

T-SERIES(TD-type,TS-type) ACTUATOR

DOUBLE ACTING MODEL

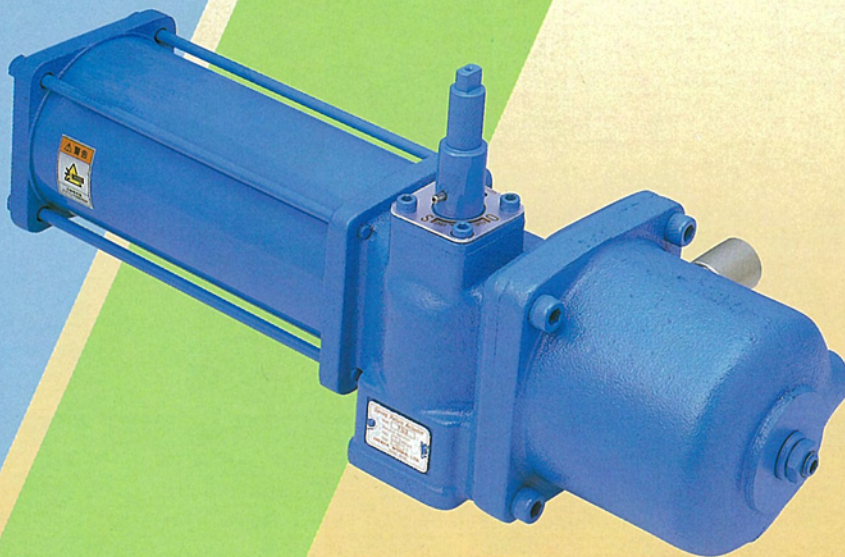
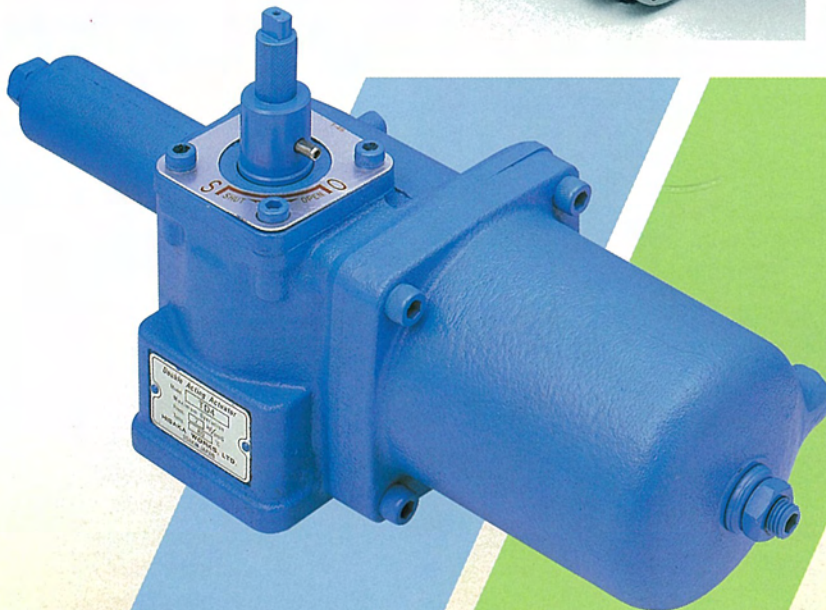
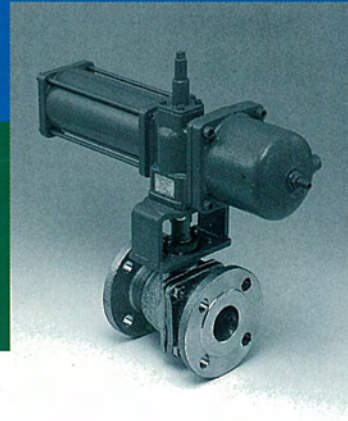
TD1,TD2,TD3,TD4,TD5

TD6,TD7,TD8,TD9

SINGLE ACTING MODEL

TS1,TS2,TS3,TS4,TS5

TS6,TS7,TS8



HISAKA BALL VALVES

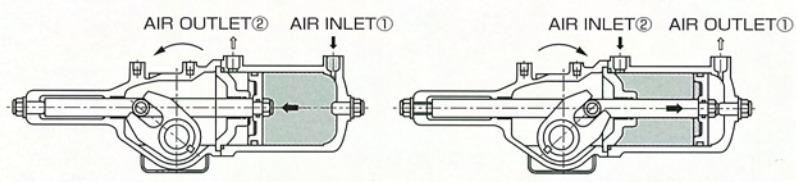
T-series Actuator (TD and TS Type) is a rigid and high efficiency actuator with 90-deg. rotation mechanism, specially developed and designed so as to actuate ball valves.

