



CHEMSUN PT - Quarter-Turn Actuator Type PTS AND PTD

Application:

Single- or double-acting piston actuator for control and shut-off valves with rotating flow restrictors, especially with high process demand in chemical plants:

- quarter turn 90°
- air supply to 8 bar
- temperatures -20°C to 80°C

The pneumatic quarter-turn actuators type PTS and PTD are piston actuators for control or OPEN / CLOSED operation.

The actuators distinguish themselves by:

- externally adjustable end stops ($\pm 4^\circ$),
- square position diagonal (Europ. Standard) or parallel,
- freely-adjustable position indicator (in 45° steps),
- assembly and modification without special tools,
- encapsulated spring assembly,
- transmission through involute gearing,
- direction of rotation reversible **without** additional components,
- proven surface refinement by means of Kesternich and salt spray test,
- connection of additional equipment according to VDI/VDE 3845,
- attachments according to DIN/ISO 5211,

Versions:

- **Type PTS**
Pneumatic quarter-turn actuator, single-acting with spring-return mechanism in the sizes 050 to 500
- **Type PTD**
Pneumatic quarter-turn actuator, double-acting without spring-return mechanism in the sizes 050 to 500

Special designs:

- with emergency manual actuation
- for continuous operation at temperatures from -20° to 150°C through use of Viton O-rings
- for continuous operation at temperatures from -40° to 80°C with silicon seals
- actuators with extended turning range 120° and 180°
- dosage actuator with adjustable central position
- 3-position actuator
- actuator with hydraulic adjustment of rotating speed
- stainless steel AT quarter-turn actuator



Fig. 1- ChemValve-Schmid Quarter Turn Actuator, Type PTS115



Fig. 2- ChemValve-Schmid PT Quarter Turn Actuator, Type PTS300

Additional equipment and add-on pieces:

For the actuators, the following accessories are available either individually or in combination:

- positioner
- limit switch
- solenoid valves
- air supply stations
- pressure gauge set
- throttling device

Further accessories are available on request for customer specifications. Details on request.

Principle of operation:

The regulating pressure p_{st} generates a force at the piston surface which, in the single-acting version, can be compensated by the springs arranged in the actuator, and in the double-acting version, by an appropriate back pressure. The force generated at the pistons is converted into rotation by means of the pinion shaft. Adjustable end stops for OPEN and CLOSED operation permit a fine setting of the end positions by $\pm 4^\circ$.

In the case of the single-acting version, the number of springs determines the spring return torque and the required air supply pressure.

Safety position:

For the actuator type PTS two different directions of rotation are possible, becoming effective by release pressure on the pistons or in the case of air supply failure. The viewing direction is from the actuator to the valve.

Springs rotating to the right

In case of pressure loss, rotation to the right.

Springs rotating to the left

In case of pressure loss, rotation to the left.

The actuator type PTD is designed without springs. A defined final position is not achieved in the case of air supply failure.

General technical data:

Operation	single-acting	double-acting
max. perm. air supply pressure	8 bar	
sizes	050 • 063 • 075 • 088 • 100 115 • 125 • 145 • 160 • 180 200 • 240 • 265 • 300 • 500	
perm. temperature range	continuous operation -20°C to 80°C	
connection to valve	DIN / ISO 5211	
connection for positioner or signal equipment	Type 050 to 100	VDI / VDE 3845, size 1
	Type 115 to 160	VDI / VDE 3845, size 2
	Type 180 to 300	VDI / VDE 3845, size 4
	Type 500	VDI / VDE 3845, size 5
connection for solenoid valve	VDI / VDE 3845	

Table 1 – Technical Data

Materials:

body	AlMgSi0,5 F25
cap	GD - AISi8 .5 Cu3.5 Fe
shaft	ASTM A105
spring-cartridge	ASTM A401
pistons	GD - AISi8 .5 Cu3.5 Fe

Table 2 - Materials (WN = Material code)

Air drive torque:

Fig. 3 shows the available air drive torque

- M_{dLE} for the single-acting version
 - M_{dLD} for the double-acting version
- and the available spring drive moment M_{dF} in relation to the angle of rotation.

The course of the operating torque is valid for the correct combination of the respective air supply pressure with the wright number of springs (values in the data sheet underlined and printed bold).

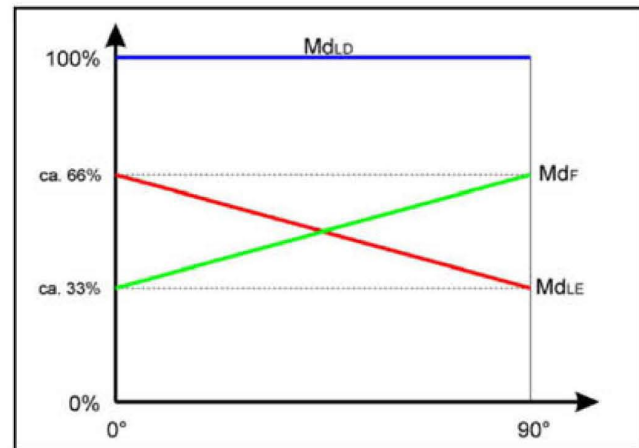


Fig. 3 – Course of operating torque at recommended air inlet pressure

Operating torques:

The operating torques for double- and single-acting actuators are available in the data sheet.

