# -**DYN/1MO** (7E/7F/7G)

We have pursued top-level performance that carries on the excellence of the T-matic cylinder, our top-selling pneumatic actuator for butterfly valves. Employing an NAMUR mount, this unit is compact and lightweight, and offers high output and further heightened perfection as a complete system.



#### Features

- Direct valve installation with bottom ISO mounting.
- Completely direct mounting of valve installation section.
- NAMUR mount at pneumatic port connections and accessories interface.

		New T-DY	NAMO St	andard s	pecificati	ons							
		Double	e-acting typ	oe (7E)		Sin	gle-acting	type (7F / 7	7G)				
Type	T35	T85	T200	T380	T750	T85S	T200S	T380S	T750S				
Torque (N·m)(When supply pressure is 0.4MPa and rotation angle is 0°)													
Supply air pressure condition/temperature													
Air Supply Pressure	0.4 to 0.7MPa												
Body shell max (MPa)					1.05MPa								
Air connection (Rc)					Rc(PT)1/4								
Rotating angle					90°								
Ambient temperature				-10 1	o 60 degre	es C							
Travel time(sec) with speed controller	1 to 15 sec	2 to 15 sec	3 to 15 sec	7 to 20 sec	12 to 25 sec	2 to 15 sec	6 to 15 sec	8 to 20 sec	15 to 25 sec				

<sup>\*</sup>The opening and closing times are the times in the case of a single unit of a cylinder with a standard speed controller (SP-K017-Z03-006) and a solenoid valve (PCS2408-03-100MC) when the air supply pressure is 0.4MPa. The opening and closing times depend on pneumatic piping system, etc

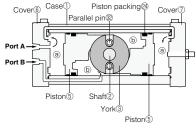
#### **New T-DYNAMO Principle of operation**

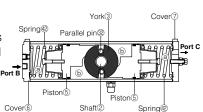
#### ■Double-acting type cylinder

- (1) The cylinder space which is enclosed by the case ① and the covers⑥ and ⑦ is divided into airtight chambers (a) and (b) by the pistons (5) and the piston packing (2).
- (2) The shaft ② penetrates the chamber ⑤ of the case. The yoke ③ is fitted in the hole across the shaft in such a way that it allows it to slide in the hole. The top of the yoke is connected with the parallel pins ② so it rotates in accordance with the movement of the pistons.
- (3) The compressed air enters chamber (a) through port A and pushes the pistons. The air in chamber (b) is exhausted through port B as the pistons move due to a pressure difference between the two chambers. Integrated with these pistons, the parallel pins @ also move and torque in the shaft is generated.

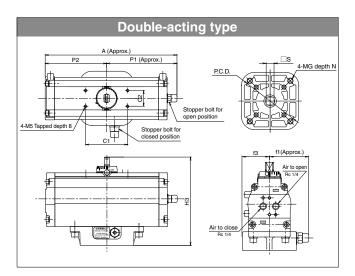
#### ■Single-acting type cylinder

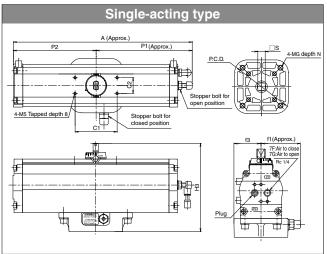
- (1) The cylinder space which is enclosed by the case ① and the covers⑥ and ⑦ is divided into airtight chambers @ and @ by the pistons ⑤ and the piston packing @.
- (2) The shaft ② penetrates the chamber ⑤ of the case. The yoke ③ is fitted in the hole across the shaft in such a way that it allows it to slide in the hole. The top of the yoke is connected with the parallel pins ② so it rotates in accordance with the movement of the pistons.
- (3) The compressed air enters chamber (b) through port B and pushes the pistons. The air in chamber ⓐ is exhausted through port C as the pistons ⓑ move and the spring @ is squeezed due to a pressure difference between the two chambers. Integrated with these pistons (5), the parallel pins (2) also move and torque in the shaft is generated.
- (4) When air supply to Port B is stopped, the pistons are pushed back due to the force of the spring @ and torque in the shaft is generated.





# New T-DYNAMO Dimensions





# **New T-DYNAMO Dimension list**

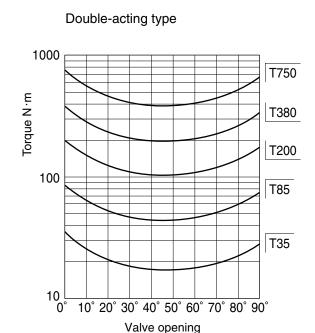
Culir	nder type				[	Dimer	sion	(mm)					Cylinder capacity	Approx. Mass
Cylli	idei type	Α	P1	P2	НЗ	C1	C2	f1	f3	S	MG	Ν	(litter/st)	(kg)
T35	P.C.D.70	202.5	112	90.5	125	80	30	57	35	12	M8	13	0.2	1.7
T85	P.C.D.70	251	134	117	168	80	30	75	51	14	M8	17	0.5	4.6
100	P.C.D.102	201	134	117	100	00	30	75	31	14	M10	20	0.5	4.0
T200	P.C.D.70	320.5	170	150.5	203	80	30	79	51	18	M8	15	1.1	7.9
1200	P.C.D.102	320.3	170	130.3	200	00	30	19	31	10	M10	20	1.1	1.5
	P.C.D.70										M8	15		
T380	P.C.D.102	397.5	208.5	189	231	80	30	91	62.5	24	M10	18.5	2.1	14
	P.C.D.125										M12	20		
	P.C.D.102										M10	18.5		
T750	P.C.D.125	520.5	276	244.5	269	80	30	118	70	24	M12	23	4.6	24
	P.C.D.140										M16	28		

# **New T-DYNAMO Dimension list**

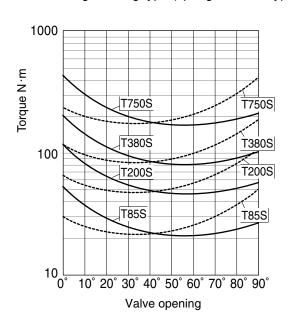
Culin	nder type				[	Dimer	sion	(mm)					Cylinder	
Cylli	idei type	Α	P1	P2	НЗ	C1	C2	f1	f3	S	MG	Ν	capacity (litter/st)	Mass (kg)
T85S	P.C.D.70	338.5	181	157.5	168	80	30	75	51	14	M8	17	0.5	6.2
1000	P.C.D.102	330.5	101	137.3	100	00	30	13	31	14	M10	20	0.5	0.2
T200S	P.C.D.70	423.5	223	200.5	203	80	30	79	51	18	M8	15	4.4	10.7
12005	P.C.D.102	423.5	223	200.5	203	80	30	/9	31	10	M10	20	1.1	10.7
	P.C.D.70										M8	15		
T380S	P.C.D.102	524.5	273.5	251	231	80	30	91	62.5	24	M10	18.5	2.1	18.9
	P.C.D.125	]									M12	20		
	P.C.D.102										M10	18.5		
T750S	P.C.D.125	697.5	363	334.5	269	80	30	118	70	24	M12	23	4.6	32.4
	P.C.D.140										M16	28		



#### **New T-DYNAMO Output torque curves**



### Single-acting type (spring returned type)



- $\ensuremath{\bigcirc}$  The table shows the torque at an operating air pressure of 0.4 MPa.
- ② Output torque for an operating air pressure of P MPa is given by := P x (torque value obtained from the table)/0.4. (Only double-acting type cylinder)
- ③ In the case of single-acting type cylinders, the spring force does not change even if the operating air pressure is changed. Thus the torque indicated by the dotted lines is constant regardless of the operating air pressure.
- ④ In the case of single-acting type cylinders, the output torque value at open→close is different from that at close→open. The continuous lines and dotted lines indicate the torques respectively.

	7G (Open with pressure)	7F (Close with pressure)
Continuous line	Torque at close →open with air pressure	Torque at close →open with spring
Dotted line	Torque at open →close with spring	Torque at open →close with air pressure

⑤ A valve for the single-acting type cylinder should be selected referring to the torque indicated with a dotted line.

#### **New T-DYNAMO Output torque**

### **Double-acting type**

 $(N \cdot m)$ 

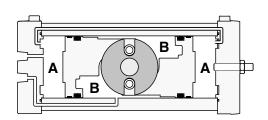
Typo	Supply pressure (MPa)											
Type	0.4	0.5	0.6	0.7								
T35	35	43	52	61								
T85	85	106	127	148								
T200	200	250	300	350								
T380	380	475	570	665								
T750	750	937	1125	1312								

# Single-acting type (spring returned type)

 $(N \cdot m)$ 

			S	upply pres	ssure (MPa	1)			Spr	ina
Type	0.	.4	(	0.5	(	0.6	C	).7	Эрі	ii ig
	0°	90°	0°	90°	0°	90°	0°	90°	0°	90°
T85S	55	30	76	51	97	72	118	93	30	55
T200S	135	65	185	115	235	165	285	215	65	135
T380S	264	116	359	211	454	306	549	401	116	264
T750S	510	240	697	427	885	615	1072	802	240	510

### **New T-DYNAMO Air Consumption**



#### (1) Required air consumption

Double-acting type 
$$VD=(A+B)\left(\frac{-P+0.1013}{0.1013}\right)N$$
 Single-acting type 
$$VS=(B) \qquad \left(\frac{P+0.1013}{0.1013}\right)N$$

- $V\,D$  : Double-acting type cylinder air consumption  $(N\,\ell)$
- VS: Single-acting type cylinder air

- consumption (N \( \ell \))

  A,B: Cylinder capacity (\( \ell \))

  P: Working pressure (MPa)

  N: Operating frequencies in a given time
  (1 round trip=1)

- CS: Single-acting type cylinder air
  - consumption (N  $_{\ell}$ /sec) t : Unit time (sec)

(Note) The compressor should have a larger capacity than air consumption calculated in above (1)and (2).