Operating principle: Piston linear stroke is converted to rotary torque via a scotch yoke, which is then output to a ball valve to be actuated

Specification	
Fluid used	Air
Maximum operating Pressure	0.69MPa(7kg/cm ² G)
Permissible Environment Temp	-20°C~+80°C
Lubrication Oil	No need
Guaranteed operation cycles	100,000 cycles
Rotation Angle	90deg

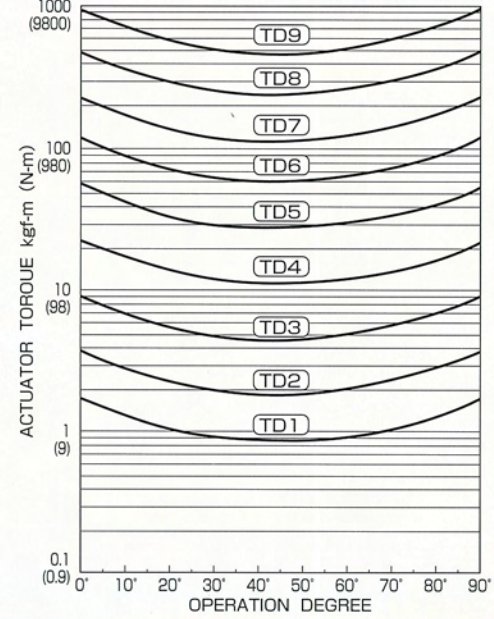
TD TYPE DOUBLE ACTING ACTUATOR

<ACTUATOR VOLUME, WEIGHT and VALVE SIZE>

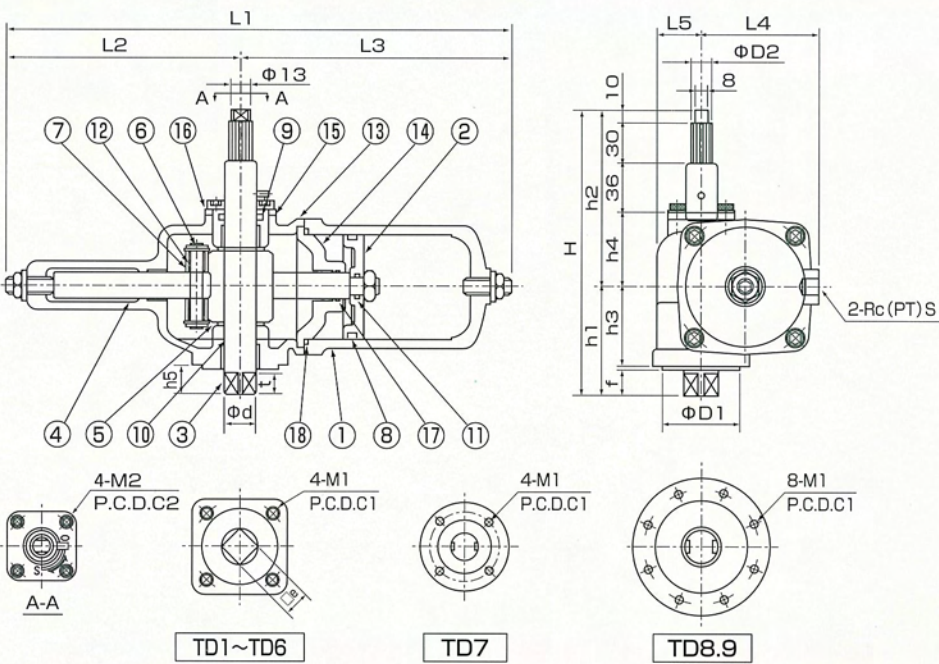


MODEL	VOLUME(1 CYCLE)(cm ³)	WEIGHT(kg)	VALVE SIZE
TD1	160	2.5	15A ~ 25A
TD2	320	4	32A 40A
TD3	770	8	50A 65A
TD4	1,920	16.5	80A 100A
TD5	4,900	34	125A 150A
TD6	9,800	70	200A
TD7	19,500	145	250A 300A
TD8	41,500	255	300A~450A
TD9	81,000	480	500A 600A

