	-	-	-	-	-	-	-	-
DRSH0900-2	4.1	Start/End	129700	176021	-	-	-	-	-	-	-	-	-	-
		Minimum	68263	92643	-	-	-	-	-	-	-	-	-	-
DRSJ0700	13.6	Start/End	51197	69482	87767	96909	106052	124336	142621	160906	179190	197475	215760	234045
		Minimum	26946	36569	46193	51005	55817	65440	75064	84687	94311	103934	113558	123181
DRSJ0800	14.0	Start/End	66991	90917	114842	126805	138768	162693	186619	210544	234469	258395	282320	306246
		Minimum	35259	47851	60443	66739	73036	85628	98220	110813	123405	135997	148590	161182
DRSJ0900	12.3	Start/End	84997	115353	145709	160887	176064	206420	236776	267132	297488	327844	358200	-
		Minimum	44735	60712	76689	84677	92666	108642	124619	140596	156573	172550	188526	-
DRSJ1000	10.0	Start/End	104990	142486	179982	198730	217478	254975	292471	329967	367464	-	-	-
		Minimum	55258	74993	94727	104595	114462	134197	153932	173667	193402	-	-	-
DRSJ0800-2	7.8	Start/End	133983	181833	229684	253610	277535	325386	373237	-	-	-	-	-
		Minimum	70517	95702	120887	133479	146071	171256	196441	-	-	-	-	-

DOUBLE ACTING TORQUE

ACTUATOR MODEL	MOP (bar)	STROKE POSITION	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSJ0900-2	6.2	Start/End	169993	230705	291417	321773	352129	-	-	-	-	-	-	-	
		Minimum	89470	121424	153377	169354	185331	-	-	-	-	-	-	-	
DRSJ1000-2	5.0	Start/End	209979	284972	359964	-	-	-	-	-	-	-	-	-	
		Minimum	110515	149985	189455	-	-	-	-	-	-	-	-	-	
DRSM1000	14.0	Start/End	135042	183271	231500	255614	279729	327958	376187	424416	472646	520875	569104	617333	
		Minimum	71075	96458	121842	134534	147226	172610	197993	223377	248761	274145	299528	324912	
DRSM1100	13.0	Start/End	163878	222405	280933	310197	339461	397988	456516	515044	573572	632099	690627	749155	
		Minimum	86251	117055	147859	163262	178664	209468	240272	271076	301880	332684	363488	394292	
DRSM1200	10.9	Start/End	195075	264745	334415	369250	404085	473754	543424	613094	682764	752434	-	-	
		Minimum	102671	139340	176008	194342	212676	249344	286013	322681	359349	396018	-	-	
DRSM1300	9.3	Start/End	229404	311334	393264	434229	475194	557124	639054	720984	802914	-	-	-	
		Minimum	120739	163860	206981	228541	250102	293223	336344	379465	422586	-	-	-	
DRSM1000-2	7.9	Start/End	270083	366542	463000	511229	559458	655916	752375	-	-	-	-	-	
		Minimum	142149	192917	243684	269068	294452	345219	395987	-	-	-	-	-	
DRSM1100-2	6.5	Start/End	327755	444811	561866	620394	678921	795977	-	-	-	-	-	-	
		Minimum	172503	234111	295719	326523	357327	418935	-	-	-	-	-	-	
DRSM1200-2	5.5	Start/End	390151	529490	668830	738500	-	-	-	-	-	-	-	-	
		Minimum	205342	278679	352016	388684	-	-	-	-	-	-	-	-	
DRSM1300-2	5.0	Start/End	458808	622668	786528	-	-	-	-	-	-	-	-	-	
		Minimum	241478	327720	413962	-	-	-	-	-	-	-	-	-	

* Minimum is also known as run torque

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSAA063-E5	14.0	Start	54	-	26	44	54	63	81	100	119	137	156	174	193
		Min.	25	-	13	22	27	32	42	52	62	71	81	91	101
		End	45	-	17	35	45	54	73	91	110	128	147	166	184
DRSAA080-E5	14.0	Start	54	34	62	90	104	118	146	174	203	231	259	287	315
		Min.	25	17	32	46	54	61	76	91	106	120	135	150	165
		End	45	25	53	81	95	109	137	166	194	222	250	278	306
DRSAA063-E4	14.0	Start	69	-	-	31	40	49	68	86	105	124	142	161	179
		Min.	32	-	-	15	20	25	34	44	54	64	74	83	93
		End	59	-	-	21	30	39	58	77	95	114	132	151	170
DRSAA080-E4	14.0	Start	69	20	48	76	90	104	133	161	189	217	245	273	301
		Min.	32	9	24	39	46	54	69	83	98	113	128	143	157
		End	59	10	38	66	81	95	123	151	179	207	235	263	292
DRSAA100-E4	14.0	Start	69	-	124	172	196	220	268	317	365	413	461	509	557
		Min.	32	-	64	89	102	115	140	165	191	216	241	267	292
		End	59	-	114	162	186	211	259	307	355	403	451	499	547
DRSAA063-E3	14.0	Start	80	-	-	-	31	40	59	78	96	115	133	152	171
		Min.	38	-	-	-	14	19	29	39	49	58	68	78	88
		End	68	-	-	-	18	28	46	65	83	102	121	139	158
DRSAA080-E3	14.0	Start	80	-	39	67	82	96	124	152	180	208	236	264	293
		Min.	38	-	19	34	41	48	63	78	93	108	122	137	152
		End	68	-	27	55	69	83	111	139	167	195	224	252	280
DRSAA100-E3	14.0	Start	80	67	115	163	187	212	260	308	356	404	452	500	548
		Min.	38	33	59	84	97	109	135	160	185	211	236	261	287
		End	68	54	103	151	175	199	247	295	343	391	439	487	536
DRSAA063-E2	14.0	Start	91	-	-	-	-	32	50	69	87	106	125	143	162
		Min.	43	-	-	-	-	14	24	34	43	53	63	73	83
		End	76	-	-	-	-	17	35	54	73	91	110	128	147
DRSAA080-E2	14.0	Start	91	-	31	59	73	87	115	143	171	199	227	256	284
		Min.	43	-	14	28	36	43	58	73	88	102	117	132	147
		End	76	-	16	44	58	72	100	128	157	185	213	241	269
DRSAA100-E2	14.0	Start	91	58	106	155	179	203	251	299	347	395	443	491	540
		Min.	43	28	54	79	92	104	130	155	180	206	231	256	281
		End	76	44	92	140	164	188	236	284	332	380	429	477	525
DRSAA125-E2	12.0	Start	91	113	181	249	283	317	385	452	520	588	656	724	-
		Min.	43	57	93	129	146	164	200	236	271	307	343	378	-
		End	76	99	167	234	268	302	370	438	505	573	641	709	-
DRSAA063-E1	14.0	Start	109	-	-	-	-	-	39	58	77	95	114	132	151
		Min.	50	-	-	-	-	-	16	26	36	46	56	65	75
		End	87	-	-	-	-	-	18	36	55	74	92	111	129
DRSAA080-E1	14.0	Start	109	-	-	48	62	76	104	132	160	189	217	245	273
		Min.	50	-	-	21	28	36	51	65	80	95	110	125	139
		End	87	-	-	26	40	54	83	111	139	167	195	223	251
DRSAA100-E1	14.0	Start	109	48	96	144	168	192	240	288	336	384	433	481	529
		Min.	50	21	46	71	84	97	122	147	173	198	223	249	274
		End	87	26	74	122	146	170	218	267	315	363	411	459	507
DRSAA125-E1	12.0	Start	109	103	170	238	272	306	374	442	509	577	645	713	-
		Min.	50	50	85	121	139	157	192	228	264	300	335	371	-
		End	87	81	149	217	251	284	352	420	488	556	623	691	-
DRSA0100-E11	14.0	Start	197	98	192	286	333	380	474	568	662	756	850	944	1038
		Min.	92	46	96	145	170	195	244	294	343	393	442	492	541
		End	166	66	161	255	302	349	443	537	631	725	819	913	1007
DRSA0125-E11	14.0	Start	197	212	347	482	549	616	751	886	1021	1155	1290	1425	1560
		Min.	92	106	177	248	284	319	390	461	532	603	674	745	816
		End	166	181	315	450	518	585	720	855	989	1124	1259	1394	1529
DRSA0150-E11	14.0	Start	197	426	638	849	955	1061	1272	1483	1695	1906	2118	2329	2540
		Min.	92	219	330	442	497	553	664	775	887	998	1109	1220	1332
		End	166	395	606	818	924	1029	1241	1452	1663	1875	2086	2298	2509