# Double-acting type

typo	Cylinder ca	apacity (2)
type	А	В
T35	0.2	0.2
T85	0.4	0.5
T200	0.8	1.1
T380	1.8	2.1
T750	3.2	4.6

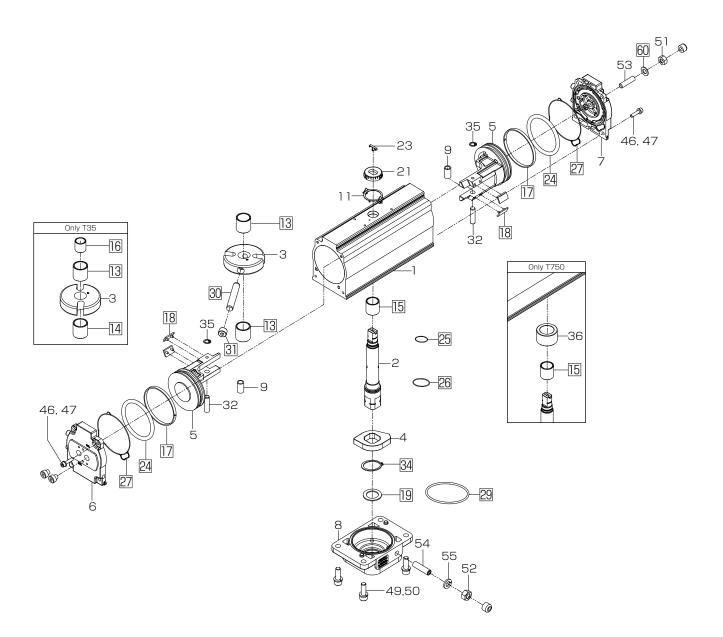
### Single-acting type

tuno	Cylinder capacity (1)
type	В
T85S	0.5
T200S	1.1
T380S	2.1
T750S	4.6



# New T-DYNAMO Expanded view of component T35 to T750 (double-acting type)

Note: The parts numbers marked with  $\square$  indicate "O-ring set". Please exchange all the parts included in the set.



# New T-DYNAMO Parts list T35 to T750 (double-acting type)

# **■**Double-acting type

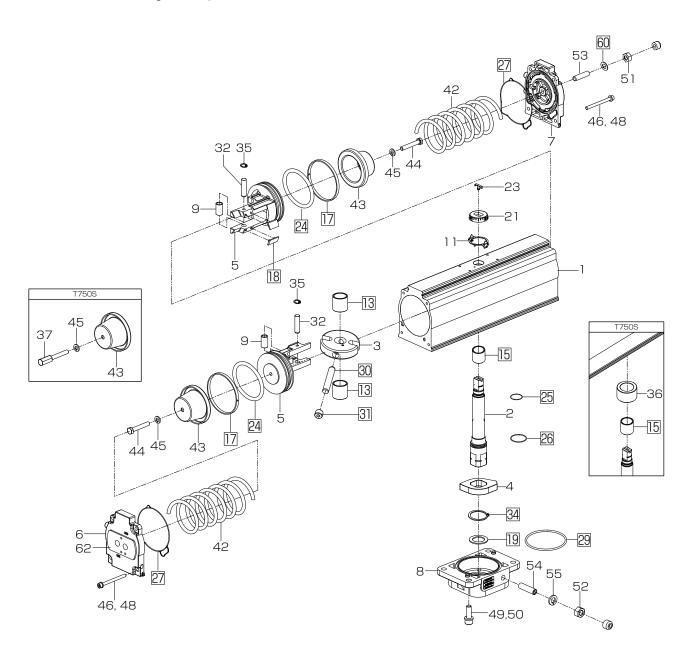
Ν	lo.	Description	Q'ty	Remarks
	1	Case	1	
	2	Shaft	1	
	3	Yoke	1	
	4	Stopper	1	
	5	Piston	2	
	6	Cover 1	1	
	7	Cover 2	1	
	8	Base plate	1	
	9	Bearing	2	
	11	Indicator plate	1	
*	13	Bearing 1	2	T35:1pc
*	14	Bearing 2	1	Only T35
*	15	Bearing 3	1	
*	16	Bearing 4	1	Only T35
*	17	Wear ring	2	
*	18	Piston support	4	
*	19	Thrust plate	1	
	21	Position indicator	1	
	23	Slit cover	1	
*	24	Piston packing	2	
*	25	O-ring (Upper Side)	1	
*	26	O-ring (Lower Side)	1	
*	27	Cover packing	2	
*	29	O-ring (base plate)	1	
*	30	Connecting pin	1	
*	31	Plug	1	
	32	Parallel pin	2	
*	34	C-retainer (lower shaft)	1	Only T85~T750
	35	C-retainer (piston)	2	Only T85~T750
	36	Bearing housing	1	Only T750
	46	Spring washer (cover 1,2)	8	
	47	Hexagon bolt (cover: double-acting)	8	
	49	Hexagon bolt (base plate)	4	T35:2pcs
	50	Spring washer (base plate)	4	T35:2pcs
	51	Hexagon stop screw	1	
	52	Hexagon stop screw	1	
	53	Hexagon socket set screw (open-side)	1	
	54	Hexagon socket set screw (close-side)	1	
	55	Spring washer (close-side stopper)	1	
*	60	Sealing washer	1	

Note: Recommended maintenance parts are indicated by "★" before the part number. To order a set of recommended maintenance parts, please specify "O-ring set".



### New T-DYNAMO Expanded view of component T85S to T750S (single-acting type)

Note: The parts numbers marked with  $\square$  indicate "O-ring set". Please exchange all the parts included in the set.



# New T-DYNAMO Expanded view of component T85S to T750S(single-acting type)

# **■**Single-acting type

No.	Description	Q'ty	Remarks
1	Case	1	Tiernains
2	Shaft	<u>'</u> 1	
3	Yoke	<u>'</u> 1	
4	Stopper	<u>'</u> 1	
5	Piston	2	
6	Cover 1	1	
7	Cover 2	1	
8	Base plate	1	
9	Bearing	2	
11	Indicator plate	1	
<b>★</b> 13	Bearing 1 (shaft-piston)	2	
<b>★</b> 15	Bearing 3 (lower shaft)	1	
<b>★</b> 17	Wear ring	2	
<b>★</b> 18	Piston support	4	
<b>★</b> 19	Thrust plate	1	
21	Position indicator	1	
23	Slit cover	1	
<b>★</b> 24	Piston packing	2	
<b>★</b> 25	O-ring (upper)	1	
<b>★</b> 26	O-ring (lower)	1	
<b>★</b> 27	Cover packing	2	
<b>★</b> 29	O-ring (base plate)	1	
★ 30	Connecting pin	1	
<b>★</b> 31	Plug	1	
32	Parallel pin	2	
★ 34	C-retainer (lower shaft)	1	
35	C-retainer (piston)	2	
36	Bearing housing	1	Only T750S
37	Stopper bolt	1	Only T750S
42	Spring	2	
43	Spring guide	2	
44	Hexagon bolt (spring guide)	2	
45	Spring washer (spring guide)	2	
46	Spring washer (cover 1,2)	8	
48	Hexagon socket bolt (cover 1,2)	8	
49	Hexagon socket bolt (base plate)	4	
50	Spring washer (base plate)	4	
51	Hexagon nut (cover 2)	1	
52	Hexagon nut (base plate)	1	
53	Hexagon socket set screw (cover 2)	1	
54	Hexagon socket set screw (base plate)	1	
55	Spring washer (base plate)	1	
★ 60	Sealing washer (cover 2)	1	
62	Hexagon socket tapered plug (cover 1)	1	

Note: Recommended maintenance parts are indicated by "\( \Display\* \) before the part number. To order a set of recommended maintenance parts, please specify "O-ring set".



### **New T-DYNAMO Standard Accessory Combination Chart**

#### **■**Double-action cylinder

This chart indicates the accessories than can be used together in conjunction with the double-action cylinder. Only those items with a "O" mark in the same column can be used together.

