

## Features

1. Two built-in cylinders double the output force.
2. Parallel piston rods prevent rotation.
3. Reed switch can be embedded in the housing groove, ensure proper positions and easy adjustment.
4. Rectangular housing, design to minimize space.
5. The cylinder can be operated with or without lubrication and with ease of maintenance.
6. Standard feature includes magnetic piston.
7. Incorporate into multi-axis assemblies easily for robot arms.

## Specification

Series	DF
Action	Double acting, magnetic type
Bore	Ø10, Ø16, Ø20, Ø25
Operating fluid	Compressed air
Proof pressure	1.05MPa(10.5kgf/cm <sup>2</sup> )
Operating pressure	0.1~0.7MPa(1~7kgf/cm <sup>2</sup> )
Piston speed range	100~500mm/sec
Temperature range	-10°C~ +70°C(not frozen)
Cushion	PU pad bumper
Lubrication	Not required (ISO VG32 if required)
Non-rotating accuracy	±0.4°
Stroke tolerance	adjustable: -5~+10mm



## How to order

<b>DF</b>	<b>20</b> X <b>50</b>	<b>TD-A93</b>	<b>2</b>								
<b>Series</b>	<b>Bore</b>	<b>Stroke</b>	<b>Reed switch</b>								
DF standard type	Ø10 Ø16 Ø20 Ø25	10~70mm 10~100mm 10~100mm 10~100mm	<table border="1"> <tr> <td>TD-A93 TD-M9P TD-M9N TD-M9B</td> <td>TD-A93V TD-M9NV TD-M9PV</td> </tr> <tr> <td>For Ø10</td> <td>For Ø10</td> </tr> <tr> <td>UT-11N UT-22</td> <td>TA-11N TA-11P TA-22</td> </tr> <tr> <td>For Ø16~Ø25</td> <td>For Ø16~Ø25</td> </tr> </table>	TD-A93 TD-M9P TD-M9N TD-M9B	TD-A93V TD-M9NV TD-M9PV	For Ø10	For Ø10	UT-11N UT-22	TA-11N TA-11P TA-22	For Ø16~Ø25	For Ø16~Ø25
TD-A93 TD-M9P TD-M9N TD-M9B	TD-A93V TD-M9NV TD-M9PV										
For Ø10	For Ø10										
UT-11N UT-22	TA-11N TA-11P TA-22										
For Ø16~Ø25	For Ø16~Ø25										
			<table border="1"> <tr> <td>1</td> <td>1PC</td> </tr> <tr> <td>2</td> <td>2PCS</td> </tr> </table>	1	1PC	2	2PCS				
1	1PC										
2	2PCS										

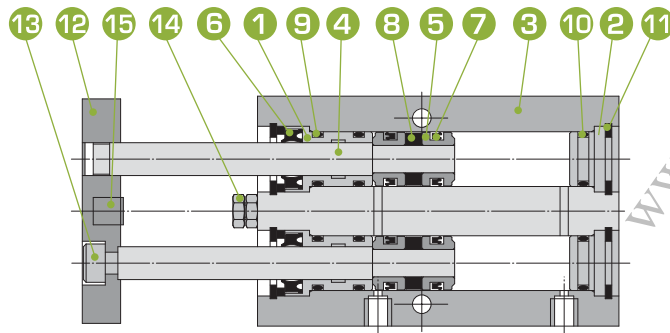
※ Please refer 3.41.01 · 3.43.01 ~ 3.43.03 · 3.47.01 ·