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSA0100-E10	14.0	Start	292	-	129	223	270	317	411	505	599	693	787	882	976
		Min.	134	-	54	104	128	153	203	252	302	351	401	450	500
		End	228	-	66	160	207	254	348	442	536	630	724	818	912
DRSA0125-E10	14.0	Start	292	149	284	419	486	554	688	823	958	1093	1228	1362	1497
		Min.	134	65	136	207	242	278	348	419	490	561	632	703	774
		End	228	86	220	355	423	490	625	760	894	1029	1164	1299	1434
DRSA0150-E10	14.0	Start	292	364	575	786	892	998	1209	1421	1632	1843	2055	2266	2478
		Min.	134	178	289	400	456	511	623	734	845	956	1068	1179	1290
		End	228	300	511	723	829	934	1146	1357	1568	1780	1991	2203	2414
DRSA0100-E9	14.0	Start	370	-	-	147	194	241	335	429	523	617	711	805	899
		Min.	175	-	-	63	88	112	162	211	261	310	360	409	459
		End	305	-	-	81	128	175	269	363	457	551	645	739	834
DRSA0125-E9	14.0	Start	370	-	208	342	410	477	612	747	882	1016	1151	1286	1421
		Min.	175	-	95	166	201	237	308	379	450	521	592	662	733
		End	305	-	142	277	344	412	546	681	816	951	1086	1220	1355
DRSA0150-E9	14.0	Start	370	287	499	710	816	921	1133	1344	1556	1767	1978	2190	2401
		Min.	175	137	248	359	415	471	582	693	804	916	1027	1138	1249
		End	305	222	433	644	750	856	1067	1279	1490	1701	1913	2124	2336
DRSA0100-E8	14.0	Start	440	-	-	-	151	198	292	386	480	574	668	762	856
		Min.	204	-	-	-	58	83	132	182	231	281	330	380	429
		End	348	-	-	-	59	106	200	294	388	482	576	670	764
DRSA0125-E8	14.0	Start	440	-	165	299	367	434	569	704	839	973	1108	1243	1378
		Min.	204	-	65	136	172	207	278	349	420	491	562	633	704
		End	348	-	72	207	275	342	477	612	746	881	1016	1151	1286
DRSA0150-E8	14.0	Start	440	244	456	667	773	878	1090	1301	1513	1724	1935	2147	2358
		Min.	204	107	218	330	385	441	552	664	775	886	997	1109	1220
		End	348	152	364	575	681	786	998	1209	1421	1632	1843	2055	2266
DRSA0100-E7	14.0	Start	598	-	-	-	-	-	-	230	324	418	512	606	700
		Min.	287	-	-	-	-	-	-	99	149	198	248	297	346
		End	503	-	-	-	-	-	-	135	229	323	417	511	605
DRSA0125-E7	14.0	Start	598	-	-	-	211	278	413	548	683	818	952	1087	1222
		Min.	287	-	-	-	89	124	195	266	337	408	479	550	621
		End	503	-	-	-	116	183	318	453	588	723	857	992	1127
DRSA0150-E7	14.0	Start	598	-	300	511	617	723	934	1145	1357	1568	1780	1991	2202
		Min.	287	-	136	247	303	358	470	581	692	803	915	1026	1137
		End	503	-	205	416	522	628	839	1050	1262	1473	1685	1896	2107
DRSA0150-E6	14.0	Start	864	-	-	269	375	481	692	904	1115	1326	1538	1749	1961
		Min.	421	-	-	113	169	225	336	447	559	670	781	892	1004
		End	745	-	-	151	257	362	574	785	996	1208	1419	1631	1842
DRSA0200-E6	14.0	Start	864	-	489	814	976	1139	1463	1788	2113	2438	2763	3087	3412
		Min.	421	-	229	400	485	571	742	913	1084	1255	1426	1597	1768
		End	745	-	370	695	858	1020	1345	1670	1994	2319	2644	2969	3294
DRSA0250-E6	12.0	Start	864	699	1215	1731	1989	2247	2762	3278	3794	4310	4826	5342	-
		Min.	421	340	611	883	1018	1154	1426	1697	1969	2240	2512	2783	-
		End	745	581	1096	1612	1870	2128	2644	3160	3676	4191	4707	5223	-
DRSA0150-E5	14.0	Start	1103	-	-	-	-	-	576	787	998	1210	1421	1633	1844
		Min.	514	-	-	-	-	-	242	354	465	576	687	799	910
		End	862	-	-	-	-	-	335	546	757	969	1180	1392	1603
DRSA0200-E5	14.0	Start	1103	-	372	697	860	1022	1347	1672	1996	2321	2646	2971	3296
		Min.	514	-	135	306	392	477	648	819	990	1161	1332	1503	1674
		End	862	-	131	456	619	781	1106	1431	1755	2080	2405	2730	3055
DRSA0250-E5	11.0	Start	1103	582	1098	1614	1872	2130	2646	3162	3678	4193	4709	5225	-
		Min.	514	246	518	789	925	1061	1332	1604	1875	2147	2418	2690	-
		End	862	342	857	1373	1631	1889	2405	2921	3437	3952	4468	4984	-
DRSA0300-E5	8.0	Start	1103	1216	1958	2700	3072	3443	4185	4927	-	-	-	-	-
		Min.	514	580	970	1361	1556	1751	2142	2533	-	-	-	-	-
		End	862	975	1717	2460	2831	3202	3944	4686	-	-	-	-	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSA0200-E4	14.0	Start	1288	-	-	448	610	773	1097	1422	1747	2072	2397	2721	3046
		Min.	629	-	-	192	278	363	534	705	876	1047	1218	1389	1560
		End	1111	-	-	271	433	596	921	1245	1570	1895	2220	2545	2869
DRSA0250-E4	13.0	Start	1288	-	849	1365	1623	1881	2396	2912	3428	3944	4460	4976	5491
		Min.	629	-	403	675	810	946	1218	1489	1761	2032	2304	2575	2847
		End	1111	-	672	1188	1446	1704	2220	2736	3251	3767	4283	4799	5315
DRSA0300-E4	9.0	Start	1288	967	1709	2451	2822	3193	3935	4677	5420	-	-	-	-
		Min.	629	465	856	1246	1442	1637	2028	2418	2809	-	-	-	-
		End	1111	790	1532	2274	2645	3016	3759	4501	5243	-	-	-	-
DRSA0350-E4	6.2	Start	1288	1739	2757	3776	4285	4794	-	-	-	-	-	-	-
		Min.	629	872	1408	1944	2211	2479	-	-	-	-	-	-	-
		End	1111	1563	2581	3599	4108	4617	-	-	-	-	-	-	-
DRSA0200-E3	14.0	Start	1508	-	-	-	452	614	939	1264	1589	1914	2238	2563	2888
		Min.	728	-	-	-	178	264	434	605	776	947	1118	1289	1460
		End	1269	-	-	-	214	376	701	1026	1350	1675	2000	2325	2650
DRSA0250-E3	13.0	Start	1508	-	691	1207	1465	1723	2238	2754	3270	3786	4302	4818	5333
		Min.	728	-	304	575	711	847	1118	1390	1661	1933	2204	2476	2747
		End	1269	-	452	968	1226	1484	2000	2516	3031	3547	4063	4579	5095
DRSA0300-E3	9.0	Start	1508	809	1551	2293	2664	3035	3777	4519	5262	-	-	-	-
		Min.	728	366	756	1147	1342	1538	1928	2319	2709	-	-	-	-
		End	1269	570	1312	2054	2425	2797	3539	4281	5023	-	-	-	-
DRSA0350-E3	6.2	Start	1508	1581	2599	3617	4127	4636	-	-	-	-	-	-	-
		Min.	728	772	1308	1844	2112	2380	-	-	-	-	-	-	-
		End	1269	1343	2361	3379	3888	4397	-	-	-	-	-	-	-
DRSA0200-E2	14.0	Start	1722	-	-	-	-	-	763	1087	1412	1737	2062	2387	2711
		Min.	831	-	-	-	-	-	332	503	674	844	1015	1186	1357
		End	1446	-	-	-	-	-	487	812	1136	1461	1786	2111	2436
DRSA0250-E2	13.0	Start	1722	-	514	1030	1288	1546	2062	2577	3093	3609	4125	4641	5157
		Min.	831	-	201	472	608	744	1015	1287	1558	1830	2101	2373	2644
		End	1446	-	238	754	1012	1270	1786	2302	2817	3333	3849	4365	4881
DRSA0300-E2	9.0	Start	1722	632	1374	2116	2487	2858	3601	4343	5085	-	-	-	-
		Min.	831	263	654	1044	1239	1435	1825	2216	2607	-	-	-	-
		End	1446	356	1098	1840	2211	2583	3325	4067	4809	-	-	-	-
DRSA0350-E2	7.0	Start	1722	1405	2423	3441	3950	4459	5477	-	-	-	-	-	-
		Min.	831	670	1205	1741	2009	2277	2813	-	-	-	-	-	-
		End	1446	1129	2147	3165	3674	4183	5201	-	-	-	-	-	-
DRSA0250-E1	13.0	Start	2049	-	-	837	1094	1352	1868	2384	2900	3416	3932	4447	4963
		Min.	968	-	-	335	471	607	878	1150	1421	1693	1964	2236	2507
		End	1639	-	-	427	685	943	1459	1975	2491	3006	3522	4038	4554
DRSA0300-E1	9.0	Start	2049	-	1181	1923	2294	2665	3407	4149	4891	-	-	-	-
		Min.	968	-	517	907	1102	1298	1688	2079	2470	-	-	-	-
		End	1639	-	771	1513	1885	2256	2998	3740	4482	-	-	-	-
DRSA0350-E1	7.0	Start	2049	1211	2229	3247	3756	4265	5284	-	-	-	-	-	-
		Min.	968	533	1068	1604	1872	2140	2676	-	-	-	-	-	-
		End	1639	802	1820	2838	3347	3856	4874	-	-	-	-	-	-
DRSB0250-E6	14.0	Start	1435	702	1353	2004	2329	2655	3305	3956	4607	5258	5909	6560	7210
		Min.	669	290	633	975	1147	1318	1661	2003	2346	2688	3031	3373	3716
		End	1120	387	1038	1689	2014	2340	2990	3641	4292	4943	5594	6245	6895
DRSB0300-E6	10.4	Start	1435	1521	2465	3408	3880	4352	5295	6239	7182	8126	-	-	-
		Min.	669	722	1218	1715	1963	2211	2708	3204	3701	4198	-	-	-
		End	1120	1207	2150	3093	3565	4037	4980	5924	6867	7811	-	-	-
DRSB0350-E6	7.7	Start	1435	2521	3821	5121	5771	6421	7722	-	-	-	-	-	-
		Min.	669	1247	1932	2616	2958	3301	3985	-	-	-	-	-	-
		End	1120	2206	3506	4806	5456	6107	7407	-	-	-	-	-	-
DRSB0400-E6	5.9	Start	1435	3651	5354	7058	7910	-	-	-	-	-	-	-	-
		Min.	669	1842	2739	3636	4084	-	-	-	-	-	-	-	-
		End	1120	3336	5039	6743	7595	-	-	-	-	-	-	-	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSB0250-E5	14.0	Start	1820	-	977	1628	1953	2279	2930	3580	4231	4882	5533	6184	6835
		Min.	869	-	433	775	947	1118	1460	1803	2146	2488	2831	3173	3516
		End	1496	-	653	1304	1630	1955	2606	3257	3908	4558	5209	5860	6511
DRSB0300-E5	10.4	Start	1820	1146	2089	3033	3504	3976	4920	5863	6807	7750	-	-	-
		Min.	869	522	1018	1515	1763	2011	2508	3004	3501	3998	-	-	-
		End	1496	822	1765	2709	3181	3652	4596	5539	6483	7426	-	-	-
DRSB0350-E5	7.7	Start	1820	2145	3445	4745	5396	6046	7346	-	-	-	-	-	-
		Min.	869	1047	1732	2416	2758	3101	3785	-	-	-	-	-	-
		End	1496	1821	3121	4422	5072	5722	7022	-	-	-	-	-	-
DRSB0400-E5	6.0	Start	1820	3275	4979	6683	7534	8386	-	-	-	-	-	-	-
		Min.	869	1642	2539	3436	3884	4332	-	-	-	-	-	-	-
		End	1496	2951	4655	6359	7211	8063	-	-	-	-	-	-	-
DRSB0250-E4	14.0	Start	2292	-	-	1248	1574	1899	2550	3201	3852	4503	5153	5804	6455
		Min.	1093	-	-	551	723	894	1236	1579	1921	2264	2607	2949	3292
		End	1876	-	-	832	1158	1483	2134	2785	3436	4087	4737	5388	6039
DRSB0300-E4	10.4	Start	2292	766	1710	2653	3125	3597	4540	5483	6427	7370	-	-	-
		Min.	1093	298	794	1291	1539	1787	2284	2780	3277	3773	-	-	-
		End	1876	350	1294	2237	2709	3181	4124	5068	6011	6954	-	-	-
DRSB0350-E4	8.0	Start	2292	1765	3066	4366	5016	5666	6966	8267	-	-	-	-	-
		Min.	1093	823	1508	2192	2534	2876	3561	4245	-	-	-	-	-
		End	1876	1349	2650	3950	4600	5250	6550	7851	-	-	-	-	-
DRSB0400-E4	6.0	Start	2292	2895	4599	6303	7155	8007	-	-	-	-	-	-	-
		Min.	1093	1418	2315	3212	3660	4108	-	-	-	-	-	-	-
		End	1876	2479	4183	5887	6739	7591	-	-	-	-	-	-	-
DRSB0250-E3	14.0	Start	2676	-	-	975	1300	1625	2276	2927	3578	4229	4880	5530	6181
		Min.	1266	-	-	378	549	721	1063	1406	1748	2091	2433	2776	3118
		End	2149	-	-	448	773	1099	1750	2400	3051	3702	4353	5004	5655
DRSB0300-E3	11.0	Start	2676	-	-	2379	2851	3323	4266	5210	6153	7097	8040	-	-
		Min.	1266	-	-	1117	1366	1614	2111	2607	3104	3600	4097	-	-
		End	2149	-	-	1853	2324	2796	3740	4683	5626	6570	7513	-	-
DRSB0350-E3	8.0	Start	2676	1492	2792	4092	4742	5392	6693	7993	-	-	-	-	-
		Min.	1266	650	1334	2019	2361	2703	3388	4072	-	-	-	-	-
		End	2149	965	2265	3565	4215	4866	6166	7466	-	-	-	-	-
DRSB0400-E3	6.0	Start	2676	2621	4325	6029	6881	7733	-	-	-	-	-	-	-
		Min.	1266	1245	2142	3038	3487	3935	-	-	-	-	-	-	-
		End	2149	2095	3799	5502	6354	7206	-	-	-	-	-	-	-
DRSB0250-E2	14.0	Start	2972	-	-	-	1003	1328	1979	2630	3281	3932	4582	5233	5884
		Min.	1422	-	-	-	393	564	907	1250	1592	1935	2277	2620	2962
		End	2447	-	-	-	477	802	1453	2104	2755	3406	4057	4707	5358
DRSB0300-E2	11.0	Start	2972	-	1139	2082	2554	3026	3969	4913	5856	6799	7743	-	-
		Min.	1422	-	465	961	1210	1458	1954	2451	2947	3444	3941	-	-
		End	2447	-	613	1556	2028	2500	3443	4387	5330	6274	7217	-	-
DRSB0350-E2	8.0	Start	2972	1194	2495	3795	4445	5095	6395	7696	-	-	-	-	-
		Min.	1422	494	1178	1863	2205	2547	3231	3916	-	-	-	-	-
		End	2447	668	1969	3269	3919	4569	5870	7170	-	-	-	-	-
DRSB0400-E2	6.0	Start	2972	2324	4028	5732	6584	7436	-	-	-	-	-	-	-
		Min.	1422	1089	1985	2882	3331	3779	-	-	-	-	-	-	-
		End	2447	1798	3502	5206	6058	6910	-	-	-	-	-	-	-
DRSB0250-E1	14.0	Start	3435	-	-	-	-	-	1654	2305	2956	3607	4258	4909	5559
		Min.	1630	-	-	-	-	-	700	1042	1385	1727	2070	2412	2755
		End	2771	-	-	-	-	-	990	1641	2292	2943	3594	4244	4895
DRSB0300-E1	12.0	Start	3435	-	-	1757	2229	2701	3644	4588	5531	6475	7418	8362	-
		Min.	1630	-	-	754	1002	1250	1747	2244	2740	3237	3733	4230	-
		End	2771	-	-	1093	1565	2037	2980	3924	4867	5811	6754	7698	-
DRSB0350-E1	8.0	Start	3435	-	2170	3470	4120	4770	6071	7371	-	-	-	-	-
		Min.	1630	-	971	1655	1998	2340	3024	3708	-	-	-	-	-
		End	2771	-	1506	2806	3456	4106	5407	6707	-	-	-	-	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSB0400-E1	6.0	Start	3435	2000	3703	5407	6259	7111	-	-	-	-	-	-	-
		Min	1630	881	1778	2675	3123	3572	-	-	-	-	-	-	-
		End	2771	1335	3039	4743	5595	6447	-	-	-	-	-	-	-
DRSC0250-E4	14.0	Start	4039	-	-	-	-	1374	2155	2936	3717	4498	5279	6060	6841
		Min	1889	-	-	-	-	495	906	1317	1728	2139	2550	2962	3373
		End	3156	-	-	-	-	490	1271	2052	2833	3614	4395	5176	5957
DRSC0300-E4	14.0	Start	4039	-	-	2279	2845	3411	4543	5675	6807	7940	9072	10204	11336
		Min	1889	-	-	971	1269	1567	2163	2759	3355	3951	4547	5142	5738
		End	3156	-	-	1395	1961	2527	3659	4792	5924	7056	8188	9320	10452
DRSC0350-E4	12.0	Start	4039	-	2774	4334	5114	5894	7455	9015	10576	12136	13696	15257	-
		Min	1889	-	1232	2053	2464	2874	3696	4517	5338	6159	6981	7802	-
		End	3156	-	1890	3450	4231	5011	6571	8131	9692	11252	12813	14373	-
DRSC0400-E4	9.0	Start	4039	2569	4614	6659	7681	8703	10748	12792	14837	-	-	-	-
		Min	1889	1124	2200	3276	3815	4353	5429	6505	7581	-	-	-	-
		End	3156	1686	3730	5775	6797	7820	9864	11909	13953	-	-	-	-
DRSC0500-E4	6.0	Start	4039	5889	9120	12350	13965	15581	-	-	-	-	-	-	-
		Min	1889	2872	4572	6272	7122	7972	-	-	-	-	-	-	-
		End	3156	5006	8236	11467	13082	14697	-	-	-	-	-	-	-
DRSC0250-E3	14.0	Start	4653	-	-	-	-	-	1734	2515	3296	4077	4858	5639	6420
		Min.	2161	-	-	-	-	-	634	1045	1456	1867	2278	2689	3100
		End	3577	-	-	-	-	-	658	1439	2220	3001	3782	4563	5344
DRSC0300-E3	14.0	Start	4653	-	-	1857	2424	2990	4122	5254	6386	7518	8650	9783	10915
		Min.	2161	-	-	699	997	1295	1891	2487	3082	3678	4274	4870	5466
		End	3577	-	-	781	1347	1913	3046	4178	5310	6442	7574	8706	9839
DRSC0350-E3	12.0	Start	4653	-	2352	3913	4693	5473	7034	8594	10154	11715	13275	14835	-
		Min.	2161	-	959	1781	2191	2602	3423	4244	5066	5887	6708	7529	-
		End	3577	-	1276	2837	3617	4397	5957	7518	9078	10638	12199	13759	-
DRSC0400-E3	9.0	Start	4653	2148	4193	6237	7260	8282	10327	12371	14416	-	-	-	-
		Min.	2161	852	1928	3004	3542	4080	5156	6232	7309	-	-	-	-
		End	3577	1072	3116	5161	6183	7206	9250	11295	13339	-	-	-	-
DRSC0500-E3	6.0	Start	4653	5468	8699	11929	13544	15159	-	-	-	-	-	-	-
		Min.	2161	2599	4299	6000	6850	7700	-	-	-	-	-	-	-
		End	3577	4392	7622	10853	12468	14083	-	-	-	-	-	-	-
DRSC0300-E2	14.0	Start	5415	-	-	-	-	2482	3614	4747	5879	7011	8143	9275	10407
		Min.	2495	-	-	-	-	961	1557	2153	2748	3344	3940	4536	5132
		End	4084	-	-	-	-	1152	2284	3416	4548	5680	6813	7945	9077
DRSC0350-E2	13.0	Start	5415	-	-	3405	4186	4966	6526	8087	9647	11207	12768	14328	15888
		Min.	2495	-	-	1447	1857	2268	3089	3910	4732	5553	6374	7195	8017
		End	4084	-	-	2075	2855	3635	5196	6756	8316	9877	11437	12997	14558
DRSC0400-E2	10.0	Start	5415	-	3685	5730	6752	7775	9819	11864	13908	15953	-	-	-
		Min.	2495	-	1594	2670	3208	3746	4822	5898	6975	8051	-	-	-
		End	4084	-	2355	4399	5422	6444	8489	10533	12578	14623	-	-	-
DRSC0500-E2	6.0	Start	5415	4961	8191	11422	13037	14652	-	-	-	-	-	-	-
		Min.	2495	2265	3966	5666	6516	7366	-	-	-	-	-	-	-
		End	4084	3630	6861	10091	11706	13321	-	-	-	-	-	-	-
DRSC0300-E1	14.0	Start	5970	-	-	-	-	-	3035	4167	5299	6431	7563	8696	9828
		Min.	2794	-	-	-	-	-	1258	1854	2450	3046	3642	4237	4833
		End	4664	-	-	-	-	-	1729	2861	3993	5125	6257	7390	8522
DRSC0350-E1	11.0	Start	5970	-	-	2826	3606	4386	5946	7507	9067	10628	12188	13748	15309
		Min.	2794	-	-	1148	1559	1969	2791	3612	4433	5254	6075	6897	7718
		End	4664	-	-	1520	2300	3080	4640	6201	7761	9322	10882	12442	14003
DRSC0400-E1	10.0	Start	5970	-	3106	5150	6173	7195	9239	11284	13329	15373	-	-	-
		Min.	2794	-	1295	2371	2910	3448	4524	5600	6676	7752	-	-	-
		End	4664	-	1800	3844	4867	5889	7933	9978	12023	14067	-	-	-
DRSC0500-E1	6.0	Start	5970	4381	7611	10842	12457	14072	-	-	-	-	-	-	-
		Min.	2794	1967	3667	5367	6217	7067	-	-	-	-	-	-	-
		End	4664	3075	6305	9536	11151	12766	-	-	-	-	-	-	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSD0300-E4	14.0	Start	7568	-	-	-	-	-	3788	5147	6506	7864	9223	10581	11940
		Min.	3420	-	-	-	-	-	1442	2157	2872	3587	4302	5017	5732
		End	5450	-	-	-	-	-	1671	3029	4388	5746	7105	8464	9822
DRSD0350-E4	14.0	Start	7568	-	-	3538	4474	5410	7283	9155	11027	12900	14772	16645	18517
		Min.	3420	-	-	1310	1803	2295	3281	4266	5252	6237	7223	8208	9194
		End	5450	-	-	1420	2356	3292	5165	7037	8910	10782	12654	14527	16399
DRSD0400-E4	14.0	Start	7568	-	3873	6327	7554	8781	11234	13688	16141	18595	21048	23502	25955
		Min.	3420	-	1487	2778	3424	4069	5361	6652	7943	9235	10526	11817	13109
		End	5450	-	1756	4209	5436	6663	9116	11570	14023	16477	18930	21384	23838
DRSD0500-E4	10.0	Start	7568	5404	9281	13157	15095	17033	20910	24786	28663	32539	-	-	-
		Min.	3420	2292	4333	6373	7393	8413	10453	12494	14534	16574	-	-	-
		End	5450	3286	7163	11039	12977	14916	18792	22669	26545	30421	-	-	-
DRSD0600-E4	7.0	Start	7568	10234	15836	21437	24238	27039	32640	-	-	-	-	-	-
		Min.	3420	4835	7783	10731	12205	13679	16627	-	-	-	-	-	-
		End	5450	8116	13718	19320	22120	24921	30523	-	-	-	-	-	-
DRSD0350-E3	14.0	Start	9138	-	-	-	-	4395	6268	8140	10013	11885	13758	15630	17502
		Min.	4100	-	-	-	-	1615	2601	3586	4572	5557	6543	7528	8514
		End	6465	-	-	-	-	1723	3595	5467	7340	9212	11085	12957	14830
DRSD0400-E3	14.0	Start	9138	-	-	5312	6539	7766	10219	12673	15127	17580	20034	22487	24941
		Min.	4100	-	-	2098	2744	3389	4681	5972	7263	8555	9846	11137	12429
		End	6465	-	-	2639	3866	5093	7547	10000	12454	14907	17361	19814	22268
DRSD0500-E3	11.0	Start	9138	4389	8266	12142	14081	16019	19895	23772	27648	31525	35401	-	-
		Min.	4100	1612	3652	5693	6713	7733	9773	11813	13854	15894	17934	-	-
		End	6465	1717	5593	9469	11408	13346	17222	21099	24975	28852	32728	-	-
DRSD0600-E3	7.0	Start	9138	9220	14821	20423	23224	26024	31626	-	-	-	-	-	-
		Min.	4100	4154	7103	10051	11525	12999	15947	-	-	-	-	-	-
		End	6465	6547	12148	17750	20551	23351	28953	-	-	-	-	-	-
DRSD0700-E3	5.5	Start	9138	14975	22631	30288	34117	-	-	-	-	-	-	-	-
		Min.	4100	7183	11213	15243	17258	-	-	-	-	-	-	-	-
		End	6465	12302	19959	27615	31444	-	-	-	-	-	-	-	-
DRSD0400-E2	14.0	Start	10824	-	-	-	5366	6593	9046	11500	13953	16407	18860	21314	23767
		Min.	4853	-	-	-	1991	2637	3928	5219	6511	7802	9093	10385	11676
		End	7638	-	-	-	2180	3407	5860	8314	10767	13221	15674	18128	20581
DRSD0500-E2	11.0	Start	10824	-	7093	10969	12907	14845	18722	22598	26475	30351	34228	-	-
		Min.	4853	-	2900	4940	5960	6980	9021	11061	13101	15141	17182	-	-
		End	7638	-	3907	7783	9721	11659	15536	19412	23289	27165	31042	-	-
DRSD0600-E2	7.0	Start	10824	8046	13648	19249	22050	24851	30452	-	-	-	-	-	-
		Min.	4853	3402	6350	9298	10772	12246	15195	-	-	-	-	-	-
		End	7638	4860	10462	16063	18864	21665	27266	-	-	-	-	-	-
DRSD0700-E2	5.5	Start	10824	13801	21458	29115	32943	-	-	-	-	-	-	-	-
		Min.	4853	6431	10461	14491	16506	-	-	-	-	-	-	-	-
		End	7638	10615	18272	25929	29757	-	-	-	-	-	-	-	-
DRSD0400-E1	14.0	Start	13387	-	-	-	-	-	6909	9363	11816	14270	16723	19177	21630
		Min.	6090	-	-	-	-	-	2691	3983	5274	6565	7857	9148	10439
		End	9775	-	-	-	-	-	3297	5751	8204	10658	13111	15565	18019
DRSD0500-E1	12.0	Start	13387	-	-	8832	10770	12708	16585	20461	24338	28214	32091	35967	-
		Min.	6090	-	-	3703	4723	5744	7784	9824	11864	13905	15945	17985	-
		End	9775	-	-	5220	7158	9097	12973	16850	20726	24602	28479	32355	-
DRSD0600-E1	8.0	Start	13387	5909	11511	17112	19913	22714	28315	33917	-	-	-	-	-
		Min.	6090	2165	5113	8061	9536	11010	13958	16906	-	-	-	-	-
		End	9775	2297	7899	13501	16301	19102	24704	30305	-	-	-	-	-
DRSD0700-E1	6.0	Start	13387	11664	19321	26978	30806	34635	-	-	-	-	-	-	-
		Min.	6090	5194	9224	13254	15269	17284	-	-	-	-	-	-	-
		End	9775	8052	15709	23366	27195	31023	-	-	-	-	-	-	-
DRSE0500-E1	12.0	Start	13387	-	-	8832	10770	12708	16585	20461	24338	28214	32091	35967	-
		Min.	6090	-	-	3703	4723	5744	7784	9824	11864	13905	15945	17985	-
		End	9775	-	-	5220	7158	9097	12973	16850	20726	24602	28479	32355	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSE0400-E5	14.0	Start	14304	-	-	-	-	8070	11024	13977	16930	19884	22837	25790	28744
		Min.	6142	-	-	-	-	2874	4428	5982	7537	9091	10646	12200	13754
		End	9059	-	-	-	-	2825	5778	8732	11685	14638	17592	20545	23498
DRSE0500-E4	14.0	Start	17165	-	-	11526	13859	16192	20858	25525	30191	34857	39523	44189	48855
		Min.	7371	-	-	4417	5645	6872	9328	11784	14240	16696	19152	21608	24063
		End	10871	-	-	5232	7565	9898	14564	19230	23897	28563	33229	37895	42561
DRSE0600-E4	13.0	Start	17165	8008	14751	21493	24865	28236	34979	41721	48464	55206	61949	68692	75434
		Min.	7371	2565	6114	9662	11437	13211	16760	20309	23857	27406	30955	34504	38052
		End	10871	1714	8457	15199	18571	21942	28684	35427	42170	48912	55655	62397	69140
DRSE0700-E4	10.0	Start	17165	14935	24152	33369	37977	42585	51802	61018	70235	79452	-	-	-
		Min.	7371	6211	11062	15913	18338	20763	25614	30465	35316	40167	-	-	-
		End	10871	8641	17858	27074	31683	36291	45508	54724	63941	73157	-	-	-
DRSE0800-E4	8.0	Start	17165	22832	34869	46906	52925	58943	70980	-	-	-	-	-	-
		Min.	7371	10367	16702	23038	26205	29373	35708	-	-	-	-	-	-
		End	10871	16538	28575	40612	46631	52649	64686	-	-	-	-	-	-
DRSE0500-E3	14.0	Start	20519	-	-	-	11928	14261	18927	23593	28260	32926	37592	42258	46924
		Min.	8762	-	-	-	4254	5482	7937	10393	12849	15305	17761	20217	22673
		End	12802	-	-	-	4211	6544	11210	15876	20543	25209	29875	34541	39207
DRSE0600-E3	13.0	Start	20519	-	12820	19562	22934	26305	33047	39790	46533	53275	60018	66760	73503
		Min.	8762	-	4723	8272	10046	11820	15369	18918	22467	26015	29564	33113	36661
		End	12802	-	5103	11845	15216	18588	25330	32073	38816	45558	52301	59043	65786
DRSE0700-E3	10.0	Start	20519	13004	22221	31437	36046	40654	49871	59087	68304	77520	-	-	-
		Min.	8762	4820	9671	14522	16947	19373	24223	29074	33925	38776	-	-	-
		End	12802	5287	14504	23720	28329	32937	42154	51370	60587	69803	-	-	-
DRSE0800-E3	7.0	Start	20519	20901	32938	44975	50994	57012	69049	-	-	-	-	-	-
		Min.	8762	8976	15312	21647	24814	27982	34317	-	-	-	-	-	-
		End	12802	13184	25221	37258	43277	49295	61332	-	-	-	-	-	-
DRSE0900-E3	6.0	Start	20519	29904	45156	60408	68034	75661	-	-	-	-	-	-	-
		Min.	8762	13715	21742	29770	33783	37797	-	-	-	-	-	-	-
		End	12802	22187	37439	52691	60317	67943	-	-	-	-	-	-	-
DRSE0600-E2	13.0	Start	25458	-	-	17203	20574	23945	30688	37431	44173	50916	57658	64401	71144
		Min.	10683	-	-	6351	8125	9900	13448	16997	20546	24095	27643	31192	34741
		End	15162	-	-	6906	10277	13649	20391	27134	33877	40619	47362	54104	60847
DRSE0700-E2	10.0	Start	25458	-	19861	29078	33686	38295	47511	56728	65944	75161	-	-	-
		Min.	10683	-	7750	12601	15026	17452	22303	27154	32004	36855	-	-	-
		End	15162	-	9565	18781	23390	27998	37215	46431	55648	64864	-	-	-
DRSE0800-E2	8.0	Start	25458	18542	30579	42616	48634	54653	66690	78727	-	-	-	-	-
		Min.	10683	7056	13391	19726	22894	26061	32397	38732	-	-	-	-	-
		End	15162	8245	20282	32319	38338	44356	56393	68430	-	-	-	-	-
DRSE0900-E2	6.0	Start	25458	27544	42797	58049	65675	73301	-	-	-	-	-	-	-
		Min.	10683	11794	19821	27849	31863	35876	-	-	-	-	-	-	-
		End	15162	17248	32500	47752	55378	63004	-	-	-	-	-	-	-
DRSE0600-E1	13.0	Start	28368	-	-	14468	17840	21211	27953	34696	41439	48181	54924	61666	68409
		Min.	12168	-	-	4866	6640	8414	11963	15512	19061	22609	26158	29707	33256
		End	17896	-	-	3997	7368	10739	17482	24225	30967	37710	44452	51195	57938
DRSE0700-E1	10.0	Start	28368	-	17127	26343	30952	35560	44777	53993	63210	72426	-	-	-
		Min.	12168	-	6265	11116	13541	15967	20817	25668	30519	35370	-	-	-
		End	17896	-	6655	15872	20480	25089	34305	43522	52738	61955	-	-	-
DRSE0800-E1	8.0	Start	28368	15807	27844	39881	45900	51918	63955	75992	-	-	-	-	-
		Min.	12168	5570	11906	18241	21409	24576	30911	37247	-	-	-	-	-
		End	17896	5336	17373	29410	35428	41447	53484	65521	-	-	-	-	-
DRSE0900-E1	6.0	Start	28368	24810	40062	55314	62940	70566	-	-	-	-	-	-	-
		Min.	12168	10309	18336	26364	30377	34391	-	-	-	-	-	-	-
		End	17896	14339	29591	44843	52469	60095	-	-	-	-	-	-	-
DRSG0600-E4	13.0	Start	32811	-	-	18479	22615	26752	35024	43297	51570	59843	68116	76388	84661
		Min.	14214	-	-	6686	8863	11040	15394	19748	24103	28457	32811	37165	41519
		End	21231	-	-	6898	11035	15171	23444	31717	39989	48262	56535	64808	73081