Device name	Standard spe	oifications	Manufacturer	Fig.	Г	, 111	ui IX			oub						uoc	<i>,</i> a t	Jyc	Remarks
		Unit	TAIYO	FIG. SP-K017-Z03-006	0		0		U	duo	e-a	Oting			$\cap$				
Speed controller u	TIIL	UIIII	TAIYO	BP-K095-Z04-002	<u> </u>	-	0	0				-	0	0	0	$\cap$			Meter out control
Bypass unit Five-port/2-position	Ditti	0:			0	0	U	0	0	0	0	0	U	0	$\cup$	0	0	0	Edward Hardelands and Ca
non explosion-proof	Direct mounting	Single	TAIYO	PCS2406-K090-Z03-132-***					0							0			Exhaust throttle valve applie to the solenoid valves as a
solenoid valve		Double	TAIYO	PCD2406-K090-Z04-120-***					0							0			speed controller
		Single	SMC	VFN2120N-****-02*					0							0			
Five-port/2-position		Double	SMC	VFN2220N-****-02*					0							0			
explosion-proof		Single	Kaneko	MK15G-8-AE12PU-DMI							0							0	
solenoid valve		Double	Kaneko	MK15DG-8-AE12PU-DMI							0					_		0	
Exhaust throttle va		For solenoid valves		MV-2-Z03-017					0		0					0		0	
Explosion-proof/ Non Explosion	Mounted with bracket	Non-standard		PCS2406/2408						0							0		
solenoid valve	Didonot	Non-standard		VF3130						0							0		
		Non-standard		4F2/4F3/4F4/4F5						0							0		
=	D: 1 1	Non-standard	Kaneko	M00U, M15G, MB15G, MG15G						0	0					_	0	0	
Filter regulator	Direct mounting		TAIYO	P31EA22EMMBNNP			_	_	0		_		_	_		0			Applicable to TAIYO solenoid valves only
	Mounted with bra	acket	TAIYO	P31EA22EMMBNNP	0	0	0	0		0	0	0	0	0	0		0	0	Sololiola valvos offiy
			SMC	AW20	0	0	0	0		0	0	0	0	0	0		0	0	
Limit switch	Non-explosion-proof BOX type	Free-angle	Tomoe	TMS-3**-**-**-*	•				•	•		•				•	•		
	Non-explosion-proof - mounted with bracket	90°		1LS1-J/WLCA2	•		•		•	•									
	IIIUulileu Willi Diackel		Azbil	VCL-5001	•		•		•	•									
		80°,70°		1LS1-J/WLCA2	•		•		•	•									
			Azbil	VCL-5001	•		•		•	•									
		Free-angle	Azbil/OMRON	1LS1-J/WLCA2								•		•		•	•		
			Azbil	VCL-5001								•		•		•	•		
	Explosion-proof -	80°,90°	Azbil	1LX-7001		•		0			0								
	mounted with bracket		Azbil	VCX-7001		•		0			0								
		70°	Azbil	1LX-7001		•		0			0								
			Azbil	VCX-7001		•		0			0								
		Open/Close detection	Azbil	VCX-7001		•		0			0								
		Free-angle	Azbil	1LX-7001									0		0			0	
			Azbil	VCX-7001									0		0			0	
Proximity switch	Direct mounting	90° only	Efector	IND2004	•	•			•	•									
			OMRON	E2MP-CB1	•	•			•	•									
	Mounted with	90°,80°,70°	OMRON	(M18 shield) E2E-X7D1-N	•		•		•	•									
	bracket		OMRON	(M18 non-shield) E2E-X14MD1	•		•		•	•									
			OMRON	(M30 shield) E2E-X10D2-N	•		•		•	•									
		Free-angle	OMRON	(M18 shield) E2E-X7D1-N								•		•		•	•		
			OMRON	(M18 non-shield) E2E-X14MD1								•		•		•	•		
			OMRON	(M30 shield) E2E-X10D2-N								•		•		•	•		
Positioner	Electro-pneumatic		Tomoe(SSS)	TCE2000			0	0						0	0				
	·		Tomoe(SMC)	TP8100			0	0						0	0				
		Non-standard	. ,	AVP300			0	0						0	0				
				XE/XP100-SB7			0	0						0	0				
			SSS	XE/XP100-SS3			0	0						0	0				
	Pneumatic-pneu	matic	SMC	IP5100			0	0						0	0				
Manual operating	Manual lever	BOX type	Tomoe		0 % 1	<u>*2</u>			0*1	0*1	0	0*1	0	0	_	0*1	0*1	0	Manual lever applicable to:
anaa oporating		Spanner type				<u>**2</u>	0	0		0*1		0*1	0	0		0*1	-	0	T35, T85, T200, T380
	Side handle	, sp			J	1					J	ا ۱۰۰۰ ل			_	J 1			
	Manual gear		Tomoe		0	0	0	0	0	0	0	0	0	0	0	0	0	0	
Free angle adjuster	15 to 95°		Tomoe		۲				$\vdash$	۲		0	0	0	0	0	0	0	
Valve Condition	For On-Off valve	With limit	Tomoe	Tpro1100	•				•	•		•	J	J	J	•	•		
Monitoring Unit		switch ouput		Man aumlanian avert excettered															
				Non-explosion-proof specifications	0		0		0	0	0	0	0	0		0	0		
				Explosion-proof specifications		0		0		_	0		0		0	_		0	
				Solenoid valve					0	0	0					0	0	0	
				Positioner			0	0						0	0				
				Free angle adjuster								0	0	0	0	0	0	0	
				Side handle															

 $\bullet$ , $\bigcirc$ : Only one of the  $\bullet$ / $\bigcirc$  marked items in each column can be used in combination O: Usable in combination

※1: Only spanner type available with TMS limit switch ※2: Manual lever unavailable with direct-mounted proximity switch

# **New T-DYNAMO Standard Accessory Combination Chart**

# ■Single-action (spring-open type)

This chart indicates the accessories than can be used together in conjunction with the double-action cylinder. Only those items with a "O" mark in the same column can be used together.