Interesting innovations in this generation of actuators:

The quarter-turn actuators are characterized by a number of technical improvements and interesting innovations, and were developed with an eye on the latest amendments to the ISO 5211.

Position of the end caps with security against faulty handling

The setting of the two end stops is effected at the external stop screws via a cam system (Fig. 4). In order to rule out any risk of injury when unscrewing the stop screws while under pressure, these screws are fitted with special air vent slots. Due to the clearly audible venting of the actuator before completion of unscrewing, the employee is sufficiently warned.

In order to provide visual proof of the adjustment of the screws, they are coated ex works with a sealing wax.



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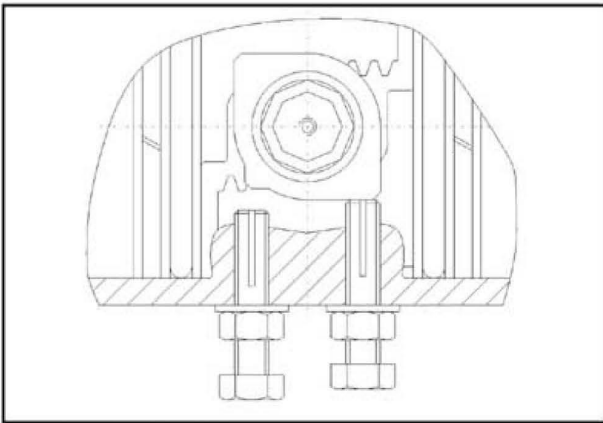


Fig. 4 – Positioning of the end stops

• **Setting of the square end**

A more flexible installation is achieved through the 45°-step setting of the square in the shaft drive.

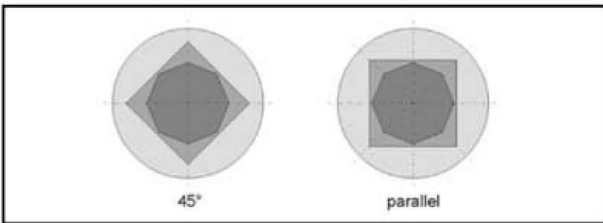


Fig. 5 – Setting of the square

The required settings can be achieved through a rotation of the shaft. In order to obtain the correct display of position, the seat of the position indicator (upper end of shaft) has been octagonally finished, therefore permitting the position indicator also to be mounted in 45°- steps.

• **Multifunctional position indicator**

The new position indicator may be employed for a 45° or 90° position (Fig. 6). An optical display is realized by means of inserts in the position indicator. These may be variably installed.

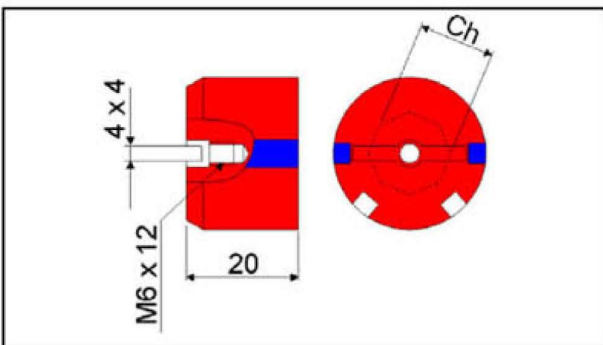


Fig. 6 – Position indicator

The position indicator has a VDI/VDE – interface. This permits practically all standard accessories to be mounted without difficulty.

• **Direct assembly**

By exchanging the standard inserts by metal inserts, the multifunctional position indicator can be quickly and simply prepared for the direct attachment of special limit switches.

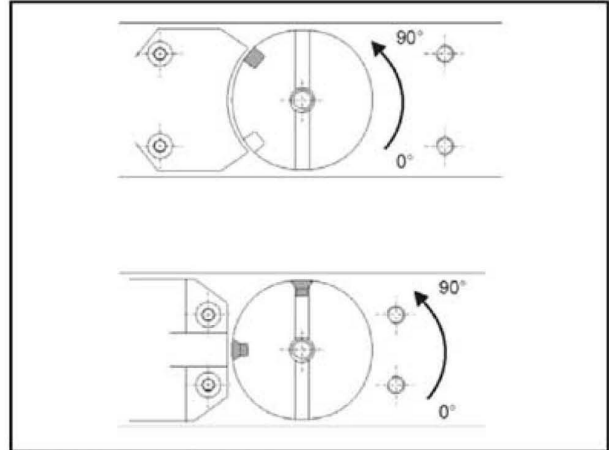


Fig. 7 – Multifunctional position indicator

• **Technical details**

The tooth profile and therefore the force transmission of the toothed rack - shaft principle were consequently optimised by employing involute gearing.