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSG0700-E4	13.0	Start	32811	-	21777	33094	38753	44412	55730	67048	78365	89683	101001	112318	123636
		Min.	14214	-	8422	14379	17357	20335	26292	32249	38205	44162	50119	56075	62032
		End	21231	-	10196	21514	27173	32832	44149	55467	66785	78103	89420	100738	112056
DRSG0800-E4	10.0	Start	32811	20178	34967	49756	57151	64545	79334	94123	108912	123701	-	-	-
		Min.	14214	7581	15364	23148	27040	30932	38715	46499	54283	62066	-	-	-
		End	21231	8598	23387	38176	45570	52965	67754	82542	97331	112120	-	-	-
DRSG0900-E4	8.0	Start	32811	31259	50005	68751	78124	87497	106243	124989	-	-	-	-	-
		Min.	14214	13412	23279	33145	38078	43012	52878	62744	-	-	-	-	-
		End	21231	19678	38424	57170	66543	75916	94663	113409	-	-	-	-	-
DRSG0600-E3	14.0	Start	39027	-	-	-	18869	23005	31278	39551	47824	56096	64369	72642	80915
		Min.	16835	-	-	-	6242	8419	12773	17127	21481	25835	30189	34543	38898
		End	24977	-	-	-	4819	8956	17229	25501	33774	42047	50320	58593	66865
DRSG0700-E3	13.0	Start	39027	-	18030	29348	35007	40666	51983	63301	74619	85937	97254	108572	119890
		Min.	16835	-	5800	11757	14735	17714	23670	29627	35584	41541	47497	53454	59411
		End	24977	-	3981	15299	20957	26616	37934	49252	60569	71887	83205	94523	105840
DRSG0800-E3	10.0	Start	39027	-	31221	46010	53404	60799	75588	90377	105165	119954	-	-	-
		Min.	16835	-	12743	20526	24418	28310	36094	43877	51661	59445	-	-	-
		End	24977	-	17171	31960	39355	46749	61538	76327	91116	105905	-	-	-
DRSG0900-E3	8.0	Start	39027	27512	46258	65004	74377	83751	102497	121243	-	-	-	-	-
		Min.	16835	10791	20657	30524	35457	40390	50256	60123	-	-	-	-	-
		End	24977	13463	32209	50955	60328	69701	88447	107194	-	-	-	-	-
DRSG0700-2-E3	6.0	Start	39027	38402	61038	83673	94991	106308	-	-	-	-	-	-	-
		Min.	16835	16522	28436	40349	46306	52263	-	-	-	-	-	-	-
		End	24977	24353	46988	69624	80941	92259	-	-	-	-	-	-	-
DRSG0700-E2	13.0	Start	49623	-	-	24929	30588	36247	47564	58882	70200	81518	92835	104153	115471
		Min.	20787	-	-	7806	10784	13762	19719	25676	31632	37589	43546	49503	55459
		End	29396	-	-	4702	10361	16020	27337	38655	49973	61291	72608	83926	95244
DRSG0800-E2	10.0	Start	49623	-	26802	41591	48985	56380	71169	85958	100747	115535	-	-	-
		Min.	20787	-	8791	16575	20467	24359	32142	39926	47710	55493	-	-	-
		End	29396	-	6575	21364	28758	36153	50942	65731	80520	95309	-	-	-
DRSG0900-E2	8.0	Start	49623	-	41839	60585	69959	79332	98078	116824	-	-	-	-	-
		Min.	20787	-	16706	26572	31505	36439	46305	56171	-	-	-	-	-
		End	29396	-	21612	40359	49732	59105	77851	96597	-	-	-	-	-
DRSG0700-2-E2	7.0	Start	49623	33983	56619	79254	90572	101890	124525	-	-	-	-	-	-
		Min.	20787	12571	24484	36398	42355	48311	60225	-	-	-	-	-	-
		End	29396	13756	36392	59027	70345	81663	104298	-	-	-	-	-	-
DRSG0700-E1	13.0	Start	58783	-	-	-	-	30907	42225	53543	64860	76178	87496	98814	110131
		Min.	24602	-	-	-	-	9947	15903	21860	27817	33773	39730	45687	51644
		End	34736	-	-	-	-	6860	18177	29495	40813	52130	63448	74766	86084
DRSG0800-E1	11.0	Start	58783	-	-	36251	43646	51040	65829	80618	95407	110196	124985	-	-
		Min.	24602	-	-	12759	16651	20543	28327	36110	43894	51678	59461	-	-
		End	34736	-	-	12204	19598	26993	41781	56570	71359	86148	100937	-	-
DRSG0900-E1	8.0	Start	58783	-	36500	55246	64619	73992	92738	111485	-	-	-	-	-
		Min.	24602	-	12890	22756	27690	32623	42489	52356	-	-	-	-	-
		End	34736	-	12452	31198	40571	49944	68691	87437	-	-	-	-	-
DRSG0700-2-E1	7.0	Start	58783	-	51279	73915	85232	96550	119186	-	-	-	-	-	-
		Min.	24602	-	20669	32582	38539	44495	56409	-	-	-	-	-	-
		End	34736	-	27231	49867	61185	72502	95138	-	-	-	-	-	-
DRSH0600-E3	14.0	Start	56203	-	-	-	-	-	29215	39415	49615	59815	70015	80215	90414
		Min.	25345	-	-	-	-	-	11160	16529	21897	27265	32634	38002	43371
		End	40145	-	-	-	-	-	13157	23356	33556	43756	53956	64156	74356
DRSH0700-E3	13.0	Start	56203	-	-	26902	33886	40870	54838	68806	82774	96742	110710	124678	138646
		Min.	25345	-	-	9943	13619	17294	24646	31998	39349	46701	54052	61404	68756
		End	40145	-	-	10844	17828	24812	38780	52748	66716	80684	94652	108620	122588
DRSH0800-E3	13.0	Start	56203	-	29257	47521	56653	65785	84048	102312	120575	138839	157103	175366	193630
		Min.	25345	-	11183	20795	25601	30407	40020	49632	59245	68857	78470	88082	97695
		End	40145	-	13199	31463	40594	49726	67990	86253	104517	122781	141044	159308	177572