Device name	Standard spe	oifications	Manufacturer	Eig	Т								Δir+	م دا	000	/^	arin	u v.	nor	١								T -	Remarks
Speed controller u		Unit	TAIYO	Fig. SP-K017-Z12-003-F		0	0		Т		0	_	Air t	U CI	USE	<u> </u>	orin	~ .	_	<i>)</i>	1			0			_	+-'	iemarks
•	IIIIL	UIIIL	TAIYO		Ч	$\Box$	4	4	+		0		10	H	+	1			U	+	+	1				$\dashv$	+	-	
Bypass unit	Direct	Cinala		BP-K095-Z04-002	Н	$\dashv$	+	-	+		$\vdash$				+			Н		_	-				H		+	E. I	
Five-port/2-position non explosion-proof	Direct mounting	Single	TAIYO	PCS2406-K090-Z03-132-***	$\dashv$	$\dashv$	+	C	+		H	+		0	$\dashv$	+		$\vdash$	$\vdash$	C	+	+		$\vdash$	H	0	+		ust throttle applied to
solenoid valve		Double	TAIYO	PCD2406-K090-Z04-120-***	H	$\dashv$	+	C	_		Н	-		0	4	+			$\vdash$	0					H	0	+	the s	olenoid
		Single	SMC	VFN2120N-****-02*	Ш	$\vdash$	4	C	_					0	4					C	+				Ш	0	4		s as a speed
Fi	-	Double	SMC	VFN2220N-****-02*	Ш	$\vdash$	4	С						0						0					Ш	0	4	contr	oller
Five-port/2-position explosion-proof		Single	Kaneko	MK15G-8-AE12PU-DMI	Ш	$\sqcup$	_	4	1	0					_	0					0				Ш	Ц	0		
solenoid valve		Double	Kaneko	MK15DG-8-AE12PU-DMI	Ш	$\sqcup$	_	4	_	0					_	0					0				Ш	Ц	0		
Exhaust throttle va		For solenoid valves	Kuroda	MV-2-Z03-017			$\perp$	C	1	0	Ш			0	_	0			-		0					0	0	)	
Explosion-proof/	Mounted with	Non-standard	Kuroda	PCS2406/2408				4	0						0					_							0		
Non Explosion solenoid valve	bracket	Non-standard	SMC	VF3130					0						0					_							0		
oolollola valvo		Non-standard	CKD	4F2/4F3/4F4/4F5					0						0												0		
		Non-standard	Kaneko	MOOU,M15G,MB15G,MG15G					0	0					0	0				(							0 0	)	
Filter regulator	Direct mounting		TAIYO	P31EA22EMMBNNP		П		C						0					(	О						0			icable to
	Mounted with br	acket	TAIYO	P31EA22EMMBNNP		0	0	C	0	0	0	0	0		0	0	0	0	0	(			) C	0	0		0		O solenoid
			SMC	AW20	0	0	0		0	0	0	0	0		0	0	0	0	0	(			) C	0	0		0	Valve	s only
Limit switch	Non-explosion-proof BOX type	Free-angle	Tomoe	TMS-3**-**-**-*	$\overline{}$	П		_	•		•			•	•					•		•	)			•	•		
	Non-explosion-proof -	90°	Azbil/OMRON	1LS1-J/WLCA2	•	T	•	•	•		П			П	1			•		•				T	П	$\sqcap$	1		
	mounted with bracket		Azbil	VCL-5001	•	T	•		0		П			П	1			•		•		T				$\sqcap$	+		
		80°,70°	Azbil/OMRON	1LS1-J/WLCA2	•	T	•		)	-	П	1		П	1			•	$\vdash$	9 (	-			T	Ħ	$\dashv$	+		
		, .	Azbil	VCL-5001	•		•	_	•	_	Н			H	1	Ì	_	•			_	T			П	$\dashv$	+		
		Free-angle	Azbil/OMRON	1LS1-J/WLCA2		Ħ	+	+	+		•			•	•	1		٦	H	1				•	Н	•	•		
		1 100 ungio	Azbil	VCL-5001	$\forall$	$\dashv$	+	+	+					•		+								•		•		-	
	Explosion-proof -	80°,90°	Azbil	1LX-7001	H				+	•		+			1	Ŧ	•		0	$^{+}$		Ť	+	•	$\vdash$		+	-	
	mounted with bracket	00,30	Azbil	VCX-7001	$\vdash$			0	+	_	Н			Н	+	+			0	+		1				$\forall$	+	-	
		70°	Azbil	1LX-7001	$\vdash$			0	+	•	Н	+		Н	+	+	•		0	+		+	+	H	$\vdash$	$\forall$	+	-	
		70	Azbil	VCX-7001	$\vdash$				+	•	Н	+		Н	+	+			0	+		_			$\vdash$	$\forall$	+	-	
		Open-close detection	Azbil	VCX-7001	Н				+	•	Н	+	+	Н	+	+		$\vdash$	0	+		1	+		$\vdash$	$\forall$	+	-	
			Azbil	1LX-7001	$\vdash$	_	-	4	+	•	Η,			Н	-				$\subseteq$	+	ľ	4	C		0	$\forall$		_	
		Free-angle	Azbil	VCX-7001	$\vdash$	$\vdash$	+	+	+			0	0	Н			+	Н	H	+	+	+			0	$\dashv$			
Drawinsity avvitab	Disast manustina	90°		IND2004			+	+			,		10	Н	-		•	$\vdash$	H	_		+			-	$\dashv$	+	)	
Proximity switch	Direct mounting	90	Efector		•		+		•	_	Н	+	+	Н	+				$\vdash$	•	-	-	+		$\vdash$	$\dashv$	+	_	
	Manual admitte	00° 00° 70°	OMRON	E2MP-CB1	•			-		•	Н	+	+	Н	+	-		_	$\vdash$			4	+		$\vdash$	$\dashv$	+	_	
	Mounted with bracket	90°,80°,70°	OMRON	(M18 shield) E2E-X7D1-N	•	H	•	•			Н	-			4	4	4	•	$\vdash$		-	+	+		$\vdash$	$\dashv$	+	_	
	Bracket		OMRON	(M18 non-shield) E2E-X14MD1	•	$\vdash$	•		•		Н	_		Н	4	•	-	•	$\vdash$		-	+	+		$\square$	$\dashv$	+	_	
			OMRON	(M30 shield) E2E-X10D2-N	•	H	•		•	-	Н	_		Н	4	•		•	$\vdash$	•	-	+	-		$\blacksquare$	$\dashv$	+	_	
		Free-angle	OMRON	(M18 shield) E2E-X7D1-N	•	H	•	_	•							•		•		•		1		L	Ш		_		
			OMRON	(M18 non-shield) E2E-X14MD1	Ш	$\sqcup$	_	4	$\perp$		•	-	<u> </u>	•	_	1	+			4	+	•	<u> </u>	•		•	-		
			OMRON	(M30 shield) E2E-X10D2-N	Ш		$\perp$	_	1			•		•	•						1	•	)	•	Ш	•		_	
Positioner	Electro-pneumatic		Tomoe(SSS)	TCE2000				0	╄		Ш			Ш				0		1	1			0	0	Ц	4		
			Tomoe(SMC)	TP8100	Ц		0		1		Ц		0	Ц				0		1				0		Ц	1		
		Non-standard	Azbil	AVP300	Ц			0	1		Ц		0	Ц	4			0	0					0	0	Ц	1		
			SSS	XE/XP100-SB7	Ц		0		$\perp$		Ц		0	Ц				0	0	$\perp$	1			0		Ц			
			SSS	XE/XP100-SS3	Ш			0	L		Ц		0	Ц				0						0		Ш			
	Pneumatic-pneu	matic	Tomoe(SSS)	TCP2000			0				Ш		0					0							0	$\Box$			
			SMC	IP5100			0	C	ľ				0		$\prod$			0	0	$\prod$				0	0	J			
Manual operating			Tomoe						Ι									0	0	0			C	0	0	0	0		
Free angle adjuster	15 to 90°		Tomoe	Attached to side cover					Ι		0	0	0	0	0	C										LΤ		Side h	andle unavailab
	Side handle avai	lable	Tomoe	Attached to side cover							П																		
	0 to 94°		Tomoe	External unit(%1)		П					П												) C	0	0	0	0	)	
Valve Condition Monitoring Unit	For On-Off valve	With limit switch ouput	Tomoe	Tpro1100	•			•	•		•			•	•					•		•				•			
				Non-explosion-proof specifications	0	П	0		0		0			0	0	(		0		0		C	)	0		0			
				Explosion-proof specifications	П	0	(	0		0	(	0	0	П	(		С		0	T			С	-	0	T		5	
				Solenoid valve	П	П	1		0	0				0	0					0					П	ol	0	5	
					+	$\rightarrow$	-		-	-	- 1	_	_		-+	-		1		- 1	+			1		$\vdash$	-	-	
				Positioner			010	)IC				(							$\cup$					10		1 [			
				Positioner Free angle adjuster	$\vdash$		0				0		0		010			0	O	+			) (C				00	)	

 $\bigcirc$ : Usable in combination  $\bigcirc$ , $\bigcirc$ : Only one of the  $\bigcirc$ / $\bigcirc$  marked items in each column can be used in combination %1: Free-angle adjuster unit is installed in between valve and cylinder



# **New T-DYNAMO Standard Accessory Combination Chart**

# ■Single-action (spring-shut type)

This chart indicates the accessories than can be used together in conjunction with the double-action cylinder. Only those items with a "O" mark in the same column can be used together.