A further technical measure is the strengthening of the shaft diameter and bearing shells. This permits an even greater force absorption by the newly developed body.

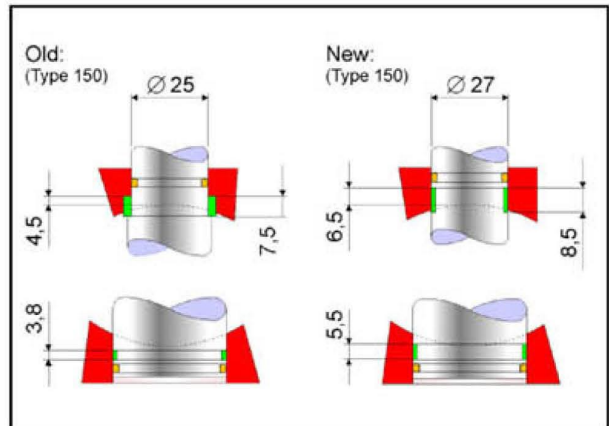


Fig. 8 - Bearing

Dimensions and weights

The dimensions and weights for the actuators type PTS and PTD are available in the data sheet.



CHEMSUN TypePTS/PTD
Size 050 - 500 PT-Quarter-Turn Actuator

Torques in Nm for double-acting Type PTD Actuators

Type PTD	2.5bar	3.0bar	3.5bar	4.0bar	4.5bar	5.0bar	5.5bar	6.0bar	7.0bar	8.0bar
PTD050	8.3	10.0	11.6	13.3	15.0	16.6	18.3	19.9	23.3	26.6
PTD063	14.7	17.6	20.5	23.5	26.4	29.3	32.2	35.2	41.0	46.9
PTD075	29.1	34.9	40.7	46.5	52.3	58.2	64.0	69.8	81.4	93.0
PTD088	45.7	54.9	64.0	73.2	82.3	91.5	101	110	128	146
PTD100	66.5	79.7	93.0	106	120	133	146	160	186	213
PTD115	107	129	150	172	193	215	236	258	301	344
PTD125	138	166	194	221	249	277	304	332	387	443
PTD145	217	261	304	348	391	434	478	521	608	695
PTD160	283	340	397	453	510	567	623	680	793	907
PTD180	383	459	536	612	689	765	842	918	1071	1224
PTD200	531	638	744	850	956	1063	1169	1275	1488	1700
PTD240	935	1122	1309	1496	1683	1870	2057	2244	2618	2992
PTD265	1347	1617	1886	2156	2425	2695	2964	3234	3772	4311