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSH0900-E3	10.0	Start	56203	24705	47866	71027	82607	94188	117348	140509	163670	186830	-	-	-
		Min.	25345	8787	20977	33167	39261	45356	57546	69736	81926	94116	-	-	-
		End	40145	8647	31808	54968	66549	78129	101290	124451	147611	170772	-	-	-
DRSH1000-E3	8.0	Start	56203	39931	68529	97127	111427	125726	154324	182923	-	-	-	-	-
		Min.	25345	16800	31852	46904	54430	61955	77007	92059	-	-	-	-	-
		End	40145	23872	52471	81069	95368	109667	138266	166864	-	-	-	-	-
DRSH0800-2-E3	6.0	Start	56203	62132	98659	135186	153450	171714	-	-	-	-	-	-	-
		Min.	25345	28485	47710	66935	76547	86160	-	-	-	-	-	-	-
		End	40145	46073	82601	119128	137392	155655	-	-	-	-	-	-	-
DRSH0900-2-E3	5.5	Start	56203	89555	135877	182198	-	-	-	-	-	-	-	-	-
		Min.	25345	42918	67298	91678	-	-	-	-	-	-	-	-	-
		End	40145	73497	119818	166140	-	-	-	-	-	-	-	-	-
DRSH0700-E2	13.9	Start	66186	-	-	-	26841	33825	47793	61761	75729	89697	103665	117633	131601
		Min.	29826	-	-	-	9138	12813	20165	27517	34868	42220	49571	56923	64274
		End	47190	-	-	-	7844	14828	28796	42764	56732	70700	84668	98636	112604
DRSH0800-E2	13.0	Start	66186	-	-	40476	49608	58739	77003	95267	113530	131794	150058	168321	186585
		Min.	29826	-	-	16314	21120	25926	35539	45151	54764	64376	73989	83601	93213
		End	47190	-	-	21479	30611	39743	58007	76270	94534	112798	131061	149325	167588
DRSH0900-E2	10.0	Start	66186	-	40821	63982	75562	87142	110303	133464	156624	179785	-	-	-
		Min.	29826	-	16496	28685	34780	40875	53065	65255	77445	89635	-	-	-
		End	47190	-	21825	44985	56566	68146	91307	114467	137628	160789	-	-	-
DRSH1000-E2	8.0	Start	66186	32886	61484	90082	104382	118681	147279	175877	-	-	-	-	-
		Min.	29826	12319	27371	42423	49948	57474	72526	87578	-	-	-	-	-
		End	47190	13889	42488	71086	85385	99684	128283	156881	-	-	-	-	-
DRSH0800-2-E2	6.0	Start	66186	55087	91614	128141	146405	164668	-	-	-	-	-	-	-
		Min.	29826	24004	43229	62454	72066	81678	-	-	-	-	-	-	-
		End	47190	36090	72618	109145	127408	145672	-	-	-	-	-	-	-
DRSH0900-2-E2	5.5	Start	66186	82510	128832	175153	198314	-	-	-	-	-	-	-	-
		Min.	29826	38437	62817	87197	99386	-	-	-	-	-	-	-	-
		End	47190	63514	109835	156157	179317	-	-	-	-	-	-	-	-
DRSH0700-E1	13.9	Start	82117	-	-	-	-	-	39409	53377	67345	81313	95281	109249	123217
		Min.	36224	-	-	-	-	-	13766	21118	28469	35821	43173	50524	57876
		End	55574	-	-	-	-	-	12866	26834	40802	54770	68738	82706	96674
DRSH0800-E1	13.0	Start	82117	-	-	-	41224	50355	68619	86883	105146	123410	141674	159937	178201
		Min.	36224	-	-	-	14721	19528	29140	38753	48365	57977	67590	77202	86815
		End	55574	-	-	-	14680	23812	42076	60339	78603	96867	115130	133394	151658
DRSH0900-E1	11.0	Start	82117	-	-	55598	67178	78758	101919	125080	148240	171401	194562	-	-
		Min.	36224	-	-	22287	28382	34477	46666	58856	71046	83236	95426	-	-
		End	55574	-	-	29054	40635	52215	75376	98537	121697	144858	168019	-	-
DRSH1000-E1	9.0	Start	82117	-	53100	81698	95997	110297	138895	167493	196092	-	-	-	-
		Min.	36224	-	20972	36024	43550	51076	66127	81179	96231	-	-	-	-
		End	55574	-	26557	55155	69454	83754	112352	140950	169549	-	-	-	-
DRSH0800-2-E1	8.0	Start	82117	46703	83230	119757	138021	156284	192812	-	-	-	-	-	-
		Min.	36224	17605	36830	56055	65667	75280	94505	-	-	-	-	-	-
		End	55574	20159	56687	93214	111478	129741	166269	-	-	-	-	-	-
DRSH0900-2-E1	6.0	Start	82117	74126	120448	166769	189930	-	-	-	-	-	-	-	-
		Min.	36224	32039	56418	80798	92988	-	-	-	-	-	-	-	-
		End	55574	47583	93904	140226	163387	-	-	-	-	-	-	-	-
DRSJ0700-E5	13.6	Start	76392	-	-	19014	28157	37299	55584	73868	92153	110438	128723	147007	165292
		Min.	38183	-	-	8010	12822	17634	27257	36881	46504	56128	65751	75375	84999
		End	68753	-	-	11375	20517	29660	47944	66229	84514	102799	121083	139368	157653
DRSJ0800-E4	14.0	Start	112004	-	-	-	60599	72561	96487	120412	144338	168263	192189	216114	240040
		Min.	46884	-	-	-	19855	26151	38744	51336	63928	76521	89113	101705	114298
		End	66206	-	-	-	14801	26764	50689	74615	98540	122465	146391	170316	194242
DRSJ0900-E4	13.0	Start	112004	-	-	79502	94680	109858	140214	170570	200926	231282	261638	291994	322350
		Min.	46884	-	-	29804	37793	45781	61758	77735	93712	109688	125665	141642	157619
		End	66206	-	-	33705	48883	64060	94416	124772	155128	185484	215840	246196	276552

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSJ1000-E4	12.0	Start	112004	-	76280	113776	132524	151272	188768	226265	263761	301257	338754	376250	-
		Min.	46884	-	28108	47843	57710	67578	87313	107048	126783	146517	166252	185987	-
		End	66206	-	30482	67978	86726	105474	142971	180467	217963	255460	292956	330452	-
DRSJ0800-2-E4	9.0	Start	112004	67776	115627	163478	187404	211329	259180	307031	354882	-	-	-	-
		Min.	46884	23633	48817	74002	86594	99187	124371	149556	174741	-	-	-	-
		End	66206	21979	69829	117680	141606	165531	213382	261233	309084	-	-	-	-
DRSJ0900-2-E4	7.0	Start	112004	103787	164499	225211	255567	285923	346635	-	-	-	-	-	-
		Min.	46884	42586	74539	106493	122470	138447	170400	-	-	-	-	-	-
		End	66206	57989	118701	179413	209769	240125	300837	-	-	-	-	-	-
DRSJ1000-2-E4	6.0	Start	112004	143773	218765	293758	331254	368751	-	-	-	-	-	-	-
		Min.	46884	63631	103101	142570	162305	182040	-	-	-	-	-	-	-
		End	66206	97975	172968	247960	285457	322953	-	-	-	-	-	-	-
DRSJ0900-E3	13.0	Start	139496	-	-	-	82267	97445	127801	158157	188513	218869	249225	279580309936	
		Min.	57386	-	-	-	27291	35280	51256	67233	83210	99187	115164	131140147117	
		End	78620	-	-	-	21390	36568	66924	97280	127636	157992	188348	218704249060	
DRSJ1000-E3	11.0	Start	139496	-	-	101362	120111	138859	176355	213851	251348	288844	326340	363836	-
		Min.	57386	-	-	37342	47209	57076	76811	96546	116281	136016	155751	175486	-
		End	78620	-	-	40486	59234	77982	115478	152975	190471	227967	265464	302960	-
DRSJ0800-2-E3	9.0	Start	139496	-	103214	151065	174990	198916	246767	294617	342468	-	-	-	-
		Min.	57386	-	38316	63501	76093	88685	113870	139055	164239	-	-	-	-
		End	78620	-	42337	90188	114114	138039	185890	233741	281592	-	-	-	-
DRSJ0900-2-E3	7.0	Start	139496	91374	152085	212797	243153	273509	334221	-	-	-	-	-	-
		Min.	57386	32084	64038	95991	111968	127945	159899	-	-	-	-	-	-
		End	78620	30497	91209	151921	182277	212633	273345	-	-	-	-	-	-
DRSJ1000-2-E3	6.0	Start	139496	131359	206352	281345	318841	356337	-	-	-	-	-	-	-
		Min.	57386	53129	92599	132069	151804	171539	-	-	-	-	-	-	-
		End	78620	70483	145476	220468	257964	295461	-	-	-	-	-	-	-
DRSJ0900-E2	13.0	Start	152870	-	-	-	-	82485	112841	143197	173553	203909	234265	264621294977	
		Min.	64842	-	-	-	-	27823	43800	59777	75754	91731	107707	123684139661	
		End	93580	-	-	-	-	23194	53550	83906	114262	144618	174974	205330235686	
DRSJ1000-E2	12.0	Start	152870	-	-	86403	105151	123899	161395	198891	236388	273884	311380	348877	-
		Min.	64842	-	-	29885	39753	49620	69355	89090	108825	128560	148295	168029	-
		End	93580	-	-	27112	45860	64608	102105	139601	177097	214593	252090	289586	-
DRSJ0800-2-E2	10.0	Start	152870	-	88254	136105	160030	183956	231807	279658	327509	375359	-	-	-
		Min.	64842	-	30860	56044	68637	81229	106414	131598	156783	181968	-	-	-
		End	93580	-	28963	76814	100740	124665	172516	220367	268218	316069	-	-	-
DRSJ0900-2-E2	8.0	Start	152870	76414	137126	197838	228194	258549	319261	379973	-	-	-	-	-
		Min.	64842	24628	56582	88535	104512	120489	152442	184396	-	-	-	-	-
		End	93580	17123	77835	138547	168903	199259	259971	320683	-	-	-	-	-
DRSJ1000-2-E2	6.0	Start	152870	116400	191392	266385	303881	341377	-	-	-	-	-	-	-
		Min.	64842	45673	85143	124613	144348	164082	-	-	-	-	-	-	-
		End	93580	57109	132102	207094	244590	282087	-	-	-	-	-	-	-
DRSJ0800-2-E1	10.0	Start	189465	-	-	118371	142296	166221	214072	261923	309774	357625	-	-	-
		Min.	79139	-	-	41747	54340	66932	92117	117301	142486	167671	-	-	-
		End	111314	-	-	40220	64145	88071	135922	183773	231623	279474	-	-	-
DRSM1000-E5	14.0	Start	142990	-	54580	102809	126924	151038	199267	247497	295726	343955	392184	440413488642	
		Min.	71478	-	24980	50364	63056	75748	101131	126515	151899	177283	202667	228050253434	
		End	128691	-	40281	88510	112625	136739	184969	233198	281427	329656	377885	426114474343	
DRSM1100-E4	13.0	Start	245917	-	-	147081	176345	205609	264137	322665	381192	439720	498248	556775615303	
		Min.	99922	-	-	47937	63339	78741	109545	140349	171153	201957	232761	263565294370	
		End	133852	-	-	35016	64280	93544	152071	210599	269127	327654	386182	444710503238	
DRSM1200-E4	13.0	Start	245917	-	-	200563	235398	270233	339903	409573	479242	548912	618582	688252757921	
		Min.	99922	-	-	76085	94420	112754	149422	186090	222759	259427	296095	332764369432	
		End	133852	-	-	88498	123333	158168	227837	297507	367177	436847	506516	576186645856	
DRSM1300-E4	11.0	Start	245917	-	177482	259412	300377	341342	423272	505202	587132	669062	750992	-	-
		Min.	99922	-	63938	107059	128619	150180	193301	236422	279543	322664	365785	-	-
		End	133852	-	65417	147347	188312	229277	311207	393137	475067	556997	638927	-	-