Spread controller unit   Unit   Net   Ne	Device name	Standard on	ecifications	Manufacturer	Fig.	<u> </u>			_														_		_	_		П	Remarks
Manual position   Direct mounting   Single   Direct mounting   Direct mou							$\cap$							_	U	ااتر	•	<u>~</u>				1			$\cap$	$\neg$	$\neg$	+	ποιπαιλδ
March   Marc	<u> </u>	IIIL	UIIIL	-		М			1	Н				$\vee$	$\vdash$			7		+	H	1				+	+	+	
Include	,,	Direct mayorting	Cingle			Н		+		Н	+	+	$\vdash$	H			Н		+		H	+	+	H	4	$\overline{}$	+		Evhauet the - 111 -
Comparison   Com	non explosion-proof	ייין פווטעוונותם וויטווען אוויטן				Н				H		+	$\vdash$	Н	-		Н					+		H	H	-	+		
Depart   D	solenoid valve								_	Н					-				+	_	$\blacksquare$	+	+	H	H	~	+	-	the solenoid
Report   Property						Н				Н					_							+			Н	~	+		
pulsors product production of the production of	Five part/O position						_		10	Н			H		$\circ$				+	0					H	9	4	_	controller
Montest device   Mont	explosion-proof		- v				_			-	~											_			$\vdash$	4			
Man-standard   Man-	solenoid valve									-	-											_			Н	_			
Non-standard   Non-						Ш			0	-	0		L		-	_				0		0			$\sqcup$	0	_	0	
Application	Explosion-proof/														-	_									Ш		-		
Mon-starded   00		Dracket	Non-standard	SMC		Ш									-										Ш				
Electro-proper   Pres-angle   Regulator	Colonola valvo		Non-standard	CKD	4F2/4F3/4F4/4F5										<u> </u>	-									Ш				
Mounted with bracket    Marco   Policy   Policy			Non-standard	Kaneko	M00U,M15G,MB15G,MG15G					0	0				0	0					0	0			Ш	(	0 (	0	
Microsphare   Section	Filter regulator	Direct mounting		TAIYO	P31EA22EMMBNNP				0						0					1~						0			
Microsophical processory   Microsophical proce		Mounted with br	acket	TAIYO	P31EA22EMMBNNP	0				0	0	0	0	0		0	0	0		)						(	0	$\sim$ 1	
Non-epiticing-good   90"   Actin/DKGN0   11.51-JWLCA2				SMC	AW20	0	0	0		0	0 (	) C	0	0		) C	0	0		)	0	)(		0	0	(	0		valves only
Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth	Limit switch	Non-explosion-proof BOX type	Free-angle	Tomoe	TMS-3**-**-**-*	•			•	•		D			•		•			•	•				П	•	•		
Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth   Note   Roth		Non-explosion-proof -	90°	Azbil/OMERON	1LS1-J/WLCA2	•		•	•	•	T		Г	П			•			•	•	T	T	П	П	T	$\top$	┪	
80°,70°   A80/04690   ISS-MANCA2				.,		•		•			Ť	T	T	П	$\vdash$		•			•	•	+		Г	T	$^{\dagger}$	+		
Ada    VCL-5001			80° 70°	Azbil/OMERON		-	_	-					Н				•			-				Н	П	$\pm$	+		
Free-angle   Abil (WERON)   LST-JMVLCA2			00 ,10		·			•	_	$\rightarrow$	+		H	Н			•		_		-	t	t		П	+	+	$\exists$	
Explosion-prof   Rob   90"   Abil   11x-7001   0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0			Free-angle				Ŧ				_			Н	•		_				_	1	+		П			$\dashv$	
Electro-pneumatic   Bictro-pneumatic   Succession   Prese angle adjuster   Free angle			i ico aligio			Н				Н		_	-		-						+		+					$\dashv$	
April   VCX-7001		Evaluation proof	ou <sub>o</sub> ou <sub>o</sub>	-		Н		-		H,			•	Н			H				_	ď	+	•	Н	-			
Proximity switch   Direct mounting   90"   Elector   Direct mounting   90"   Elector   Direct mounting   90"   Bleator   Direct mounting   Direct mounting   Direct mounting   Direct mounting   Direct mounting			00 ,90			Н	_	_		-	-	+	H					-	-	_			+		Н	+	+	$\vdash$	
Adail			70°			Н	-	_		$\overline{}$	-	+	H	Н	+	+	H	_	_	_		-	+	H	Н	+	+	$\dashv$	
Cipar-dise detail   Abil   VCX-7001			70			Н	_	_	_	$\overline{}$	-		H				-	-	-	_		-	+		Н	+	+	$\dashv$	
Free-angle   Abil   ILX-7001   Abil   VOX-7001			0	-		Н	-	_	_	$\vdash$	-		H	Н	+		H	-	_	_	_	_	+	H	Н	+	+	$\dashv$	
Abil   VCX-7001   ND2004   N						Н	•		4	Н	•		H		+		H	•	10	_		4		$\vdash$		+	+	$\exists$	4
Proximity switch   Direct mounting   90"   Electro   Mounted with bracket   90",80",70"   OMERON   (M18 shield) E2E-X101-N   0   0   0   0   0   0   0   0   0			Free-angle			Н	4			Н	_			_				_	+			+	_	_	-	+			
Mounted with bracket		<u> </u>	0.00	-							_	C	-	U	_	C	L		+			+	10	1	Ш	+	_(	4	
Mounted with bracket   90",80",70"   0MERON   (M18 shield) E2E-X14MD1   0   0   0   0   0   0   0   0   0	Proximity switch	Direct mounting	90°			-	-		-	_	_		L				-		+	-		_	+		Н	4	+	4	
Director					*	-	•		+-	-	•		L				•	•			-		_		Н	$\downarrow$	$\perp$	_	
OMERON			90°,80°,70°			•	_ (	•			4		L				•	_(		-	_	_			Ш	_	$\perp$		
Free-angle   OMERON   (M18 shield) EZE-X7D1-N   O   O   O   O   O   O   O   O   O		DIACKEL				•			_	-			L				•	•			-	1	L		Ц	_	4		
OMERON   O				OMERON		•	_	-	-	-							•	(		-	_				Ш		_		
OMENON   (M30 shield) EZE-X10D2-N			Free-angle	OMERON	(M18 shield) E2E-X7D1-N	•	-	•	•								•	•		•	•				Ш		_		
Electro-pneumatic   Timme(SSS)   TCE2000   Color   CE2000   CE20				OMERON	(M18 non-shield) E2E-X14MD1						•		•		•									•		•	•		
Non-standard   Azbi				OMERON	(M30 shield) E2E-X10D2-N								•		•									•	Ш	•	•		
Non-standard   Abii	Positioner	Electro-pneumatic		Tomoe(SSS)	TCE2000													(		)				0	0				
SSS   XE/XP100-SB7   SSS   XE/XP100-SB3   SSS   XE/XP100-SS3   SSS   SSS   XE/XP100-SS3   SSS   SSS   XE/XP100-SS3   SSS   SSS   SSS   XE/XP100-SS3   SSS   S				Tomoe(SMC)	TP8100		(	0					0	0				(		)				0	0	T	П		
SSS   XE/XP100-SS3   O O   O O O O O O O O O O O O O O O			Non-standard	Azbil	AVP300	П	(	0					0	0				(	0	)				0	0	Т			
SSS   XE/XP100-SS3   O O O O O O O O O O O O O O O O O O				SSS	XE/XP100-SB7		(	0					0	0				(	0	)				0	0				
Pneumatic   Pneu										П			0	0										0	0	T	$\top$		
Manual operating Manual lever  Tree angle adjuster   15 to 90°   10moe   Attached to side cover   15 to 90°   10moe   15 to 90°   1		Pneumatic-pneu	matic			Н				Н	Ť				$\vdash$		П									$\top$	+		
Free angle adjuster   15 to 90°   Tomoe   Attached to side cover   Side handle available   Tomoe   Attached to side cover   O to 94°   Tomoe   External unit(%1)   Tomoe   External unit(%1)   Tomoe	Manual operating				**	H	ď			H	Ť		Ť	Ĭ	+		$\cap$				0	)(					olo	ol	
Side handle available   Tomoe   Attached to side cover   Tomoe   External unit (%1)   Tomoe   External unit (%1)   Tomoe   Tomoe   External unit (%1)   Tomoe   Tomoe					Attached to side cover	H	+			H	(						Ť			Ť		+	T	Ť	Ť	$\dashv$	+	$\overline{}$	Side handle unavailable
O to 94°			lahle			H	1	+		H			۲		$\dashv$		H			H	H	+	1	H	H	+	+	+	
Alve Condition Monitoring Unit  For On-Off valve  With limit switch output  Tomoe  Tom			iubio			Н	+	+		H	+	+	$\vdash$	H	+		Н			H	+								
Non-explosion-proof specifications   O   O   O   O   O   O   O   O   O	Valve Condition	0 10 34	With limit	1011106	LAWITIAT WITH ( W I )	Н	+			H			$\vdash$		+		Н				H	-				4	7	4	
Non-explosion-proof specifications		For On-Off valve		Tomoe	Tpro1100	ullet			•								•			•	•					•	•		
Explosion-proof specifications         O <td< td=""><td>INIOTHIOTHIG UTIL</td><td></td><td>switch ouput</td><td></td><td>Non auntagian proof engelfierti</td><td></td><td></td><td></td><td></td><td></td><td>-</td><td>2</td><td></td><td>Н</td><td></td><td></td><td></td><td>/</td><td></td><td></td><td></td><td></td><td></td><td></td><td>H</td><td></td><td>_</td><td>+</td><td></td></td<>	INIOTHIOTHIG UTIL		switch ouput		Non auntagian proof engelfierti						-	2		Н				/							H		_	+	
Solenoid valve         0 0 0 0 0 0 0 0 0 0 0           Positioner         0 0 0 0 0 0 0 0 0 0 0 0           Stroke adjuster         0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0 0						Ч	_	_	_	-		7	-		9					_		_		$\mathbb{P}$		4			
Positioner Stroke adjuster						Н	U	(	_	-	-	C	1					U	10				10	-	-				
Stroke adjuster OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO						Н	4			10	U	+					Н				0					9	7	4	
Stroke adjuster OOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOOO						Н	(	$\cup$		Ц		2 -	0	0			Ш			)			-			_	1		
Manual gear unit					· · · · · · · · · · · · · · · · · · ·	Ш		-		Ц	(		0	0	0						_	(	10	00	0	9	7		
					Manual gear unit												0	0			0			0	0	0			

○: Usable in combination  $\bullet$ , $\bigcirc$ : Only one of the  $\bullet$ / $\bigcirc$  marked items in each column can be used in combination ★1: Free-angle adjuster unit is installed in between valve and cylinder

#### **New T-DYNAMO Solenoid valves**

#### **■**Purpose

The purpose of a solenoid valve is to use electrical signals to remotely change the air flow to operate the valves.

#### ■Standard specifications

Туре	Five-port/2-position non explosion-proof	Five-port/2-position non explosion-proof	Five-port/2-position explosion-proof	Five-port/2-position explosion-proof		
1,100	solenoid valve (single solenoid)	solenoid valve (double solenoid)	solenoid valve (single solenoid)	solenoid valve (double solenoid)		
Item	PCS2406-K090-Z03-132-** PCD2406-K090-Z04-120-**		MK15G-8-*-DMI	MK15DG-8-※-DMI		
Manufacturer	TAIYO	TAIYO TAIYO		Kaneko		
JIS symbol	R1 A B P R2 B B R2 B B R2 B B B B B B B B B B B		1	1 2 3 3 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1 1		
Applicable cylinder type	T35 to T750/T85S to T750S	T35 to T750/T85S to T750S	T35 to T750/T85S to T750S	T35 to T750/T85S to T750S		
Mounting method	Direct mounting	Direct mounting	Direct mounting	Direct mounting		
Air connection port size	Rc1/4 (IN, EXH)	Rc1/4 (IN, EXH)	Rc1/4 (IN, OUT, EXH)	Rc1/4 (IN, OUT, EXH)		
Effective sectional area	10mm <sup>2</sup>	10mm <sup>2</sup>	20mm <sup>2</sup>	20mm <sup>2</sup>		
Rated voltage	AC100V/110V 50/60Hz AC200V/220V 50/60Hz DC24V	AC100V/110V 50/60Hz AC200V/220V 50/60Hz DC24V	AC100V 50/60Hz AC110V/200V 50Hz AC220V 60Hz DC24, 100, 110, 125V	AC100V 50/60Hz AC100V, 200V 50Hz AC220V 60Hz DC24, 100, 110,125V		
Class of insulation	_	_	d2G4	d2G4		
Wiring method	Conduit terminal	Conduit terminal	Conduit terminal	Conduit terminal		
Conduit entry	G1/2	G1/2	G1/2	G1/2		
Manual operating	Non lock bush type	Non lock bush type	Manual botton lock type	Manual botton lock type		
Operating temperature	—5 to 50 degrees C	-5 to 50 degrees C	-20 to 60 degrees C	-20 to 60 degrees C		
Weight	0.2kg	0.27kg	1.2kg	1.7kg		

Remark: The above are standard TOMOE-compatible solenoid valves. It is also possible to install solenoid valves other that those listed above such as a double solenoid or 3-port solenoid valve. For details, please consult us.