Torques in Nm for single-acting Type PTS Actuators

Type PTS	No of springs	Air torques in Nm																		Spring torques			
		2.5bar		3.0bar		3.5bar		4.0bar		4.5bar		5.0bar		5.5bar		6.0bar		7.0bar				8.0bar	
		0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop			0° start	90° stop
PTS050	05	4.9	3.4	6.6	5.1	8.2	6.8	9.9	8.4	11.6	10.1	13.2	11.7									4.9	3.4
	06	4.2	2.5	5.9	4.1	7.6	5.8	9.2	7.4	10.9	9.1	12.5	10.8	14.2	12.4							5.8	4.1
	07			5.2	3.2	6.9	4.8	8.5	6.5	10.2	8.1	11.9	9.8	13.5	11.5	15.2	13.1					6.8	4.7
	08					6.2	3.8	7.9	5.5	9.5	7.2	11.2	8.8	12.8	10.5	14.5	12.1	17.8	15.5			7.8	5.4
	09							7.2	4.5	8.9	6.2	10.5	7.8	12.2	9.5	13.8	11.2	17.2	14.5	20.5	17.8	8.8	6.1
	10									8.2	5.2	9.8	6.9	11.5	8.5	13.2	10.2	16.5	13.5	19.8	16.8	9.7	6.8
	11											9.2	5.9	10.8	7.6	12.5	9.2	15.8	12.5	19.1	15.9	10.7	7.4
12													10.1	6.6	11.8	8.2	15.1	11.6	18.4	14.9	11.7	8.1	
PTS063	05	9.1	6.2	12	9.1	15	12	17.9	15	20.8	17.9	23.7	20.8									8.5	5.5
	06	8	4.5	10.9	7.4	13.8	10.3	16.8	13.3	19.7	16.2	22.6	19.1	25.6	22.1							10.2	6.7
	07			9.8	5.7	12.7	8.7	15.7	11.6	18.6	14.5	21.5	17.4	24.5	20.4	27.4	23.3					11.8	7.8
	08					11.6	7	14.6	9.9	17.5	12.8	20.4	15.8	23.3	18.7	26.3	21.6	32.1	27.5			13.5	8.9
	09							13.4	8.2	16.4	11.1	19.3	14.1	22.2	17	25.2	19.9	31	25.8	36.9	31.6	15.2	10
	10									15.3	9.4	18.2	12.4	21.1	15.3	24.1	18.2	29.9	24.1	35.8	29.9	16.9	11.1
	11											17.1	10.7	20	13.6	22.9	16.5	28.8	22.4	34.7	28.2	18.6	12.2
12													18.9	11.9	21.8	14.8	27.7	20.7	33.5	26.6	20.3	13.3	
PTS075	05	18	11.7	23.6	17.6	29.6	23.4	35.4	29.2	41.2	35	47.1	40.8									17.3	11.1
	06	15.8	8.3	21.6	14.1	27.4	19.9	33.2	25.7	39	31.5	44.8	37.3	50.7	43.2							20.8	13.3
	07			19.4	10.6	25.2	16.4	31	22.3	36.8	28.1	42.6	33.9	48.4	39.7	54.3	45.5					24.2	15.5
	08					23	13	28.8	18.8	34.6	24.6	40.4	30.4	46.2	36.2	52	42	63.7	53.7			27.7	17.7
	09							26.6	15.3	32.4	21.1	38.2	27	44	32.8	49.8	38.6	61.5	50.2	73.1	61.8	31.1	19.9
	10									30.2	17.7	36	23.5	41.8	29.3	47.6	35.1	59.2	46.7	70.9	58.4	34.6	22.1
	11											33.8	20	39.6	25.8	45.4	31.7	57	43.3	68.7	54.9	38.1	24.3
12													37.4	22.4	43.2	28.2	54.8	39.8	66.4	51.4	41.5	26.5	
PTS088	05	27.4	16.8	36.5	26	45.7	35.1	54.8	44.3	63.9	53.4	73.1	62.6									28.9	18.3
	06	23.7	11.1	32.8	20.2	42	29.3	51.1	38.5	60.3	47.6	69.4	56.8	78.6	65.9							34.7	22
	07			29.2	14.4	38.3	23.6	47.5	32.7	56.6	41.9	65.7	51	74.9	60.1	84	69.3					40.4	25.7
	08					34.6	17.8	43.8	26.9	52.9	36.1	62.1	45.2	71.2	54.4	80.4	63.5	98.6	81.8			46.2	29.4
	09							40.1	21.2	49.3	30.3	58.4	39.5	67.5	48.6	76.7	57.7	95	76	113	94.3	52	33
	10									45.6	24.5	54.7	33.7	63.9	42.8	73	52	91.3	70.2	110	88.5	57.8	36.7
	11											51.1	27.9	60.2	37	69.3	46.2	87.6	64.5	106	82.8	63.5	40.4
12													56.5	31.3	65.7	40.4	84	58.7	102	77	69.3	44	
PTS100	05	41.1	27	54.4	40.3	67.7	53.6	81	66.8	94.2	80.1	108	93.4									39.4	25.3
	06	36.1	19.1	49.3	32.4	62.6	45.7	75.9	58.9	89.2	72.2	103	85.5	116	98.8							47.3	30.4
	07			44.3	24.5	57.6	37.8	70.8	51.1	84.1	64.3	97.4	77.6	111	90.9	124	104					55.2	35.4
	08					52.5	29.9	65.8	43.2	79.1	56.5	92.3	69.7	106	83	119	96.3	146	123			63.1	40.5
	09							60.7	35.3	74	48.6	87.3	61.9	101	75.1	114	88.4	140	115	167	142	71	45.5
	10									68.9	40.7	82.2	54	95.5	67.3	109	80.5	135	107	162	134	78.8	50.6
	11											77.2	46.1	90.5	59.4	104	72.7	130	99	157	126	86.7	55.6
12													85.4	51.5	98.7	64.8	125	92	152	110	94.6	60.7	