SPRING RETURN TORQUE

ACTUATOR MODEL	MOP (bar)	SPRING TORQUE Start/Min./E	Operating Pressure (bar)												
			3	4	5	5.5	6	7	8	9	10	11	12	13	
			Pressure Torque Output Start/ Min./ End (Nm)												
DRSM1000-2-E4	9.0	Start	245917	136232	232690	329148	377377	425606	522065	618523	714981	-	-	-	-
		Min.	99922	42227	92994	143762	169145	194529	245297	296064	346832	-	-	-	-
		End	133852	24166	120624	217083	265312	313541	409999	506458	602916	-	-	-	-
DRSM1100-2-E4	8.0	Start	245917	193904	310959	428014	486542	545070	662125	779181	-	-	-	-	-
		Min.	99922	72580	134188	195797	226601	257405	319013	380621	-	-	-	-	-
		End	133852	81838	198894	315949	374477	433004	550060	667115	-	-	-	-	-
DRSM1200-2-E4	6.0	Start	245917	256299	395639	534978	604648	674318	-	-	-	-	-	-	-
		Min.	99922	105420	178757	252093	288762	325430	-	-	-	-	-	-	-
		End	133852	144234	283573	422913	492583	562252	-	-	-	-	-	-	-
DRSM1300-2-E4	5.5	Start	245917	324956	488816	652676	734606	-	-	-	-	-	-	-	-
		Min.	99922	141555	227797	314040	357161	-	-	-	-	-	-	-	-
		End	133852	212891	376751	540611	622541	-	-	-	-	-	-	-	-
DRSM1200-E3	13.0	Start	303259	-	-	171893	206728	241562	311232	380902	450572	520242589911	659581	729251	
		Min.	122557	-	-	53451	71785	90119	126787	163455	200124	236792273460	310129	346797	
		End	162522	-	-	31156	65991	100825	170495	240165	309835	379504449174	518844	588514	
DRSM1300-E3	11.0	Start	303259	-	-	230742	271707	312672	394602	476532	558461	640391722321	-	-	
		Min.	122557	-	-	84424	105984	127545	170666	213787	256908	300029343150	-	-	
		End	162522	-	-	90005	130970	171935	253864	335794	417724	499654581584	-	-	
DRSM1000-2-E3	10.0	Start	303259	-	204019	300478	348707	396936	493394	589852	686311	782769	-	-	-
		Min.	122557	-	70359	121127	146511	171894	222662	273429	324197	374964	-	-	-
		End	162522	-	63282	159741	207970	256199	352657	449115	545574	642032	-	-	-
DRSM1100-2-E3	8.0	Start	303259	165233	282288	399344	457871	516399	633455	750510	-	-	-	-	-
		Min.	122557	49945	111554	173162	203966	234770	296378	357986	-	-	-	-	-
		End	162522	24496	141551	258607	317134	375662	492718	609773	-	-	-	-	-
DRSM1200-2-E3	7.0	Start	303259	227628	366968	506308	575977	645647	784987	-	-	-	-	-	-
		Min.	122557	82785	156122	229458	266127	302795	376132	-	-	-	-	-	-
		End	162522	86891	226231	365571	435240	504910	644250	-	-	-	-	-	-
DRSM1300-2-E3	7.0	Start	303259	296286	460146	624005	705935	787865	-	-	-	-	-	-	-
		Min.	122557	118920	205163	291405	334526	377647	-	-	-	-	-	-	-
		End	162522	155549	319408	483268	565198	647128	-	-	-	-	-	-	-
DRSM1300-E2	12.0	Start	363476	-	-	196461	237426	278391	360321	442251	524181	606111688041	769971	-	
		Min.	147425	-	-	59556	81116	102677	145798	188919	232040	275161318282	361403	-	
		End	196803	-	-	29788	70752	111717	193647	275577	357507	439437521367	603297	-	
DRSM1000-2-E2	10.0	Start	363476	-	-	266197	314426	362655	459114	555572	652030	748489	-	-	-
		Min.	147425	-	-	96259	121643	147027	197794	248562	299329	350097	-	-	-
		End	196803	-	-	99523	147753	195982	292440	388898	485357	581815	-	-	-
DRSM1200-2-E2	7.0	Start	363476	-	332688	472027	541697	611367	750706	-	-	-	-	-	-
		Min.	147425	-	131254	204591	241259	277927	351264	-	-	-	-	-	-
		End	196803	-	166014	305353	375023	444693	584033	-	-	-	-	-	-
DRSM1300-2-E2	6.0	Start	363476	262005	425865	589725	671655	753585	-	-	-	-	-	-	-
		Min.	147425	94053	180295	266537	309658	352779	-	-	-	-	-	-	-
		End	196803	95331	259191	423051	504981	586911	-	-	-	-	-	-	-

TECHNICAL INFORMATION

WEIGHT

DOUBLE ACTING

BORE	063	080	0100	0125	0150	0200	0250	0300	0350	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300
ACTUATOR	WEIGHT (in kg)																		
DRSAA	15	18	22	32	42	53	68	85	-	-	-	-	-	-	-	-	-	-	-
DRSA	60	70	82	95	110	122	135	160	-	-	-	-	-	-	-	-	-	-	-
DRSB	-	-	-	-	-	-	-	120	131	147	-	-	-	-	-	-	-	-	-
DRSC	-	-	-	-	-	-	-	160	176	190	210	-	-	-	-	-	-	-	-
DRSD	-	-	-	-	-	-	-	232	241	260	305	341	422	-	-	-	-	-	-
DRSE	-	-	-	-	-	-	-	-	-	504	510	560	632	811	834	-	-	-	-
DRSG	-	-	-	-	-	-	-	-	-	-	710	732	817	946	1071	-	-	-	-
DRSH	-	-	-	-	-	-	-	-	-	-	-	1152	1189	1270	1475	-	-	-	-
DRSJ	-	-	-	-	-	-	-	-	-	-	-	-	1610	1680	1905	2015	-	-	-
DRSM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	3710	3891	4504

SPRING RETURN

BORE	063	080	0100	0125	0150	0200	0250	0300	0350	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300
ACTUATOR	WEIGHT (in kg)																		
DRSAA	24	30	38	46	60	75	92	110	-	-	-	-	-	-	-	-	-	-	-
DRSA	95	110	130	146	162	185	205	230	-	-	-	-	-	-	-	-	-	-	-
DRSB-E	-	-	-	-	-	-	-	220	232	247	-	-	-	-	-	-	-	-	-
DRSC-E	-	-	-	-	-	-	-	354	376	410	441	-	-	-	-	-	-	-	-
DRSD-E	-	-	-	-	-	-	-	490	554	534	570	640	710	-	-	-	-	-	-
DRSE-E	-	-	-	-	-	-	-	-	-	906	919	970	1042	1122	1306	-	-	-	-
DRSG-E	-	-	-	-	-	-	-	-	-	-	1695	1732	1825	1935	2105	-	-	-	-
DRSH-E	-	-	-	-	-	-	-	-	-	-	-	2594	2629	2710	2915	-	-	-	-
DRSJ-E	-	-	-	-	-	-	-	-	-	-	-	-	3731	3801	4026	4136	-	-	-
DRSM-E	-	-	-	-	-	-	-	-	-	-	-	-	-	7590	7840	7950	8145	8325	8940

AIR CONSUMPTION

DOUBLE ACTING

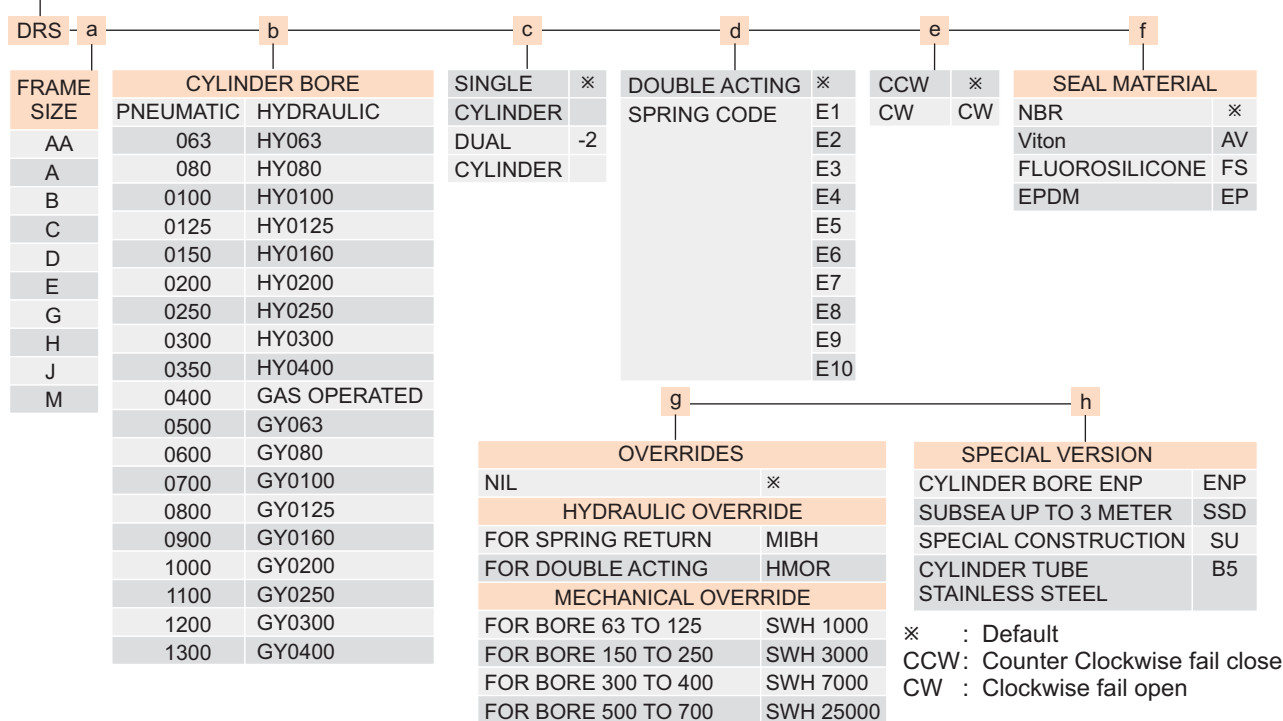
BORE	063	080	0100	0125	0150	0200	0250	0300	0350	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300
ACTUATOR	Air consumption in litre A.N.R./bar 90° stroke																		
DRSAA	0.7	1.1	1.8	2.7	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRSA	-	-	1.8	2.8	4.1	7.3	11.4	16.4	22.5	-	-	-	-	-	-	-	-	-	-
DRSB	-	-	-	-	-	-	-	19	27	35	-	-	-	-	-	-	-	-	-
DRSC	-	-	-	-	-	-	-	24	32	42	66	-	-	-	-	-	-	-	-
DRSD	-	-	-	-	-	-	-	27	39	50	79	119	177	-	-	-	-	-	-
DRSE	-	-	-	-	-	-	-	-	-	61	95	143	213	258	324	-	-	-	-
DRSG	-	-	-	-	-	-	-	-	-	-	116	176	262	317	382	-	-	-	-
DRSH	-	-	-	-	-	-	-	-	-	-	-	218	324	392	493	577	-	-	-
DRSJ	-	-	-	-	-	-	-	-	-	-	-	-	426	515	648	757	-	-	-
DRSM	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	975	1180	1405	1648

SPRING RETURN

BORE	063	080	0100	0125	0150	0200	0250	0300	0350	0400	0500	0600	0700	0800	0900	1000	1100	1200	1300
ACTUATOR	Air consumption in litre A.N.R./bar 90° stroke																		
DRSAA-E	0.3	0.6	0.9	1.4	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-
DRSA-E	-	-	0.9	1.4	2.5	3.6	5.7	8.2	11	-	-	-	-	-	-	-	-	-	-
DRSB-E	-	-	-	-	-	-	-	10	14	18	-	-	-	-	-	-	-	-	-
DRSC-E	-	-	-	-	-	-	-	12	17	22	35	-	-	-	-	-	-	-	-
DRSD-E	-	-	-	-	-	-	-	14	20	27	42	63	94	-	-	-	-	-	-
DRSE-E	-	-	-	-	-	-	-	-	-	32	50	76	113	137	171	-	-	-	-
DRSG-E	-	-	-	-	-	-	-	-	-	-	62	93	417	168	202	-	-	-	-
DRSH-E	-	-	-	-	-	-	-	-	-	-	-	115	213	208	261	305	-	-	-
DRSJ-E	-	-	-	-	-	-	-	-	-	-	-	-	225	273	343	401	-	-	-
DRSM-E	-	-	-	-	-	-	-	-	-	-	-	-	-	-	-	516	624	743	872

ORDERING CODE

MODEL



ORDERING EXAMPLE

- DRSE0700E4
Frame size E, Cylinder bore 700 mm Spring Return with Spring set 4, fail close with NBR seals
- DRSC0400 - EP
Frame size C, Cylinder bore 400 mm Double Acting with EPDM seals

MOPD

The torque chart indicates the MOPD. (Maximum operating pressure differential) It is very critical not to exceed the MOPD

HY-HYDRAULIC ACTUATOR

DRS actuator can also be supplied with hydraulic cylinder. The torque chart for double acting and spring return is same as pneumatic.

To choose right size of Hydraulic Cylinder

- Choose DRS with pneumatic model with maximum air pressure possible as shown in chart
- Last three digit shows bore of the cylinder in mm
- Select Hydraulic pressure in bar
- With above data calculate nearest Hydraulic actuator bore

eg. DRSD0600, maximum pressure allowable is 4 bar. (No torque details beyond 4 bar is shown) if Hydraulic pressure is 100 bar the calculated Hydraulic bore will be 120 mm choose HY0125. Selected model will be DRSDHY0125

GY-GAS ACTUATOR

DRS actuator can be directly operated by Gas like Natural Gas, CO₂, N₂ etc. The special reciprocating cylinder have protective coating and unique seal construction to used Gas upto 180 bar (Slection criteria as per HY)

DUAL CYLINDER OPTION (-2)

This option designates that twin pneumatic cylinders are installed on the frame. For double acting dual cylinder style, one pneumatic cylinder is mounted on each side of frame. For the spring return twin cylinder style, two pneumatic cylinders are mounted in tandem on the pneumatic side of the frame

CCW

This is the standard version for fail close, or air to open/ spring to close. Looking from the top of the yoke (i.e. Where limitswitch mounts), the drive will rotate counter clockwise (ccw) when air is applied to the actuator. When air is vented, the spring will rotate drive clockwise to close the valve

CW

This is the version for fail open. Looking from the top of the yoke, the drive will rotate clockwise when air is applied to the actuator. When the air is vented, springs will rotate the drive counter clockwise to open the valve

SEALS

NBR -20 °C to 80 °C, Viton -20 °C to 125 °C, EPDM -30 °C to 110 °C, Flouro Silicon -60 °C to 110 °C

MIBH ORDERING CODE

Ordering code for manual override needs complete DRS code since the manual override can be installed at a later stage, hence MIBH needs to be specific for each model
e.g. MIBH for DRSC0700E4 would be DRSC0700E4-MIBH