#### New T-DYNAMO Filter regulators (Pressure reducer with filter)

#### Purpose

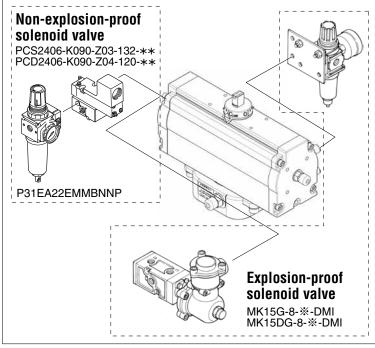
Filter regulators are used to eliminate oil, water, and dust from the operating air in order to protect pneumatic accessories (solenoid valve and cylinder, etc.) and to keep operating pressure at an adequate and constant level (about 4 to 5 K).

#### **■**Standard specifications

Туре	P31EA22EMMBNNP			
Manufacturer	TAIYO			
JIS symbol				
Applicable cylinder type	T35 to T750/T85S to T750S			
Set pressure range	0.03 to 0.85MPa			
Pressure gauge connection port	Rc1/8			
Operating temperature	-5 to 60 degrees C			
Air connection port size	Rc1/4			
Filtration	5µm			
Attachment	Direct mounting			
Option	_			
Weight	0.19kg			

Remark: The above are standard TOMOE-compatible filter regulators.

It is also possible to install filter regulators other that those listed above. For details, please consult us.





# **New T-DYNAMO Limit switches**

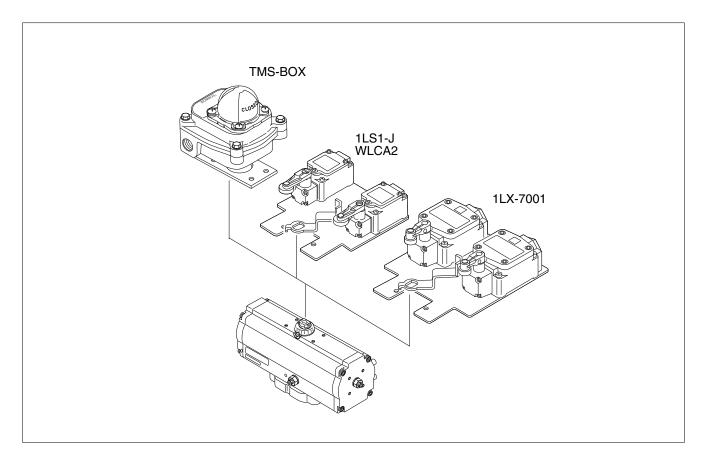
### **■**Purpose

Limit switches are used to convert the valve position (full close, full open, half open) into electric signals for lamp indication at a remote location.

### **■**Standard specifications

Туре	TMS-BOX		1LS1-J WLCA2	1LX-7001	VCX-7003	
Manufacturer	Tomoe		Azbil (1LS1-J) OMRON (WLCA2)	Azbil	Azbil	
	Monopolar double-th	row(1C, SPDT)X2	Bipolar double interruption (1A1B, 2CKT-DB)	Bipolar double interruption (1A1B, 2CKT-DB)	Monopolar double-throw (1C, SPDT) X2	
Circuit		NC	(NO) 4 (NO) 3	(NO) 4 (NO) 3	NC NC	
	сом —	NO	(NC) 1 (NC) 2	(NC) 1 (NC) 2	COM — NO	
Actuator	Hinge roller lever type		Roller lever type	Roller lever type	Adjustable roller lever type	
Class of insulation	IP67 (Option: Exd∏BT6)		IP67	IP67, Exde IIC T6	IP67, Exde IIC T6	
	Standard Micro load specificaions AC125		AC125V-10A	AC125V-5A	AC250V-5A	
Rated voltage	AC250v-1.6A	AC125V-0.1A	AC250V-10A	AC250V-5A	DC125V-0.8A	
(resistance load)	DC125V-0.6A DC30V-0.1A		AC480V-10A	DC125V-0.8A	DC250V-0.4A	
(resistance roau)			DC125V-0.8A	DC250V-0.4A		
			DC250V-0.4A			
Minimum applicable load	DC30V 100mA	DC5V 1mA	DC24V 10mA(1LS1-J)	DC24V 10mA	DC24V 10mA	
(reference value)	DC30V T00MA DC5V TMA		DC5V 160mA(WLCA2)	DG24V TOTTA	DG24V TOTTA	
Operating temperature	10 to 90 dogrado C		1LS1-J: −10~70°C	10 to 60 dograpa C	10 to 60 degrees C	
Operating temperature	temperature -10 to 80 degrees C		WLCA2:-10~80°C	—10 to 60 degrees C	—10 to 60 degrees C	
Conduit entry	2-G1/2		G1/2	G1/2	G3/4	
Option	_		Heat, cold and corrosion resistant	Hydrogen anti-explosion (1LX7001)	Waterproof (VCL-5003)	
Contacts Switch detection with one		On or off detection with one	On or off detection with one	Switch detection with one		
CUITAGES	(2 switches inside)		Two for both on and off detection	Two for both on and off detection	(2 switches inside)	
Weight	0.98kg		0.28kg	0.74kg	0.77kg	

Remark: The above are standard TOMOE-compatible limit switches. It is also possible to install limit switches other that those listed above. For details, please consult us. Since the rated load of the TMS-BOX micro load specification is smaller than that of the standard specification, a failure may occur if a current exceeding the rating is applied.



# **New T-DYNAMO Proximity switches**

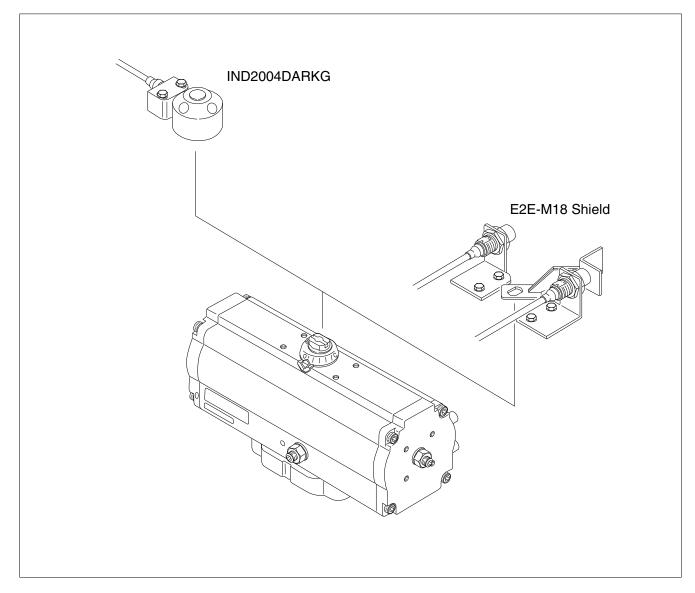
### ■Purpose

Proximity switches are used to convert the valve position (full close, full open, half open) into electric signals for lamp indication at a remote location.

### **■**Standard specifications

Product	M18 shielded type (Can be embedded in metal.)	Direct-mounting proximity switch		
Туре	E2E-X7D1-N	IND2004DARKG		
Manufacturer	OMRON	efector		
With power source	DC 2-wire system	DC 2-wire system		
Motion mode	NO	NO		
Detecting distance	0 to 5.6mm	4mm±10%		
Object to be detected	Magnetic metal (stainless steel possible)	Dedicated target		
Power source voltage	DC12 to 24V	DC10 to 36V		
Current consumption	3 to 100mA	min 4mA		
Class of insulation	IP67	IP67		
Operating temperature	-25 to 70 degrees C	—25 to 80 degrees C		
Connection	Cord draw type (2m)	Cord draw type (2m)		
Contacts	On or off detection with one	2-point switch detection possible		
Ountable	Two for both on and off detection	with a single unit		
Weight	0.43 kg (including mounting plate): 1 piece	0.23 kg (including mounting plate): 1 piece		

Remark: The above are standard TOMOE-compatible proximity switches. It is also possible to install limit switches other that those listed above such as a DC 3-wire, AC 2-wire, AC/DC 2-wire or connector-type proximity switch. For details, please consult us.