## Theoretical output

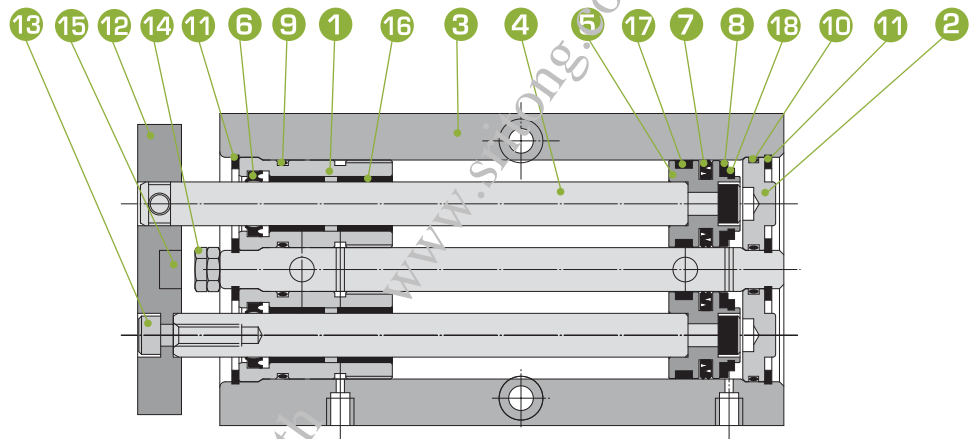
Bore mm	Rod dia mm	Direction	Effective area cm <sup>2</sup>	Compressed air ( kgf / cm <sup>2</sup> )								
				2	3	4	5	6	7	8	9	
Ø10	6	Push	1.57	3.14	4.71	6.28	7.85	9.42	10.99	12.56	14.13	
		Pull	1.01	2.02	3.03	4.04	5.05	6.06	7.07	8.08	9.09	
Ø16	8	Push	4.02	8.04	12.06	16.08	20.10	24.12	28.14	32.16	36.18	
		Pull	3.01	6.02	9.03	12.04	15.05	18.06	21.07	24.08	27.09	
Ø20	10	Push	6.28	12.56	18.84	25.12	31.40	37.68	43.96	50.24	56.52	
		Pull	4.71	9.42	14.13	18.84	23.55	28.26	32.97	37.68	42.39	
Ø25	12	Push	9.81	19.62	29.43	39.24	49.05	58.86	68.67	78.48	88.29	
		Pull	7.55	15.10	22.65	30.20	37.75	45.3	52.85	60.40	67.95	

Internal construction

● DF10



● DF16~25



Part lists

NO.	Description	Material	Qty
1	Front end cover	Anodized aluminium alloy	2
2	Rear end cover	Anodized aluminium alloy	2
3	Barrel	Anodized aluminium alloy	1
4	Piston rod	Hard chrome plated carbon steel	2
5	Piston	Ø10 Brass	4
		Ø16 ~ 25 Aluminium alloy	2
6	Piston rod seal	NBR	2
7	Piston seal	Ø10 NBR	4
		Ø16 ~ 25 NBR	2
8	Magnet	Resinous magnet	2
9	Front end cover seal	Ø10 NBR	4
		Ø16 ~ 25 NBR	2
10	Rear end cover seal	NBR	2
11	Snap ring	SK5M	4
12	Plate	Aluminium alloy	1
13	Mounted screw	Carbon steel	2
14	Screw Nut	Carbon steel	2
15	Bumper	POM	1
16	Bush	Oil filled sintered bronze	2
17	Wear ring	POM	2
18	Washer	Stainless steel	2

Seal lists

Description	6 Piston rod seal	7 Piston seal	9 Front end cover seal	10 Rear end cover seal
Bore				
Ø10	EM0609	DYP10	SM8	SM8
Ø16	COR 8	COP16	SM12	SM14
Ø20	COR10	COP20	SM16	SM16
Ø25	COR12	COP25	SM22	SM22