SIDE HAND WHEEL

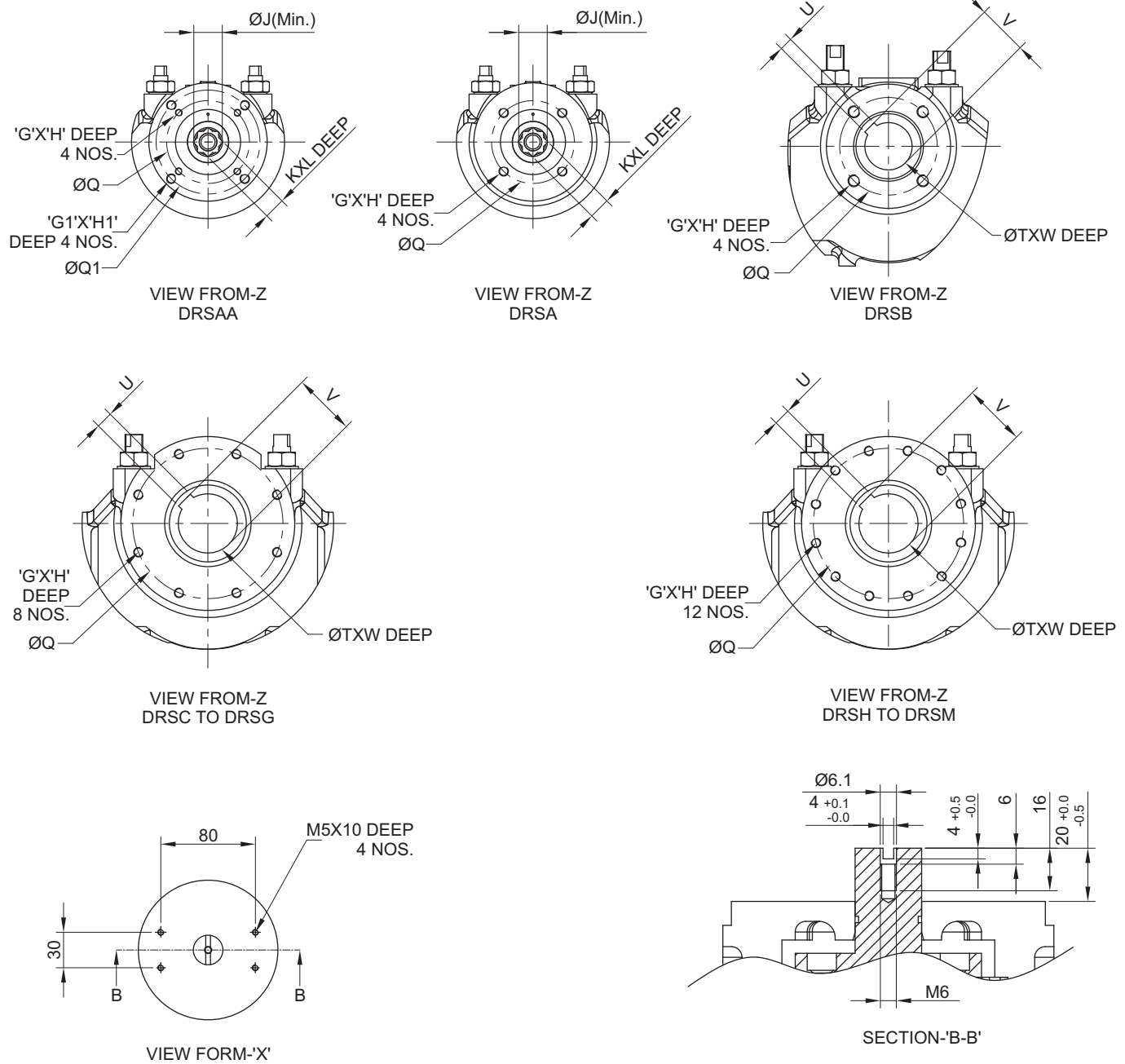
- SWH provide an easy, efficient and durable method for manually operating the actuator
- The arrangement is available from bore size 63-700

CYLINDER ENP

ROTEX can supply pneumatic cylinder pipe with 20μ electroless nickel plated

VALVE INTERFACE

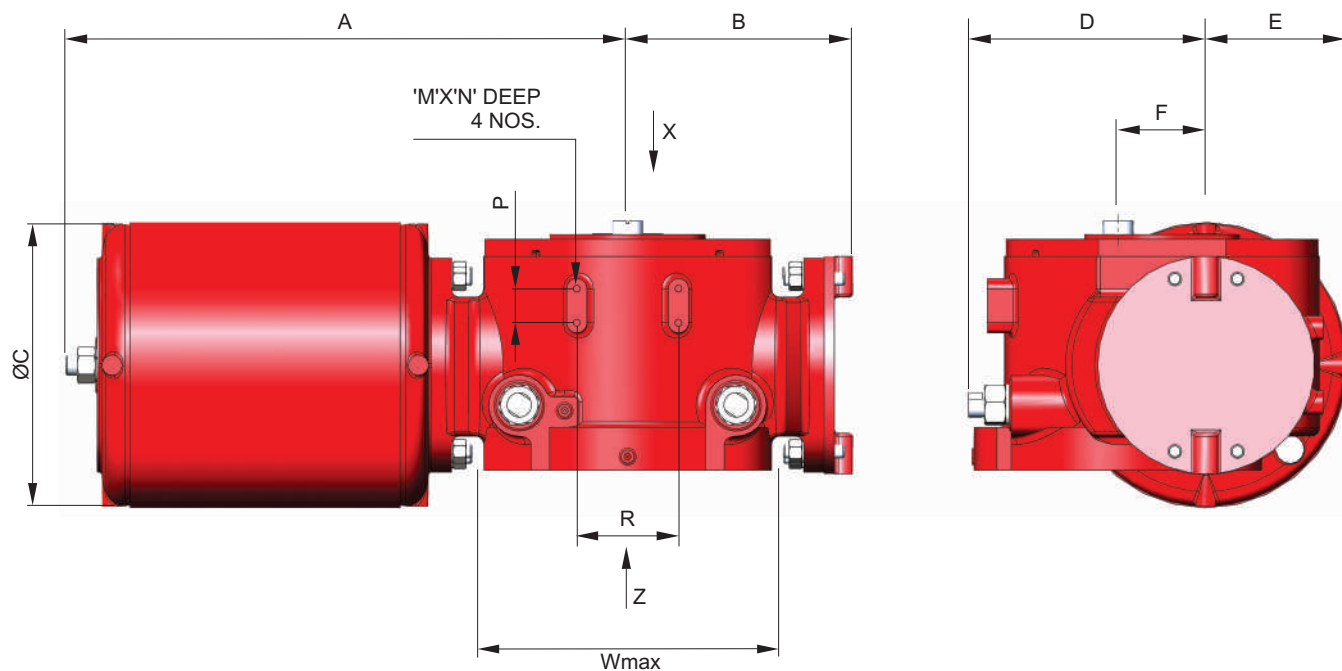
DIMENSIONAL DETAILS



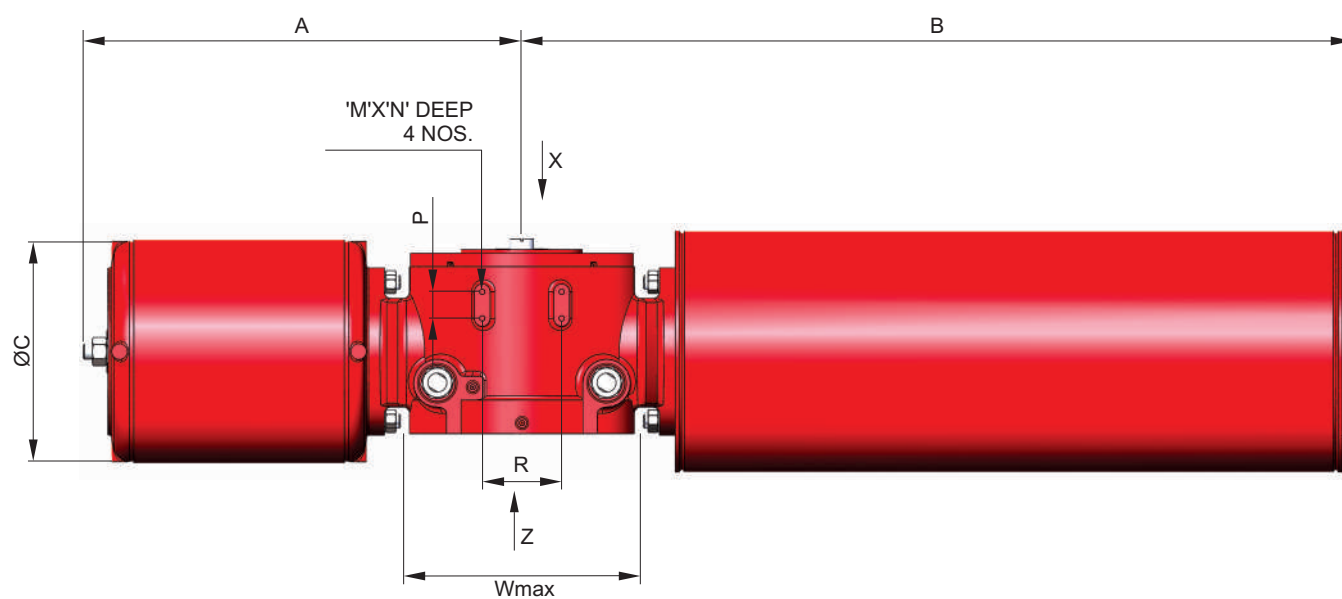
MODEL	G	G1	H	H1	$\emptyset J(\text{Min.})$	K	L	Q	Q1	T	U	V	W	FLANGE
DRSAA	-	M8	12	-	30.5	22	20	70	-	-	-	-	-	F07
	M10	-	-	15	-	-	-	-	102	-	-	-	-	F10
DRSA	M16	-	24	-	48.2	36	35	140	-	-	-	-	-	F14
DRSB	M20	-	30	-	-	-	-	165	-	80	22	85.4	150	F16
DRSC	M16	-	24	-	-	-	-	254	-	100	28	106.4	190	F25
DRSD	M20	-	22	-	-	-	-	298	-	120	30	127.4	200	F30
DRSE	M30	-	32	-	-	-	-	356	-	160	40	170	300	F35
DRSG	M36	-	45	-	-	-	-	406	-	178	45	188.4	350	F40
DRSH	M36	-	54	-	-	-	-	483	-	220	50	231.4	370	F48
DRSJ	M36	-	54	-	-	-	-	603	-	280	63	292.4	430	F60
DRSM	M50	-	54	-	-	-	-	800	-	336	90	353.4	530	-

DIMENSIONAL DETAILS

DOUBLE ACTING



SPRING RETURN



DIMENSION DOUBLE ACTING

MODEL	A	B	ØC	D	E	F	M	N	P	R	Tmax	S
DRSAA063	239	102	84	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA080	230	102	100	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA100	257	102	122	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA125	279	102	150	103	73	28	M6	9	20	30	125	1/4" NPT
DRSA0100	385	183	122	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0125	411	183	150	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0150	395	183	175	187	103	58	M8	14	25	60	214	3/8"NPT
DRSA200	480	183	210	125	161	58	M8	14	25	60	214	1/2"NPT
DRSA250	417	183	260	125	160	58	M8	14	25	60	214	1/2"NPT
DRSA300	456	183	310	125	155	58	M8	14	25	60	214	3/4"NPT
DRSA350	459	183	360	125	180	58	M8	14	25	60	214	3/4"NPT
DRSB0250	573	230	260	169	204	75	M10	15	25	80	278	1/2"NPT
DRSB0300	548	230	310	169	155	75	M10	15	25	80	278	3/4"NPT
DRSB0350	551	230	360	169	180	75	M10	15	25	80	278	3/4"NPT
DRSB0400	596	230	415	169	208	75	M10	15	25	80	278	3/4"NPT
DRSC0250	623	248	260	161	229	90	M10	20	50	90	318	1/2"NPT
DRSC0300	599	248	310	161	155	90	M10	20	50	90	318	3/4"NPT
DRSC0350	602	248	360	161	180	90	M10	20	50	90	318	3/4"NPT
DRSC0400	618	248	416	161	208	90	M10	20	50	90	318	3/4"NPT
DRSC0500	675	248	522	161	261	90	M10	20	50	90	318	3/4"NPT
DRSD0300	781	303	310	213	157	108	M12	15	50	150	360	3/4"NPT
DRSD0350	789	303	360	213	180	108	M12	15	50	150	360	3/4"NPT
DRSD0400	736	303	416	213	208	108	M12	15	50	150	360	3/4"NPT
DRSD0500	739	303	522	213	368	108	M12	15	50	150	360	3/4"NPT
DRSD0600	767	303	624	213	312	108	M12	15	50	150	360	1"NPT
DRSD0700	823	303	725	213	363	108	M12	15	50	150	360	1"NPT
DRSE0400	829	333	420	237	210	130	M12	15	50	150	425	3/4"NPT
DRSE0500	832	333	522	237	261	130	M12	15	50	150	425	3/4"NPT
DRSE0600	849	333	624	237	312	130	M12	15	50	150	425	1"NPT
DRSE0700	725	333	725	237	363	130	M12	15	50	150	425	1"NPT
DRSE0800	980	333	825	237	413	130	M12	15	50	150	425	1"NPT
DRSE0900	1225	333	925	237	463	130	M12	15	50	150	425	11/2"NPT
DRSG0500	963	420	522	270	261	160	M12	15	50	150	536	3/4"NPT
DRSG0600	980	420	624	270	312	160	M12	15	50	150	536	1"NPT
DRSG0700	885	420	725	270	363	160	M12	15	50	150	536	1"NPT
DRSG0800	1111	420	825	270	413	160	M12	15	50	150	536	1"NPT
DRSG0900	1356	420	925	270	463	160	M12	15	50	150	536	11/2"NPT
DRSG0700-2	1870	420	725	270	363	160	M12	15	50	150	536	1"NPT
DRSH0600	1176	510	624	350	312	198	M12	15	50	150	668	1"NPT
DRSH0700	772	510	725	350	363	198	M12	15	50	150	668	1"NPT
DRSH0800	1307	510	825	350	413	198	M12	15	50	150	668	1"NPT
DRSH0900	1552	510	925	350	463	198	M12	15	50	150	668	11/2"NPT
DRSH1000	1652	510	1030	350	515	198	M12	15	50	150	668	11/2"NPT
DRSH0800-2	2714	510	825	350	363	198	M12	15	50	150	668	1"NPT
DRSH0900-2	3204	510	925	350	413	198	M12	15	50	150	668	11/2"NPT
DRSJ0700	1215	669	725	430	363	260	M16	20	100	300	820	1"NPT
DRSJ0800	1470	669	825	430	413	260	M16	20	100	300	820	1"NPT
DRSJ0900	1715	669	925	430	463	260	M16	20	100	300	820	11/2"NPT
DRSJ1000	1815	669	1030	430	515	260	M16	20	100	300	820	11/2"NPT
DRSJ0800-2	2877	669	825	430	363	260	M16	20	100	300	820	1"NPT
DRSJ0900-2	3367	669	925	430	413	260	M16	20	100	300	820	11/2"NPT
DRSJ1000-2	3404	669	1030	430	515	260	M16	20	100	300	820	11/2"NPT
DRSM1000	3116	850	1030	530	515	670	M16	20	100	300	992	11/2"NPT
DRSM1100	3316	850	1132	530	566	670	M16	20	100	300	992	2"NPT
DRSM1200	3516	850	1232	530	600	670	M16	20	100	300	992	2"NPT
DRSM1300	3716	850	1332	530	616	670	M16	20	100	300	992	2"NPT
DRSM1000-2	4705	850	1030	530	515	670	M16	20	100	300	992	2"NPT
DRSM1100-2	6832	850	1132	530	566	670	M16	20	100	300	992	2"NPT
DRSM1200-2	7232	850	1232	530	600	670	M16	20	100	300	992	2"NPT
DRSM1300-2	7632	850	1332	530	616	670	M16	20	100	300	992	2"NPT