# **New T-DYNAMO Positioners**

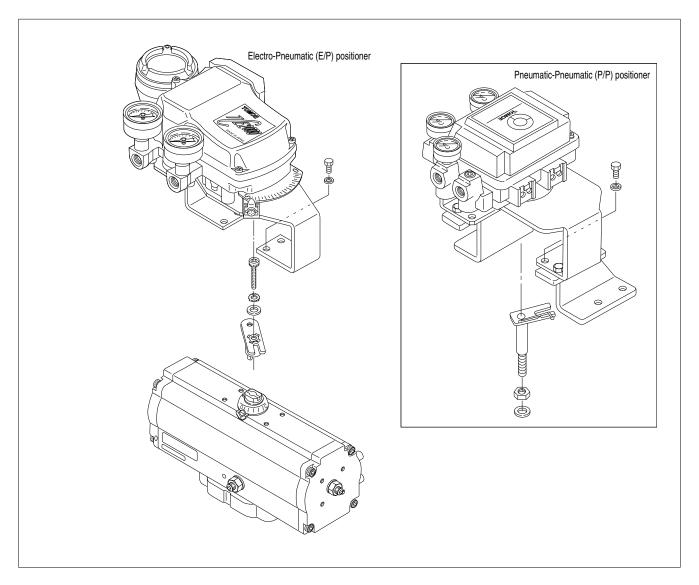
#### **■**Purpose

A positioners are used for quick and accurate control of the valve opening angle with pneumatic signals or 4-20mA DC input signals from a control room or controller unit.

# **■**Standard specifications

	Electro-Pneumatic, analog	Electro-Pneumatic, analog	Pneumatic-Pneumatic		
Туре	TCE2000	TP8100	IP5100		
Manufacturer	Tomoe	Tomoe	SMC		
Input signal	4 to 20mA	4 to 20mA	0.02 to 0.1MPa		
Resistance	250Ω (4 to 20mADC)	235±15Ω (4 to 20mADC)			
Supply air	0.14 to 0.7MPa	0.14 to 0.7MPa	0.14 to 0.7MPa		
Output flow rate	180L/min.(ANR) or more (SUP=0.4MPa)	200L/min.(ANR) or more (SUP=0.4MPa)	200L/min.(ANR) or more (SUP=0.4MPa)		
Air consumption	Within 11L/min.(ANR) (SUP=0.4MPa)	Within 11L/min.(ANR) (SUP=0.4MPa)	Within 11L/min.(ANR) (SUP=0.4MPa)		
Operating temperature	—20 to 83 degrees C (Non explosion-proof)	-20 to 8 degrees C (Non explosion-proof)	-20 to 80 degrees C		
Operating temperature	—20 to 60degrees C (Explosion-proof type d2G4)	-20 to 60 degrees C (Explosion-proof)	- 20 to 60 degrees C		
Class of insulation	IP65, Exd∏BT6X	IP65, Exd∏BT5	_		
Air connection port size	Rc1/4	Rc1/4	Rc1/4		
Conduit entry	2-G1/2	2-G1/2	_		
Sensitivity	Within 0.5%FS	Within 0.5%FS	Within 0.5%FS		
Linearity	Within ±1.5%FS	Within ±2%FS	Within ±2%FS		
Hysterisis	Within 1%FS	Within 1%FS	Within 1%FS		
Option	_	<del>-</del>	_		
			1.0		
Weight	2.3kg	2.6kg	1.2kg		

Remark: The above are standard TOMOE-compatible positioners. It is also possible to install positioners other that those listed above. For details, please consult us.



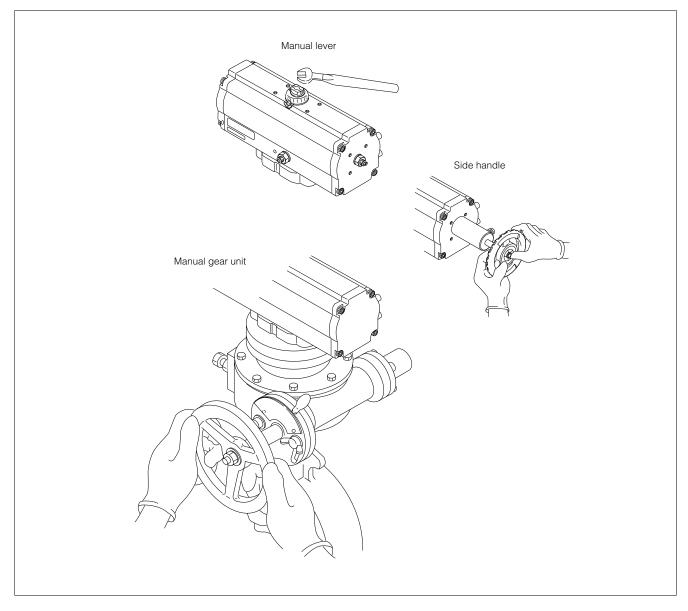
# New T-DYNAMO Manual operation unit

# **■**Purpose

The operation unit is for manual operation of the pneumatic cylinder when air supply fails.

# ■Standard specifications

	Function	Туре	Applicable cylinder	Manual Operation Procedure	Remarks
1	Manual lever	Lever	T35, T85, T200, T380 (Double-acting)	<ul><li>(1) Open the bypass valve.</li><li>(2) Turn the center axis using a spanner.</li></ul>	<ul><li>(1) Never use for any single acting type cylinder.</li><li>(2) Do not input signal to the solenoid valve or positioner during operation.</li></ul>
2	Side handle	Screw handle	T85S, T200S, T380S, T750S (Single-acting)	(1) Open the bypass valve.     (2) Turn the handwheel in accordance with the direction indicated on the nameplate located in the middle of the manual screw handle to open and close the valve.	(1) Do not input signal to the solenoid valve or positioner during operation.     (2) Restore the valve angle in the position air supply shutted off when restarting the automatic operation.
3	Manual gear unit	Worm gear	T200, T380, T750 (Double-acting)	(1) Remove residual pressure from the cylinder. (2) Turn the handwheel.	<ul><li>(1) Do not input signal to the solenoid valve or positioner during operation.</li><li>(2) Restore the valve angle in the position air supply shutted off when restarting the automatic operation.</li></ul>





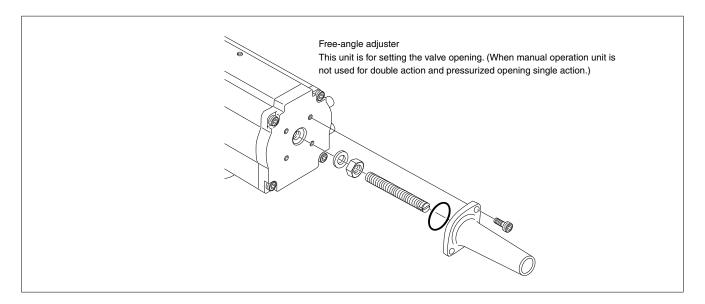
### **New T-DYNAMO Free-angle adjuster**

#### Purpose

Free-angle adjuster enables to set open/close angle depending on users' demand.

#### ■Standard specifications

Function	Туре	Applicable cylinder	Remarks
Free-angle adjuster	Side adjust screw	T35 to T750/T85S to T750S (Air to open)	Remove the cylinder cover, loosen the lock nut and insert the bolt to adjust the stroke angle.  Tighten the lock nut and attach the cylinder cover in position.



### **New T-DYNAMO Speed controllers**

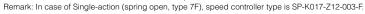
#### Purpose

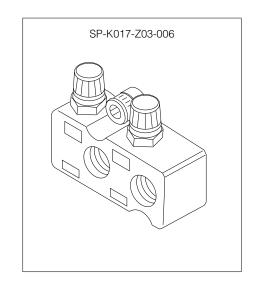
For double-acting cylinders, the speed controller is used as meter out (exhaust throttle) and for single-acting cylinders, it is used as meter in (suction throttle).

### ■Standard specifications

Туре	MV-2-Z03-017	SP-K017-Z03-006				
Manufacturer	TAIYO	TAIYO				
JIS symbol	*					
Applicable cylinder type	With PCS 2406-K090-Z132 solenoid valve mounted	Other than indicated at left				
Function	With silencer	_				
Needle revolution	10 rotations	11 rotations				
Adjustable range	5 to 15 secs.	5 to 15 secs.				
Air connection port size		Rc1/4				
Attachement	Screw into solenoid valve exhaust port (Rc 1/4)	Install to cylinder				
Weight	0.06kg	0.095kg				

Remark: The above are standard TOMOE-compatible speed controllers. It is also possible to install speed controllers other that those listed above. For details, please consult us.





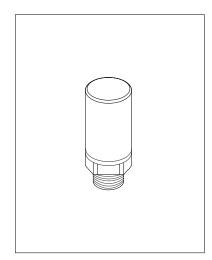
# **New T-DYNAMO Silencers**

#### ■Purpose

Silencers eliminate noise at the exhaust ports on various kinds of pneumatic accessories.

### **■**Standard specifications

Туре	AN10-C06	AN20-02
Manufacturer	SMC	SMC
JIS symbol		
Applicable cylinder type	T35 to T750/T85S to T750S	T35 to T750/T85S to T750S
Effect of muffing	25dB (A)	30dB (A)
Operating temperature	5 to 60 degrees C	5 to 60 degrees C
Port size	Φ6	Rc1/4
Attachement	Install to exhaust port together with one-touch pipe coupler.	Screw into exhaust port.
Weigh	0.02kg	0.02kg



Remark: The above are standard TOMOE-compatible silencers. It is also possible to install silencers other that those listed above. For details, please consult us.