<ACTUATOR TORQUE DATA> (at 0.39MPa(4kg f/cm²G))



<DIMENSION AND MAIN PARTS MATERIAL>



NAME	MATERIAL
1	CYLINDER FCD450
2	PISTON FCD450
3	DRIVE SHAFT SCM435
4	PISTON ROD SCM435
5	SCOTCH YOKE FCD450
6	WRIST PIN SCM435
7	ROLLER SCM435
8	O-RING A NBR
9	O-RING B NBR
10	O-RING C NBR
11	O-RING D NBR
12	BEARING CARBON DRY
13	BODY FC200
14	ROD GUIDE FC200
15	BODY COVER FC200
16	INDICATOR PLATE ALUMINUM
17	O-RING E NBR
18	O-RING F NBR

MODEL	L1	L2	L3	L4	L5	H	h1	h2	h3	h4	h5	φD1	f	φd	t	S	M1	C1	M2	C2	□e	φD2
TD1	219	99	120	60	25	176	57	119	41	43	16	35	2	14	12	Rc1/4	M6	50	M6	50	11	13.5
TD2	285	134	151	70	25	184	61	123	45	47	16	35	2	18	12	Rc1/4	M6	50	M6	50	14	13.5
TD3	371	171	200	87	35	211	79	132	58	56	21	55	3	24	16	Rc1/4	M8	70	M6	50	19	17.5
TD4	481	224	257	112	48	249	98	151	73	75	25	70	3	32	20	Rc1/4	M10	102	M8	80	24	17.5
TD5	587	272	315	152	57	314	135	179	98	103	37	85	3	43	32	Rc3/8	M12	125	M8	80	32	17.5
TD6	710	338	372	188	81	374	172	202	121	126	51	130	3	59	46	Rc3/8	M20	165	M8	110	46	17.5
TD7	904	426	478	225	78	443	219	224	149	148	70	130	5	-	-	Rc3/4	M20	165	M12	125	-	17.5
TD8	1204	571	633	306	97	513	280	233	195	157	85	200	5	-	-	Rc3/4	M16	254	M12	140	-	17.5
TD9	1420	667	753	375	125	640	351	289	250	198	101	230	5	-	-	Rc3/4	M20	298	M16	170	-	17.5

<FEATURES>

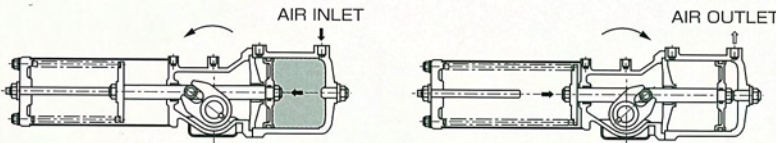
- 1. Smooth acting**
The use of cylinder with fluorine resin coated inner face and carbon dry bearing minimizes wear resistance, and the wear-resistance treated (Tufftride-treated) sliding parts ensure efficient, smooth and stable actuating throughout a long term.
- 2. Weather proof structure suited to outdoor application**
Weather proof structure tight-sealed with liquid packing and O-ring so as to shut out invasion of rainwater etc.
- 3. Non-lubrication type**
No lubricator needed.
- 4. Output characteristic suited to ball valves**
U-shaped output characteristic which enables maximum output torque at starting and ending. This is efficient output torque which nearly matches the torque

- characteristic required for ball valve. Operating pressure is 0.39MPa (4kg/cm²G) as standard, but available up to 0.69MPa (7kg/cm²G) maximum.
- 5. Actuator mount conforming to ISO5211**
The actuator mount is designed for the dimension conforming to ISO5211.
- 6. Other instrument easy to mount**
Functionally designed so as to allow easy mounting of solenoid valve and limit switch.
- 7. Position indicator**
Any actuator type is provided with a position indicator as standard accessory which enables to check open-close of 2-way valve and flow directional position 3-way valve.

* In addition to standard TD and TS types, lightweight and compact A-series actuator and two-stage type TDT and TST actuators are offered, too.