DIMENSION SPRING RETURN

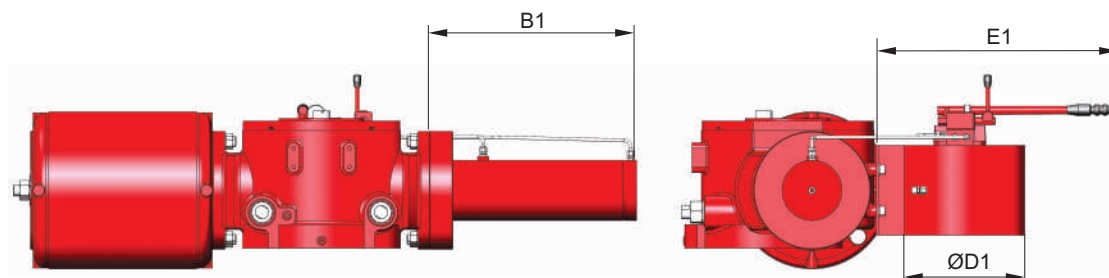
MODEL	A	B	ØC	D	E	F	M	N	P	R	Tmax	S
DRSAA063-E1-E5	239	374	84	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA080-E1-E5	230	374	100	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA100-E1-E4	257	374	122	103	73	28	M6	9	20	30	125	1/4" NPT
DRSAA125-E1-E2	279	374	150	103	73	28	M6	9	20	30	125	1/4" NPT
DRSA0100-E7	385	571	122	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0100-E8-E11	385	498	122	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0125-E7	411	571	150	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0125-E8-E11	411	498	150	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0150-E5-E7	395	571	175	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA0150-E8-E11	395	497	175	187	103	58	M8	14	25	60	214	1/4" NPT
DRSA200-E2-E4	480	612	210	125	161	58	M8	14	25	60	214	1/2"NPT
DRSA200-E5-E6	480	571	210	125	161	58	M8	14	25	60	214	1/2"NPT
DRSA250-E1-E4	417	612	260	125	160	58	M8	14	25	60	214	1/2"NPT
DRSA250-E5-E6	417	571	260	125	160	58	M8	14	25	60	214	1/2"NPT
DRSA300-E1-E4	456	612	310	125	155	58	M8	14	25	60	214	3/4"NPT
DRSA300-E5	456	571	310	125	155	58	M8	14	25	60	214	3/4"NPT
DRSA350-E1-E4	459	612	360	125	180	58	M8	14	25	60	214	3/4"NPT
DRSB0250-E1-E6	573	958	260	169	204	75	M10	15	25	80	278	1/2"NPT
DRSB0300-E1-E6	548	958	310	169	155	75	M10	15	25	80	278	3/4"NPT
DRSB0350-E1-E6	551	958	360	169	180	75	M10	15	25	80	278	3/4"NPT
DRSB0400-E1-E6	596	958	415	169	208	75	M10	15	25	80	278	3/4"NPT
DRSC0250-E3-E4	623	1064	260	161	229	90	M10	20	50	90	318	1/2"NPT
DRSC0300-E1-E4	599	1064	310	161	155	90	M10	20	50	90	318	3/4"NPT
DRSC0350-E1-E4	602	1064	360	161	180	90	M10	20	50	90	318	3/4"NPT
DRSC0400-E1-E4	618	1064	416	161	208	90	M10	20	50	90	318	3/4"NPT
DRSC0500-E1-E4	675	1064	522	161	261	90	M10	20	50	90	318	3/4"NPT
DRSD0300-E4	781	1293	310	213	157	108	M12	15	50	150	360	3/4"NPT
DRSD0350-E3-E4	789	1293	360	213	180	108	M12	15	50	150	360	3/4"NPT
DRSD0400-E1-E4	736	1293	416	213	208	108	M12	15	50	150	360	3/4"NPT
DRSD0500-E1-E4	739	1293	522	213	368	108	M12	15	50	150	360	3/4"NPT
DRSD0600-E1-E4	767	1293	624	213	312	108	M12	15	50	150	360	1"NPT
DRSD0700-E1-E3	823	1293	725	213	363	108	M12	15	50	150	360	1"NPT
DRSE0500-E3-E4	832	1576	522	237	261	130	M12	15	50	150	425	3/4"NPT
DRSE0600-E1-E4	849	1576	624	237	312	130	M12	15	50	150	425	1"NPT
DRSE0700-E1-E4	725	1576	725	237	363	130	M12	15	50	150	425	1"NPT
DRSE0800-E1-E4	980	1576	825	237	413	130	M12	15	50	150	425	1"NPT
DRSE0900-E1-E3	1225	1576	925	237	463	130	M12	15	50	150	425	11/2"NPT
DRSG0600-E3-E4	980	1942	624	270	312	160	M12	15	50	150	536	1"NPT
DRSG0700-E1-E4	885	1942	725	270	363	160	M12	15	50	150	536	1"NPT
DRSG0800-E1-E4	1111	1942	825	270	413	160	M12	15	50	150	536	1"NPT
DRSG0900-E1-E4	1356	1942	925	270	463	160	M12	15	50	150	536	11/2"NPT
DRSG0700-2-E1-E3	1870	1942	725	270	363	160	M12	15	50	150	536	1"NPT
DRSH0600-E3	1176	1904	624	350	312	198	M12	15	50	150	668	1"NPT
DRSH0700-E1-E3	772	1904	725	350	363	198	M12	15	50	150	668	1"NPT
DRSH0800-E1-E3	1307	1904	825	350	413	198	M12	15	50	150	668	1"NPT
DRSH0900-E1-E3	1552	1904	925	350	463	198	M12	15	50	150	668	11/2"NPT
DRSH1000-E1-E3	1652	1904	1030	350	515	198	M12	15	50	150	668	11/2"NPT
DRSH0800-2-E1-E3	2714	1904	825	350	363	198	M12	15	50	150	668	1"NPT
DRSH0900-2-E1-E3	3204	1904	925	350	413	198	M12	15	50	150	820	11/2"NPT
DRSJ0800-E4	1470	2000	825	430	413	260	M16	20	100	300	820	1"NPT
DRSJ0900-E2-E4	1715	2000	925	430	463	260	M16	20	100	300	820	11/2"NPT
DRSJ1000-E2-E4	1815	2000	1030	430	515	260	M16	20	100	300	820	11/2"NPT

DIMENSION SPRING RETURN

MODEL	A	B	ØC	D	E	F	M	N	P	R	Tmax	S
DRSJ0800-2-E1-E4	2877	2000	825	430	363	260	M16	20	100	300	820	1"NPT
DRSJ0900-2-E2-E4	3367	2000	925	430	413	260	M16	20	100	300	820	1 1/2"NPT
DRSJ1000-2-E2-E4	3404	2000	1030	430	515	260	M16	20	100	300	820	1 1/2"NPT
DRSM1100-E4	3316	2500	1132	530	566	670	M16	20	100	300	992	2"NPT
DRSM1200-E3-E4	3516	2500	1232	530	600	670	M16	20	100	300	992	2"NPT
DRSM1300-E2-E4	3716	2500	1332	530	616	670	M16	20	100	300	992	2"NPT
DRSM1000-2-E2-E4	4705	2500	1030	530	515	670	M16	20	100	300	992	2"NPT
DRSM1100-2-E2-E3	6832	2500	1132	530	566	670	M16	20	100	300	992	2"NPT
DRSM1200-2-E2-E4	7232	2500	1232	530	600	670	M16	20	100	300	992	2"NPT
DRSM1300-2-E2-E4	7632	2500	1332	530	616	670	M16	20	100	300	992	2"NPT

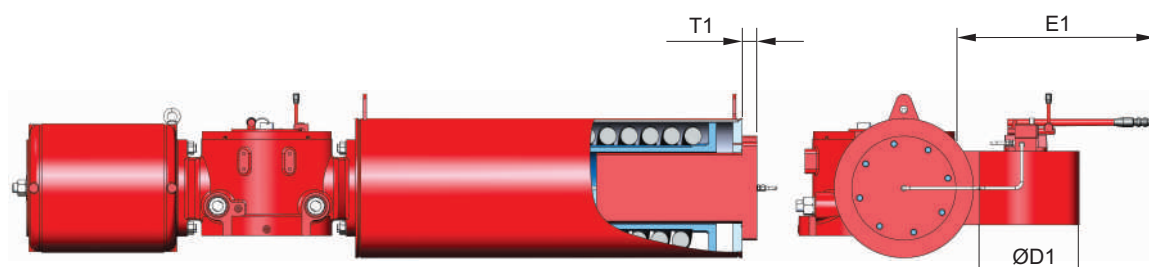
DIMENSION DOUBLE ACTING MANUAL OVERRIDE

HMOR



MODEL	ØD1	B1	E1
DRSAA063	300	241	650
DRSAA080	300	241	650
DRSAA100	300	241	650
DRSAA125	300	241	650
DRSA0100	300	313	750
DRSA0125	300	313	750
DRSA0150	300	313	750
DRSA200	300	313	750
DRSA250	300	313	750
DRSA300	300	313	750
DRSA350	300	313	750
DRSB0250	300	588	750
DRSB0300	300	588	750
DRSB0350	300	588	750
DRSB0400	300	645	750
DRSC0250	300	640	750
DRSC0300	300	640	750
DRSC0350	300	640	750
DRSC0400	300	698	750
DRSC0500	300	698	750
DRSD0300	380	738	790
DRSD0350	380	738	790
DRSD0400	380	796	790
DRSD0500	380	796	790
DRSD0600	380	796	790
DRSD0700	380	796	790
DRSE0400	380	879	790
DRSE0500	380	879	790
DRSE0600	380	879	790
DRSE0700	380	879	790

MODEL	ØD1	B1	E1
DRSE0800	380	879	790
DRSE0900	380	879	790
DRSG0500	430	1037	815
DRSG0600	430	1037	815
DRSG0700	430	1037	815
DRSG0800	430	1351	815
DRSG0900	430	1351	815
DRSG0700-2	430	1351	815
DRSH0600	430	1218	815
DRSH0700	430	1218	815
DRSH0800	430	1532	815
DRSH0900	430	1532	815
DRSH1000	430	1532	815
DRSH0800-2	430	1532	815
DRSH0900-2	430	1532	815
DRSJ0700	540	1840	870
DRSJ0800	540	1840	870
DRSJ0900	540	1840	870
DRSJ1000	540	1840	870
DRSJ0800-2	540	1840	870
DRSJ0900-2	540	1840	870
DRSJ1000-2	540	1840	870
DRSM1000	620	1647	910
DRSM1100	620	1647	910
DRSM1200	620	1647	910
DRSM1300	620	1647	910
DRSM1000-2	620	1647	910
DRSM1100-2	620	1647	910
DRSM1200-2	620	1647	910
DRSM1300-2	620	1647	910

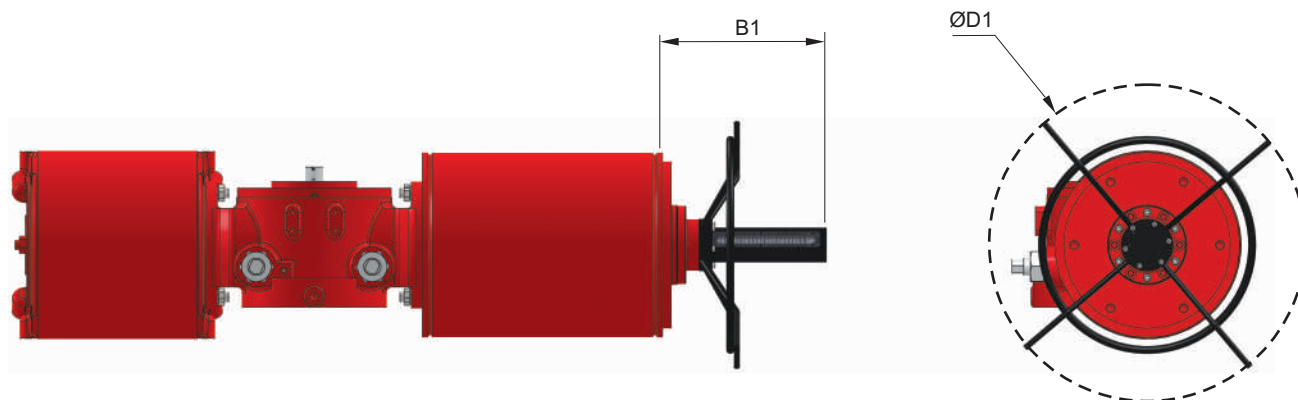
DIMENSION SPRING RETURN
DIMENSION SPRING RETURN MANUAL OVERRIDE
MIBH


MODEL	ØD1	T1	E1
DRSA200-E2-E4	300	30	750
DRSA200-E5-E6	300	30	750
DRSA250-E1-E4	300	30	750
DRSA250-E5-E6	300	30	750
DRSA300-E1-E4	300	30	750
DRSA300-E5-E6	300	30	750
DRSA350-E1-E4	300	30	750
DRSB0250-E1-E4	300	30	750
DRSB0250-E5-E6	300	30	750
DRSB0300-E1-E4	300	30	750
DRSB0300-E5-E6	300	30	750
DRSB0350-E1-E4	300	30	750
DRSB0350-E5-E6	300	30	750
DRSB0400-E1-E4	300	30	750
DRSB0400-E5-E6	300	30	750
DRSC0250-E3-E4	300	30	750
DRSC0300-E1-E4	300	30	750
DRSC0350-E1-E4	300	30	750
DRSC0400-E1-E4	300	30	750
DRSC0500-E1-E4	300	30	750
DRSD0300-E4	380	40	790
DRSD0350-E3-E4	380	40	790
DRSD0400-E1-E4	380	40	790
DRSD0500-E1-E4	380	40	790
DRSD0600-E1-E4	380	40	790
DRSD0700-E1-E3	380	40	790
DRSE0500-E3-E4	380	48	790
DRSE0600-E1-E4	380	48	790

MODEL	ØD1	T1	E1
DRSE0700-E1-E4	380	48	790
DRSE0800-E1-E4	380	48	790
DRSE0900-E1-E3	380	48	790
DRSG0600-E3-E4	430	264	815
DRSG0700-E1-E4	430	264	815
DRSG0800-E1-E4	430	264	815
DRSG0900-E1-E4	430	264	815
DRSG0700-2-E1-E3	430	264	815
DRSH0600-E3	430	298	815
DRSH0700-E1-E3	430	298	815
DRSH0800-E1-E3	430	298	815
DRSH0900-E1-E3	430	298	815
DRSH1000-E1-E3	430	298	815
DRSH0800-2-E1-E3	430	298	815
DRSH0900-2-E1-E3	430	298	815
DRSJ0800-E4	540	332	870
DRSJ0900-E2-E4	540	332	870
DRSJ1000-E2-E4	540	332	870
DRSJ0800-2-E1-E4	540	332	870
DRSJ0900-2-E2-E4	540	332	870
DRSJ1000-2-E2-E4	540	332	870
DRSM1100-E4	620	364	910
DRSM1200-E3-E4	620	364	910
DRSM1300-E2-E4	620	364	910
DRSM1000-2-E2-E4	620	364	910
DRSM1100-2-E2-E3	620	364	910
DRSM1200-2-E2-E4	620	364	910
DRSM1300-2-E2-E4	620	364	910