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CHEMSUN TypePTS/PTD

Size 050 - 500 PT-Quarter-Turn Actuator

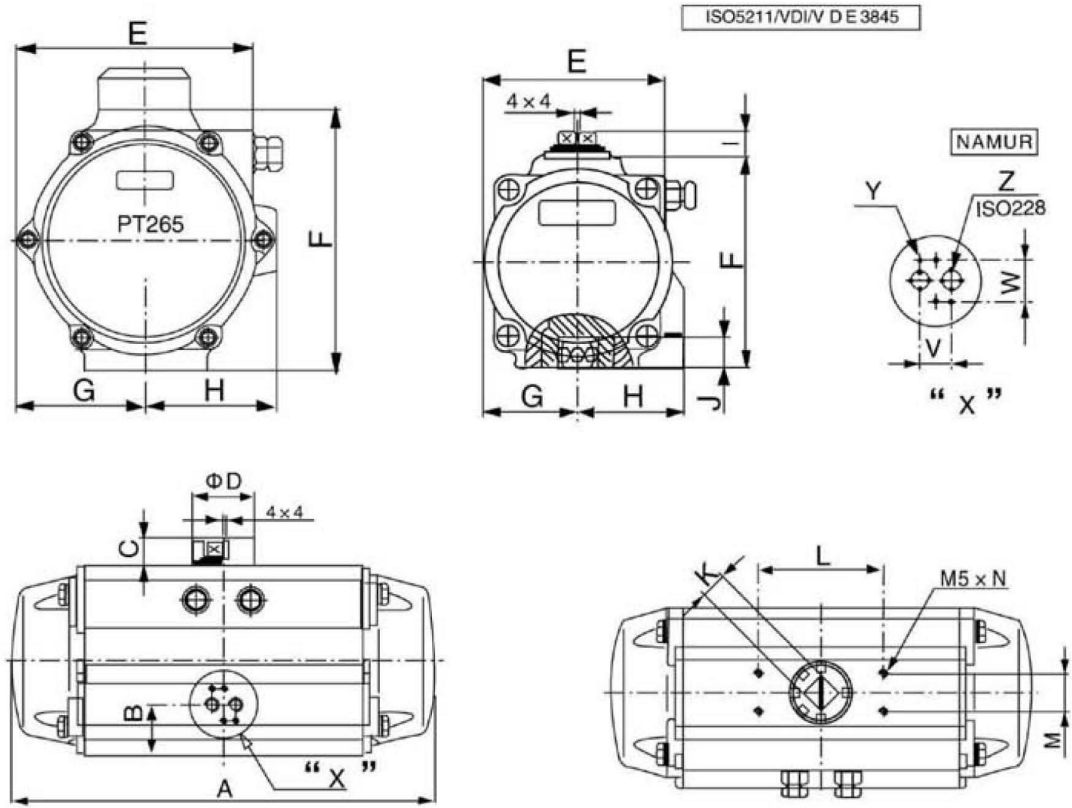
Torques in Nm for single-acting Type PTS Actuators

Type PTS	No of springs	Air torques in Nm																Spring torques						
		2.5bar		3.0bar		3.5bar		4.0bar		4.5bar		5.0bar		5.5bar		6.0bar		7.0bar		8.0bar		90° start	0° stop	
		0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop	0° start	90° stop					
PTS115	05	63.3	41.8	87.8	63.3	109	84.7	131	106	152	128	174	149									65.6	41	
	06	58.1	28.7	79.6	50.1	101	71.6	123	93.1	144	115	165	136	187	158							78.7	49.3	
	07			71.3	37	92.8	58.5	114	80	136	101	157	123	179	144	200	166					91.8	57.5	
	08					84.6	45.4	106	66.9	128	88.3	149	110	171	131	192	153	235	196				105	65.7
	09							97.9	53.8	119	75.2	141	96.7	162	118	184	140	227	183	270	226		118	74
	10									111	62.1	133	83.6	154	105	176	127	219	170	261	212		131	82
	11											124	70.5	146	92	167	113	210	156	253	199		144	90.3
12													138	78.8	159	100	202	143	245	186		157	98.5	
PTS125	05	85.9	55.9	114	84	141	111	169	139	197	167	224	194									82.5	52.5	
	06	75.4	39.4	103	67	131	95	158	122	186	150	214	178	241	205							98.9	62.9	
	07			92.6	50.6	120	78	148	106	176	134	203	161	231	189	259	217					115	73.4	
	08					110	62	137	89.4	165	117	193	145	221	173	248	200	304	256				132	83.9
	09							127	72.9	155	101	182	128	210	156	238	184	293	239	348	294		148	94.4
	10									144	84	172	112	200	140	227	167	283	223	338	278		165	105
	11											161	95.3	189	123	217	151	272	206	327	261		181	115
12													179	107	206	134	262	190	317	245		198	126	
PTS145	05	135	88.2	178	132	222	175	265	219	309	262	352	305									129	82.3	
	06	119	62.4	162	106	205	149	249	193	292	236	336	280	379	323							155	98.7	
	07			146	80.1	189	124	232	167	276	210	319	254	363	297	406	341					181	115	
	08					173	97.7	216	141	259	185	303	228	346	272	390	315	477	402				206	132
	09							200	115	243	159	286	202	330	246	373	289	460	376	547	463		232	148
	10									227	133	270	177	313	220	357	263	444	350	531	437		258	165
	11											254	151	297	194	340	238	427	324	514	411		284	181
12													280	168	324	212	411	299	498	386		310	197	
PTS160	05	171	117	228	174	285	231	341	187	398	344	455	401									166	112	
	06	149	84	206	141	262	197	319	254	376	311	432	367	489	424							199	135	
	07			183	108	240	164	296	221	353	278	410	334	466	391	523	448					233	157	
	08					217	131	274	188	331	244	387	301	444	358	501	414	614	528			266	179	
	09							252	154	308	211	365	268	422	324	478	381	592	494	705	608		299	202
	10									286	178	343	235	399	291	456	348	569	461	683	575		332	224
	11											320	201	377	258	433	315	547	428	660	541		365	247
12													354	225	411	281	524	395	638	508		399	269	
PTS180	05	225	146	301	222	378	299	454	375	531	452	607	528									237	158	
	06	193	98.3	270	175	346	251	423	328	499	404	576	481	652	577							284	190	
	07			238	127	315	204	391	280	468	357	544	433	621	510	697	586					332	221	
	08					283	157	359	233	436	310	512	386	589	463	665	539	818	692			379	253	
	09							328	186	404	262	481	339	557	415	634	492	787	645	940	798		426	284
	10									373	215	449	291	526	368	602	444	755	597	908	750		474	316
	11											418	244	494	320	571	397	724	550	877	703		521	347
12													463	273	539	350	692	503	845	656		569	379	
PTS200	05	319	216	425	323	532	429	638	535	744	641	850	748									315	212	
	06	277	153	383	260	489	366	595	472	702	578	808	685	914	791							378	255	
	07			340	197	447	303	553	409	659	515	765	622	872	728	978	834					441	297	
	08					404	240	510	346	617	452	723	559	829	665	935	771	1148	984			504	340	
	09							468	283	574	389	680	496	787	602	893	708	1105	921	1318	1133		567	382
	10									532	326	638	433	744	539	850	645	1063	858	1275	1070		630	425
	11											595	370	702	476	808	582	1020	795	1233	1007		693	467
12													659	413	766	519	978	732	1191	944		756	510	
PTS240	05	501	319	688	506	875	693	1062	880	1249	1067	1436	1254									616	434	
	06	414	196	601	383	788	570	975	757	1162	944	1349	1131	1536	1318							740	521	
	07			514	259	701	446	888	633	1075	820	1262	1007	1449	1194	1636	1381					863	608	
	08					614	323	801	510	988	697	1175	884	1362	1071	1549	1258	1923	1632			986	695	
	09							714	387	901	574	1088	761	1275	948	1463	1135	1837	1509	2211	1883		1109	782
	10									815	451	1002	638	1189	825	1376	1012	1750	1386	2124	1760		1233	869
	11											915	514	1102	701	1289	888	1663	1262	2037	1636		1356	955
12													1015	578	1202	765	1576	1139	1950	1513		1479	1042	
PTS265	05	780	656	1050	834	1319	1104	1589	1373	1858	1643	2128	1912									783	567	
	06	667	408	936	678	1206	947	1475	1217	1745	1486	2014	1756	2284	2025							939	680	
	07			823	521	1092	791	1362	1060	1631	1330	1901	1599	2170	1869	2440	2138					1096	794	
	08					979	634	1249	904	1518	1173	1787	1443	2057	1712	2326	1981	2865	2520			1252	907	
	09							1135	747	1405	1017	1674	1286	1943	1555	2213	1825	2752	2364	3291	2903		1409	1021
	10									1291	860	1561	1130	1830	1399	2100	1668	2638	2207	3177	2746		1565	1134
	11											1447	973	1717	1242	1986	1512	2525	2051	3064	2590		1722	1247
12													1603	1086	1873	1355	2412	1894	2951	2433		1878	1361	