TS TYPE SINGLE ACTING ACTUATOR

<ACTUATOR VOLUME, WEIGHT and VALVE SIZE>



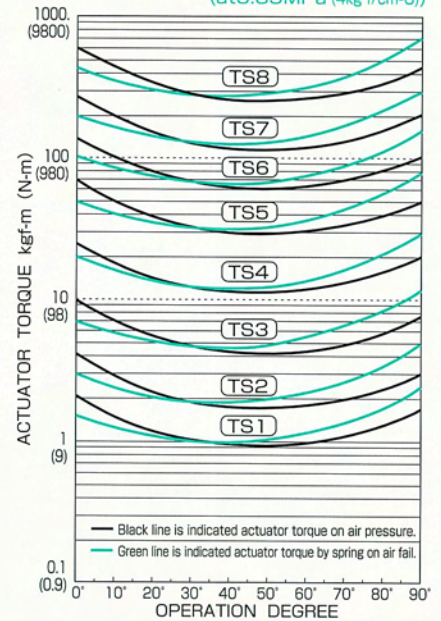
MODEL	VOLUME(1 CYCLE) (cm ³)	WEIGHT (kg)	VALVE SIZE
TS1	180	4.5	15A ~ 25A
TS2	300	8	32A 40A
TS3	730	15.5	50A 65A
TS4	1,950	36.5	80A 100A
TS5	5,100	82	125A 150A
TS6	10,600	180	200A
TS7	23,000	370	250A 300A
TS8	49,000	690	300A~400A



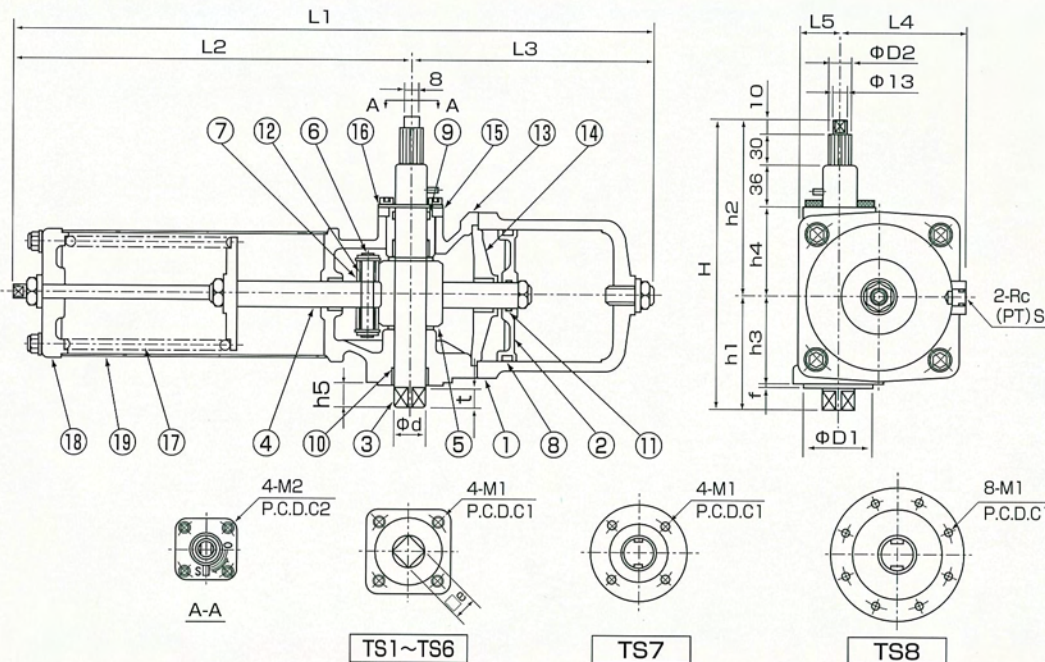
WARNING

TS type actuator contains therein a strong spring as compressed. Overhauling the actuator could result in hazard of jump-out of this spring. Therefore, exercise special care when removing the spring case.

<ACTUATOR TORQUE DATA> (at 0.39MPa (4kg f/cm²G))



<DIMENSION AND MAIN PARTS MATERIAL>



	NAME	MATERIAL
1	CYLINDER	FCD450
2	PISTON	FCD450
3	DRIVE SHAFT	SCM435
4	PISTON ROD	SCM435
5	SCOTCH YOKE	FCD450
6	WRIST PIN	SCM435
7	ROLLER	SCM435
8	O-RING A	NBR
9	O-RING B	NBR
10	O-RING C	NBR
11	O-RING D	NBR
12	BEARING	CARBON DRY
13	BODY	FC200
14	ROD GUIDE	FC200
15	BODY COVER	FC200
16	INDICATOR PLATE	ALUMINUM
17	ROAD SPRING	SWP-8 SUP9
18	SPRING CASE B	FC200
19	SPRING CASE A	STEEL PIPES