DIMENSION MANUAL OVERRIDE SIDE HAND WHEEL

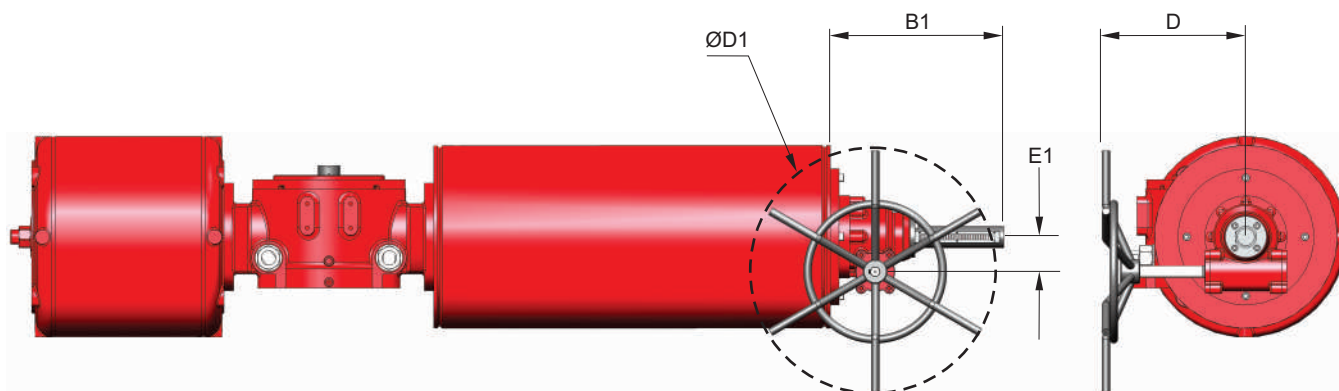
SWH-1000



MODEL	B1	ØD1
DRSAA063-E1-E5	143	300
DRSAA080-E1-E5	143	300
DRSAA100-E1-E4	143	300
DRSAA125-E1-E2	143	300
DRSA0100-E7-E11	228	300
DRSA0125-E7-E11	228	300

DIMENSION MANUAL OVERRIDE SIDE HAND WHEEL

SWH 3000-25000

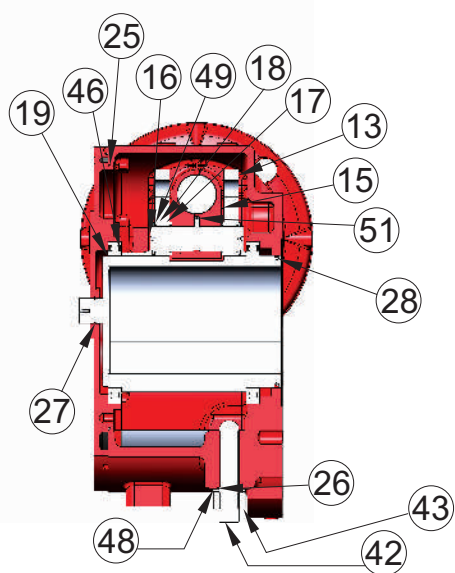
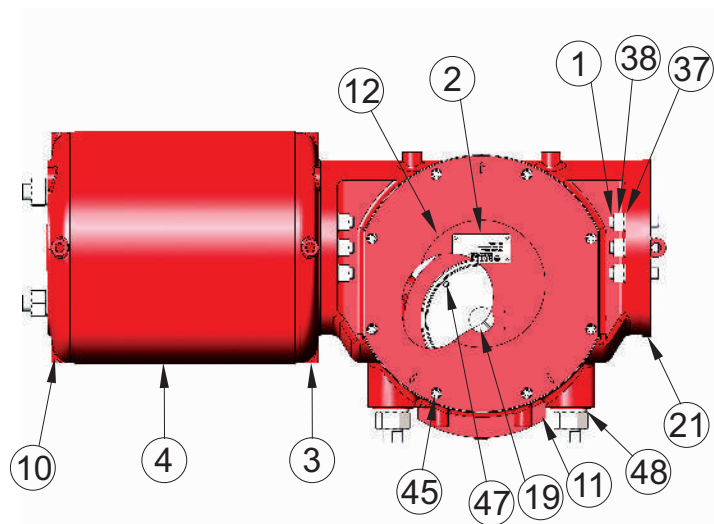
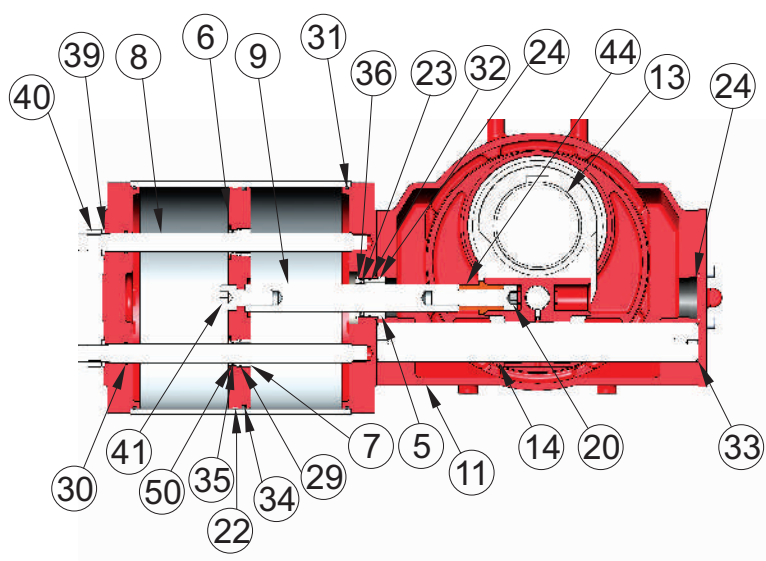


MODEL	B1	D	ØD1	E1
DRSA200-E2-E6	304	125	125	52
DRSA250-E1-E6	304	125	125	52
DRSA250-E5-E6	304	125	125	52
DRSA300-E1-E6	357	125	500	72
DRSA300-E5-E6	357	125	500	72
DRSA350-E1-E4	357	125	500	72
DRSB0250-E1-E6	345	169	125	52
DRSB0300-E1-E6	400	169	500	72
DRSB0350-E1-E6	400	169	500	72
DRSB0400-E1-E6	400	169	500	72
DRSC0250-E3-E4	380	161	125	52
DRSC0300-E1-E4	435	161	500	72
DRSC0350-E1-E4	435	161	500	72
DRSC0400-E1-E4	435	161	500	72
DRSC0500-E1-E4	435	161	500	119

MODEL	B1	D	ØD1	E1
DRSD0300-E4	460	213	500	72
DRSD0350-E3-E4	460	213	500	72
DRSD0400-E1-E4	460	213	500	72
DRSD0500-E1-E4	500	213	650	119
DRSD0600-E1-E4	500	213	650	119
DRSD0700-E1-E3	500	213	650	119
DRSE0500-E3-E4	552	237	650	119
DRSE0600-E1-E4	552	237	650	119
DRSE0700-E1-E4	552	237	650	119
DRSG0600-E3-E4	623	270	650	119
DRSG0700-E1-E4	623	270	650	119
DRSG0700-2-E1-E3	623	270	650	119
DRSH0600-E3	730	350	650	119
DRSH0700-E1-E3	730	350	650	119

MATERIAL OF CONSTRUCTION

DOUBLE ACTING



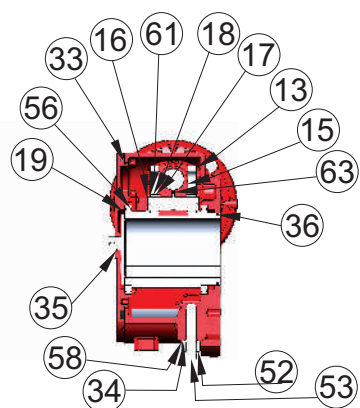
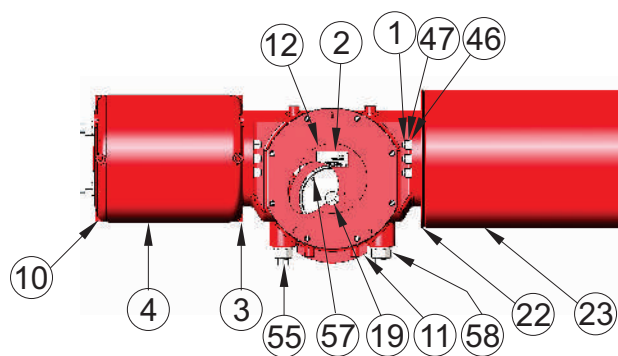
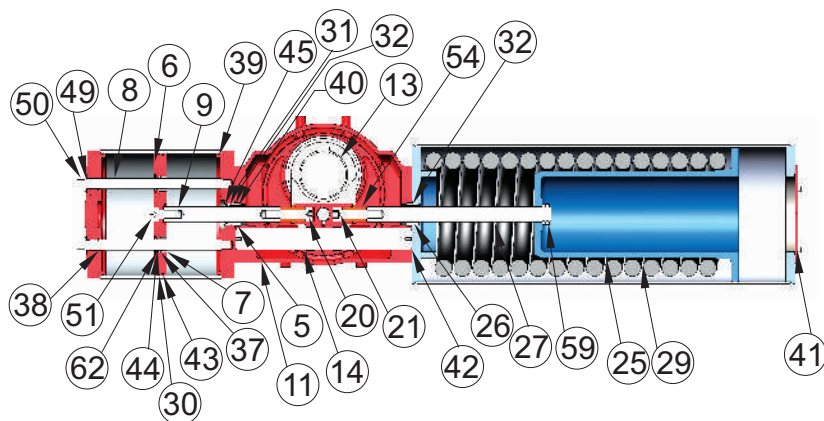
MATERIAL OF CONSTRUCTION
DOUBLE ACTING

Sr. No.	DESCRIPTION	QTY.	MATERIAL
1	STUD BOLT	12	ALLOY STEEL
2	NAME PLATE	1	STAINLESS STEEL
3	CYL COVER FRONT END	1	DUCTILE IRON
4	CYLINDER	1	CARBON STEEL
5	BEARING BUSH	1	PHOSPHOR BRONZE + CARBON STEEL
6	PISTON	1	DUCTILE IRON
7	GUIDE BUSHING	2	PHOSPHOR BRONZE + CARBON STEEL
8	TIE ROD	2	STAINLESS STEEL
9	PISTON ROD	1	STAINLESS STEEL
10	CYL COVER REAR END	1	DUCTILE IRON
11	CENTRAL BLOCK	1	DUCTILE IRON
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL/ CARBON STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	BEARING STEEL
18	WASHER	2	MILD STEEL
19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT DRSE PNEUMATIC SIDE	1	ALLOY STEEL
21	REAR CAP	1	DUCTILE IRON
22	PISTON STRIP	1	CFT
23	LIP SEAL	1	NBR
24	O-RING	2	NBR

Sr. No.	DESCRIPTION	QTY.	MATERIAL
25	O-RING	1	NBR
26	O-RING	2	NBR
27	O-RING	1	NBR
28	O-RING	1	NBR
29	O-RING	2	NBR
30	O-RING	2	NBR
31	O-RING	2	NBR
32	O-RING	1	NBR
33	O-RING	2	NBR
34	QUAD SEAL	1	NBR
35	QUAD SEAL	2	NBR
36	EXTERNAL CIRCLIP	1	DIN 471
37	SPRING WASHER	12	DIN 128
38	HEX NUT	12	DIN 934 CLASS-12
39	SPRING WASHER	2	DIN 128
40	HEX NUT	2	DIN 934 CLASS- 12
41	HEX SOC HEAD CAP SCREW	1	DIN912 CLASS- 12.9
42	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
43	HEX NUT	2	DIN 934 CLASS- 12
44	CONNECTING NUT DRSE	1	ALLOY STEEL
45	HEX SOC HEAD CAP SCREW	8	DIN912 CLASS- 8.8
46	RADIAL BALL BEARING	2	-
47	HEX SOC HEAD CAP SCREW	4	DIN912 CLASS- 8.8
48	WASHER	2	CARBON STEEL
49	EXTERNAL CIRCLIP	2	DIN 471
50	EXTERNAL CIRCLIP	2	DIN 471
51	HEX SOC. HEAD. SET SCREW	1	DIN913 CLASS- 8.8

MATERIAL OF CONSTRUCTION

SPRING RETURN



MATERIAL OF CONSTRUCTION
SPRING RETURN

Sr. No.	DESCRIPTION	QTY.	MATERIAL
1	STUD BOLT	12	ALLOY STEEL
2	NAME PLATE	1	STAINLESS STEEL
3	CYL COVER FRONT END	1	DUCTILE IRON
4	CYLINDER	1	CARBON STEEL/ CHROME PLATED
5	BEARING BUSH	1	PHOSPHOR BRONZE + CARBON STEEL
6	PISTON	1	DUCTILE IRON
7	GUIDE BUSHING	2	PHOSPHOR BRONZE + CARBON STEEL
8	TIE ROD	2	STAINLESS STEEL
9	PISTON ROD	1	STAINLESS STEEL
10	CYL COVER REAR END	1	DUCTILE IRON
11	CENTRAL BLOCK	1	DUCTILE IRON
12	CENTRAL BLOCK COVER	1	DUCTILE IRON
13	YOKE	1	DUCTILE IRON
14	GUIDE ROD	1	STAINLESS STEEL/ CARBON STEEL
15	CARRIER	1	DUCTILE IRON
16	YOKE PIN	1	ALLOY STEEL
17	ROLLER FOR YOKE PIN	2	BEARING STEEL
18	WASHER	2	MILD STEEL
19	YOKE INSERT	1	DUCTILE IRON
20	CONNECTING BOLT DRSE PNEUMATIC SIDE	1	ALLOY STEEL
21	CONNECTING BOLT DRSE SPRING SIDE	1	ALLOY STEEL
22	SPRING COVER FRONT END	1	CARBON STEEL
23	E TUBE	1	CARBON STEEL
24	SPRING COVER REAR END	1	CARBON STEEL
25	SPRING RETAINER	1	DUCTILE IRON
26	BEARING BUSH	1	PHOSPHOR BRONZE + CARBON STEEL
27	CONNECTING ROD	1	STAINLESS STEEL
28	E COVER REAR CAP	1	CARBON STEEL

Sr. No.	DESCRIPTION	QTY.	MATERIAL
29	SPRING	1	ALLOY STEEL
30	PISTON STRIP	1	CFT
31	LIP SEAL	1	NBR
32	O-RING	2	NBR
33	O-RING	1	NBR
34	O-RING	2	NBR
35	O-RING	1	NBR
36	O-RING	1	NBR
37	O-RING	2	NBR
38	O-RING	2	NBR
39	O-RING	2	NBR
40	O-RING	1	NBR
41	O-RING	1	NBR
42	O-RING	2	NBR
43	QUAD SEAL	1	NBR
44	QUAD SEAL	2	NBR
45	EXTERNAL CIRCLIP	1	DIN 471
46	SPRING WASHER	12	DIN 128
47	HEX NUT	12	DIN 934 CLASS-12
48	REVIT	4	-
49	SPRING WASHER	2	DIN 128
50	HEX NUT	2	DIN 934 CLASS- 12
51	HEX SOC HEAD CAP SCREW	1	DIN912 CLASS- 12.9
52	STROKE ADJUSTMENT SCREW	2	CARBON STEEL
53	HEX NUT	2	DIN 934 CLASS- 12
54	CONNECTING NUT DRSE	2	ALLOY STEEL
55	HEX SOC HEAD CAP SCREW	8	DIN912 CLASS- 8.8
56	RADIAL BALL BEARING	2	-
57	HEX SOC HEAD CAP SCREW	4	DIN912 CLASS- 8.8
58	WASHER	2	CARBON STEEL
59	ROUND NUT SLOTET	2	ALLOY STEEL
60	HEX SOC HEAD CAP SCREW	4	DIN912 CLASS- 8.8
61	EXTERNAL CIRCLIP	2	DIN 471
62	EXTERNAL CIRCLIP	2	DIN 471
63	HEX SOC. HEAD. SET SCREW	1	DIN913 CLASS- 8.8



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