CHEMSUN TypePTS/PTD
Size 050 - 500 PT-Quarter-Turn Actuator

Dimensions (mm) and weights (kgs) for ChemValve-Schmid Type PT Rotary Actuators



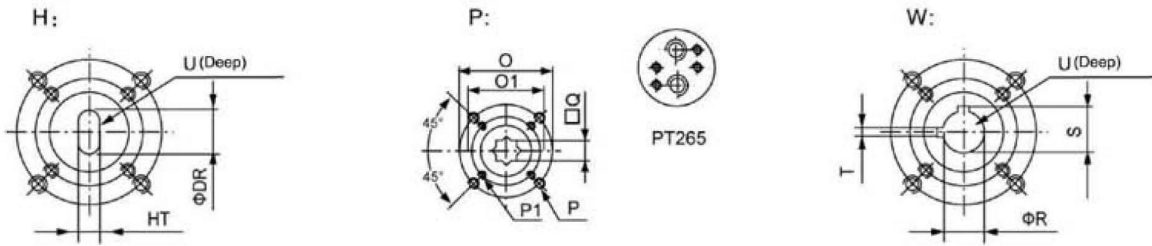
Type	050	063	075	088	100	115	125	145	160	180	200	240	265
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
ISO flange	F04	F05	F05-07	F05-07	F07-10	F07-10	F07-10	F10-12	F10-12	F12	F14	F16	F16
A	140.5	158.5	210.5	247.5	268.5	315	345	408.5	437.5	487	543	633	728
B	26.5	30	30.5	32.5	37.5	42.5	45	47.5	52	58.5	62.5	78.5	165
C	20	20	20	20	20	30	30	30	30	50	50	50	50
ΦD	40	40	40	40	40	56	56	65	65	80	80	115	115
E	59	72	84.5	97.5	111	127	136	156.5	169	190.5	213	251	298.5
F	69	85	102	115	127	145	157	177	196	220.5	245	298.5	330
G	29	36	42.5	49.5	56	64	69.5	80	88	99	110	131	163.5
H	41.5	47	52	56.8	67	77	82	91.5	99	105	112	131	166
I	14.5	14.5	14.5	14.5	14.5	24.5	24.5	24.5	24.5	44.5	44.5	44.5	44.5
Jmin	12	16	16	19	19	24	24	29	29	29	38	38	48
K	11	11	17	17	17	27	27	27	27	36	36	36	36
L	80	80	80	80	80	80	80	80	80	130	130	130	130
M	30	30	30	30	30	30	30	30	30	30	30	30	30
N	4	8	8	8	8	8	8	8	8	8	8	8	8
V	24	24	24	24	24	24	24	24	24	24	24	40	40
W	32	32	32	32	32	32	32	32	32	32	32	45	45
Y	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M5 x 8	M6 x 10	M6 x 10
Z	1/8"	1/8"	1/8"	1/8"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	1/4"	3/8"	1/2"