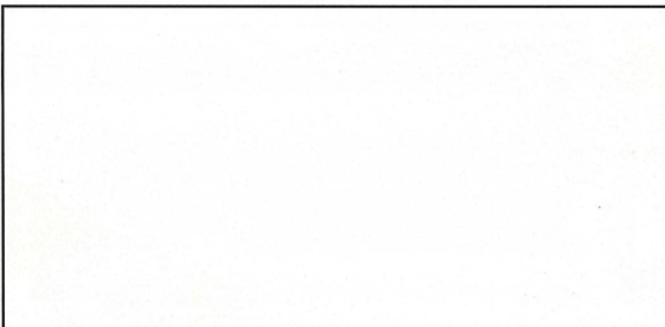
MODEL	L1	L2	L3	L4	L5	H	h1	h2	h3	h4	h5	φD1	f	φd	t	S	M1	C1	M2	C2	□e	φD2
TS1	326	204	122	71	27	189	62	127	46	51	16	35	2	14	12	Rc1/4	M6	50	M6	50	11	13.5
TS2	385	231	154	82	25	201	68	133	52	57	16	35	2	18	12	Rc1/4	M6	50	M6	50	14	13.5
TS3	517	320	197	102	33	237	91	146	70	70	21	55	3	24	16	Rc1/4	M8	70	M6	50	19	17.5
TS4	701	436	265	135	48	292	118	174	93	98	25	70	3	32	20	Rc1/4	M10	102	M8	80	24	17.5
TS5	896	567	329	184	67	368	162	206	125	130	37	85	3	43	32	Rc3/8	M12	125	M8	80	32	17.5
TS6	1050	657	393	233	97	462	216	246	165	170	51	130	3	59	46	Rc3/8	M20	165	M8	110	46	17.5
TS7	1377	862	515	304	144	435	211	224	141	148	59	130	5	-	-	Rc3/4	M20	165	M12	125	-	17.5
TS8	1907	1203	704	390	160	467	234	233	149	157	85	200	5	-	-	Rc3/4	M16	254	M12	140	-	17.5

Single acting actuator with side handle (TSH Type) is offered, too.

FOR PROPER USE OF HISAKA BALL VALVE

Following points must be considered in order to use HISAKA ball valves in a proper way.

1. Do not allow the slurry (dirts in the pipe, welding slag, rust, etc.) to enter into the standard valve. If the slurry thrust into the ball seat or causes damage on it, the leakage or defective function may result.
Install the valve only after the through cleaning is made inside the pipe.
If the liquid containing the slurry is to be supplied, exchange the standard valve with the valve for slurry use.
2. Do not use the standard valve to the liquid which shows a large temperature fluctuation. If the high temperature liquid is supplied to the low temperature condition, the liquid inside the valve body shows the heat expansion, forming the high pressure. In such a case, the leakage or defective function may be caused.
Either reduce the temperature fluctuation or exchange with the valve having the relief port in the above case.
3. Do not apply undue force (as caused by one-side tightening of bolts, the tightening against a large gap, etc.) or vibration to the valve. Otherwise, the leakage or faulty function may happen. Observe the piping dimensions as instructed and arrange the support for a heavy valve.
4. Bolts and nuts are loosened in some cases due to the vibration during the transport. Therefore, check the tightening condition before use. If found Loose, retighten the bolts.
5. Special treatment is necessary, if the valve is used for oxygen or hydrogen service. Please clarify the detail of operation condition and fluid.
6. The flow direction of fluid is designated in certain valves. The reverse flow may cause the leakage. Install the valves as instruction, if the flow direction is designated.
7. At the time of disassembling the automatic valve, do not disassemble the pneumatic cylinder if the pressure still remains inside. Otherwise, the parts pop out. disassemble it only after the air is purged.
8. Do not disassemble the pneumatic cylinder of spring back type.
If it is to be disassembled under unavoidable circumstances, exchange the end cap set bolt with the long bolt before disassembling. Otherwise, the spring may jump out what is dangerous.
9. Make the working test once a month or so, automatic valve is kept out of operation over a long period.
10. In case of using the teflon seat valve only for ON-OFF operation, the interim opening position deforms the seat and the leakage is caused.
11. If you have any question or requirement about our product, please contact us or our local sales agent.



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