# **New T-DYNAMO Lock-up valves**

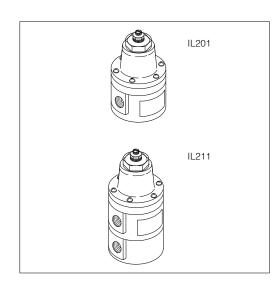
### **■**Purpose

When air supply fails, the lock-up valve automatically stops the line until pressure is restored and keeps the operating unit of the cylinder at the stay-put position.

#### **■**Standard specifications

Туре	IL211-02	IL201-02		
Manufacturer	SMC	SMC		
JIS symbol				
Applicable cylinder type	T35 to T750	T85S to T750S		
Effective sectional area	17mm <sup>2</sup>	17mm²		
Operating temperature	—5 to 60 degrees C	-5 to 60 degrees C		
Air connection port size	Rc1/4	Rc1/4		
Signal pressure connection port	Rc1/4	Rc1/4		
Weight	0.64kg 0.43kg			

Remark: The above are standard TOMOE-compatible lock-up valves. It is also possible to install lock-up valves other that those listed above. For details, please consult us.

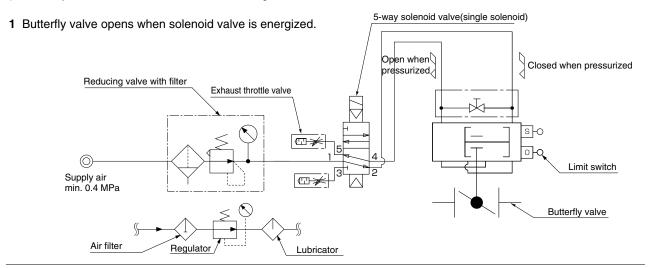




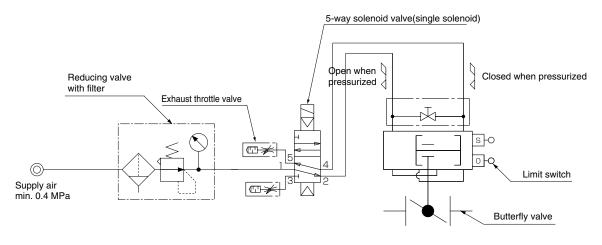
#### New T-DYNAMO Examples of standard air circuits for pneumatic actuators

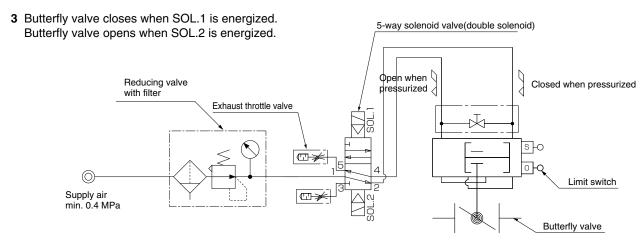
# Standard and semi-standard accessories and their use Example of standard air circuit for on/off operation (double-acting type)

Shown below are standard circuits to open and close a butterfly valve driven by a double-acting air cylinder while transmitting electrical signals from a remote control room. Switching of the flow of operation air is performed by the solenoid valve, and detection of the open/close position of the valve is performed by a limit switch, with feedback of the electrical signals to the control room.



2 Butterfly valve closes when solenoid valve is energized.





→Once SOL.1 is energized, the condition is maintained even after it is de-energized unless SOL.2 is energized

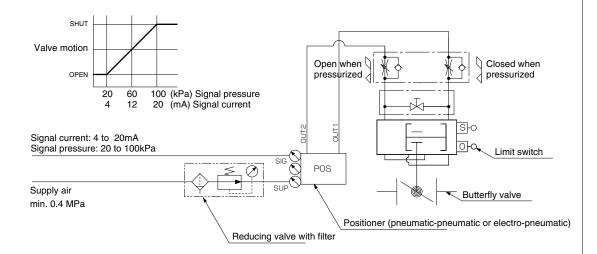
#### New T-DYNAMO Example of standard air circuits for pneumatic actuators

# Example of standard air circuit for control operation (double-acting type)

Shown below are examples of standard circuits in which a P/P or E/P positioner is attached to the butterfly valve driven by a double-acting pneumatic cylinder to give instruction signals from a remote control room to the positioner. This adjusts the valve opening exactly and quickly in proportion to the signals, and also detects the open/close position of the valve by a limit switch which sends feedback of the electrical signals to the control room.

#### 4 Direct action

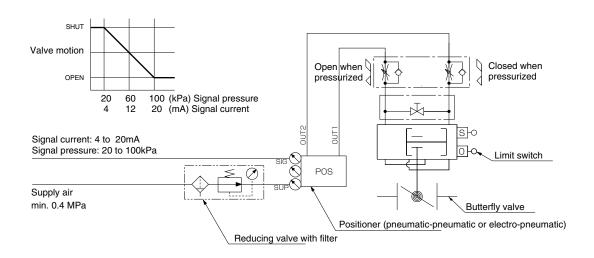
Butterfly valve closes when signal increases. Butterfly valve opens when signal decreases.



<sup>→</sup>The butterfly valve opens fully when the input signal goes off under a state of assured air supply.

#### 5 Reverse action Butterfly valve opens when signal increases.

Butterfly valve closes when signal decreases.



→The butterfly valve closes fully when input signal goes off under a state of assured air supply.

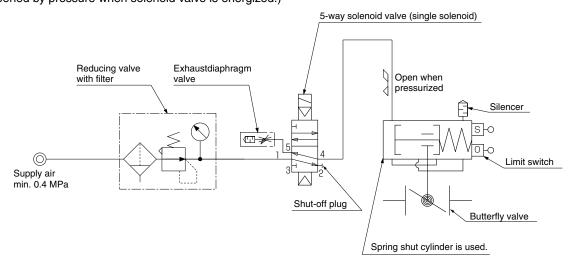


#### New T-DYNAMO Example of standard air circuits for pneumatic actuators

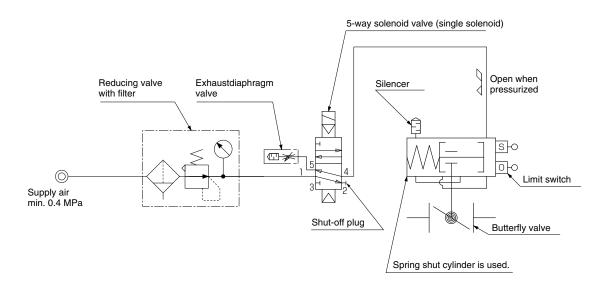
# Example of standard air circuit for on/off operation (single-acting type)

Shown below are examples of standard circuits to operate the valve automatically to the safe side of open or close when the operating air supply or power supply fails in the middle of operation.

1 Butterfly valve closes when air supply falls. (Opened by pressure when solenoid valve is energized.) Butterfly valve closes when power supply falls. (Opened by pressure when solenoid valve is energized.)



2 Butterfly valve opens when power supply falls. (Closed by pressure when solenoid valve is energized.) Butterfly valve opens when air supply falls. (Closed by pressure when solenoid valve is energized.)



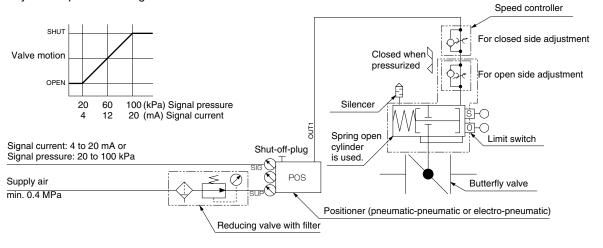
#### New T-DYNAMO Example of standard air circuits for pneumatic actuators

# Example of standard air circuit for control operation (single-acting type)

Shown below are examples of standard circuits in which the P/P or E/P positioner is attached to the butterfly valve driven by a single-acting pneumatic cylinder to adjust valve opening exactly and quickly in proportion to the signals transmitted by a local controller or from a remote control room. This will also detect the open/close position of the valve by a limit switch which sends feedback of the electric signals to the control room. When the operating air supply or power supply fails, the valve is automatically operated to the safe side of open or close.

#### 3 Direct action

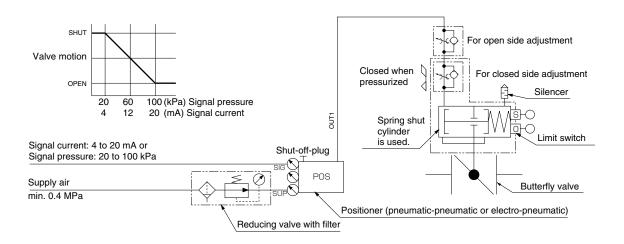
Butterfly valve closes when signal increases. Butterfly valve opens when signal decreases.



<sup>→</sup>Butterfly valve opens when air supply fails.

#### 4 Reverse action

Butterfly valve opens when signal increases. Butterfly valve closes when signal decreases.



<sup>→</sup>Butterfly valve closes when air supply fails.