CE 0036

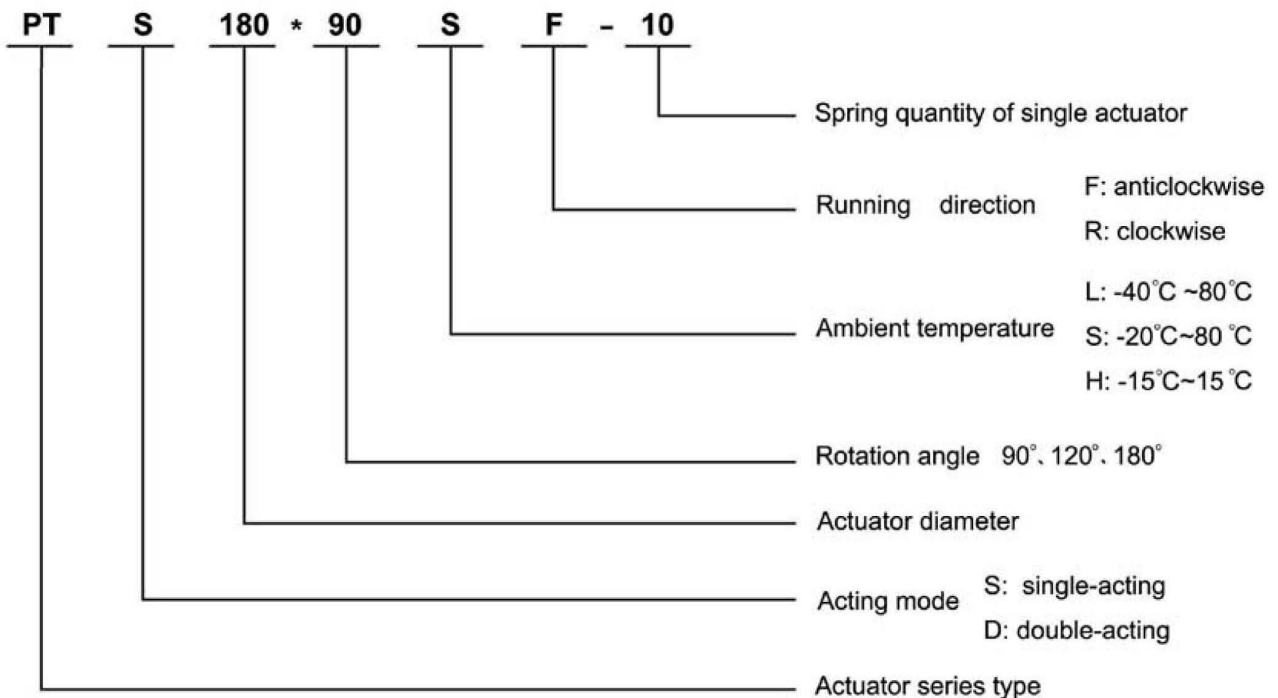
CHEMSUN TypePTS/PTD
Size 050 - 500 PT-Quarter-Turn Actuator

Dimensions (mm) and interfaces for attachment to valve and accessories



Type	050	063	075	088	100	115	125	145	160	180	200	240	265
	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT	PT
φR	12.7	12.7	12.7	15.88	19.05	22.23	22.23	28.58	28.58	31.75	31.75	33.34	38.1
S	14.2	14.2	14.2	18.4	21.6	24.8	24.8	32.1	32.1	35.3	35.3	37.4	42.4
T	3	3	5	5	5	5	5	8	8	8	8	10	10
U	32	32	32	32	32	45	45	45	45	45	45	51	51
φDR	13	13	13	16.1	19.2	22.4	22.4	28.8	28.8	32	32	33.6	38.4
HT	10	10	10	12	14	17	17	22	22	24	24	27	27
φO1	42	50	50	50	70	70	70	102	102	125	140	165	165
φO	---	---	70	70	102	102	102	125	125	---	---	---	---
P1	4-M6	4-M6	4-M6	4-M6	4-M8	4-M8	4-M8	4-M10	4-M10	4-M12	4-M16	4-M20	4-M20
P	---	---	4-M8	4-M8	4-M10	4-M10	4-M10	4-M12	4-M12	---	---	---	---
□Q	11	14	14	17	17	22	22	27	27	27	36	36	46

Coding





CHEMSUN TypePTS/PTD

Size 050 - 500 PT-Quarter-Turn Actuator

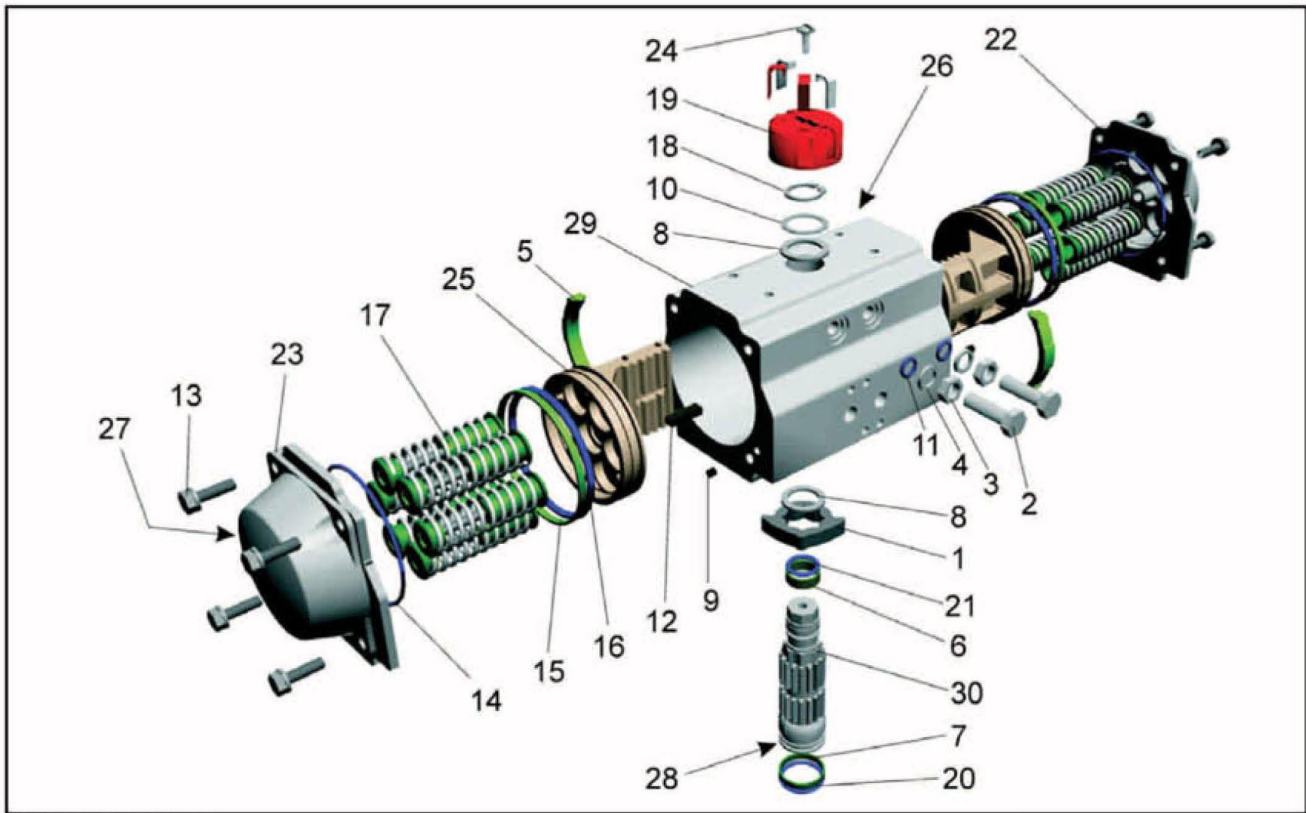


Fig. 9 – Cross-sectional drawing

Pos.	Description	Pos.	Description
1	Octi-cam (Stop arrangement)	16	O-ring
2	End stop screw	17	Spring cartridge
3	Nut	18	Spring clip
4	Washer	19	Position indicator
5	Bearing (Piston back)	20	O-ring
6	Bearing (Pinion top)	21	O-ring
7	Bearing (Pinion bottom)	22	Right end cap
8	Thrust bearing	23	Left end cap
9	Plug	24	Cap screw (Indicator)
10	Thrust washer	25	Pistons
11	O-ring	26	Identification label
12	Piston guide	27	Identification label (Cap)
13	Cap screw	28	Centering
14	O-ring	29	Body
15	Bearing (Piston head)	30	Shaft

Table 3 – Parts List

Required data for your order:

Actuator type: Type PTS or PTD
 Size: 050,063,075,088,100, 115,125,145,160,180, 200,240,265,300 or 500
 Number of springs: only for single-acting type PTS
 Safety position: springs left- or right-rotating (only for single-acting type PTS)
 Air supply: bar
 Operative range: number of springs or nominal signal range
 VDI/VDE bracket: for connection of positioner or signal equipment