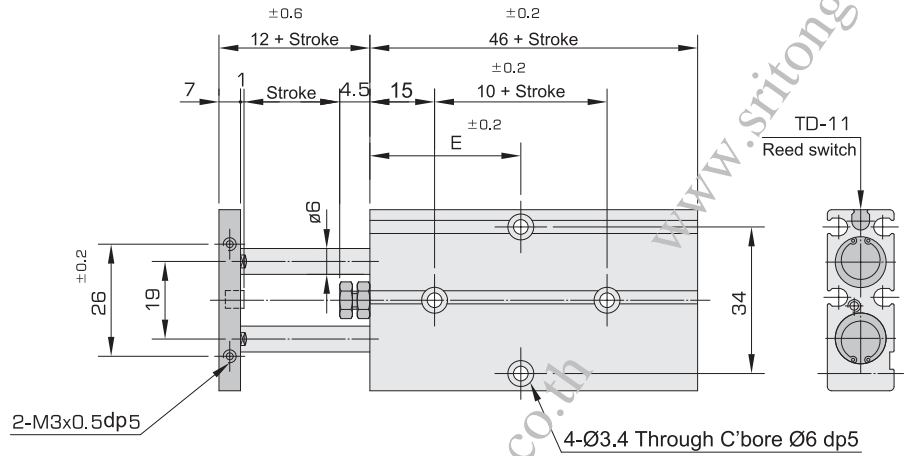
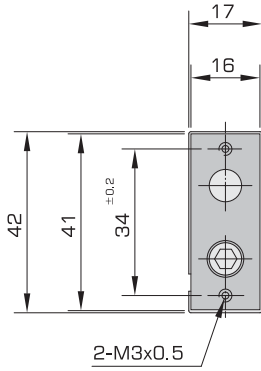
Standard stroke

Unit : mm

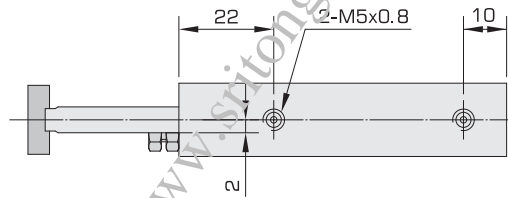
Bore	Stroke
Ø10	10,20,30,40,50,60,70
Ø16	10,20,30,40,50,60,70,80,90,100
Ø20	10,20,30,40,50,60,70,80,90,100
Ø25	10,20,30,40,50,60,70,80,90,100

## External dimensions

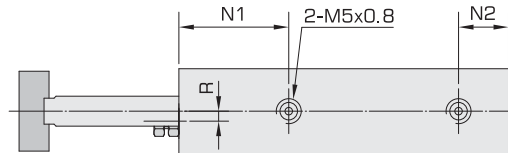
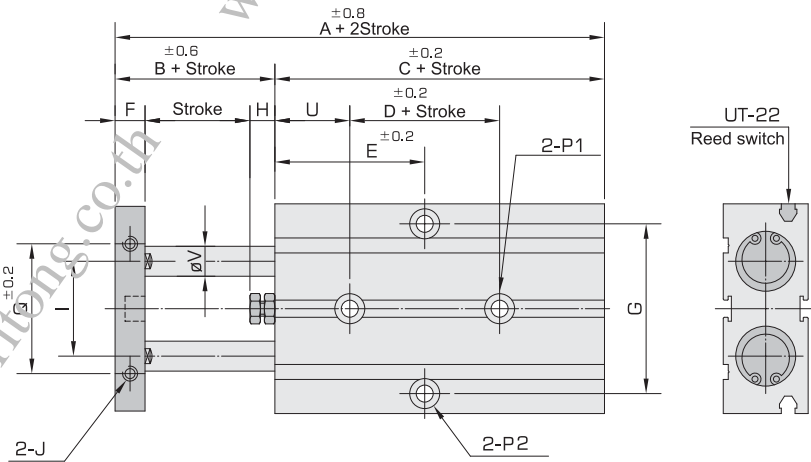
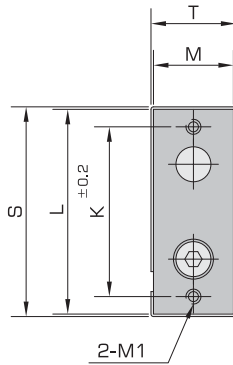
### DF10



Model Stroke Bore	E						
	10	20	30	40	50	60	70
Ø10	30	30	35	40	45	50	55



### DF16~25



Model Stroke Bore	E																					
	A	B	C	D	10	20	30	40	50	60	70	80	90	100	F	G	H	I	J	K	L	M
Ø16	68	15	53	20	30	35	40	45	50	55	60	65	70	75	8	47	7	24	M4X0.7dp6	47	53	20
Ø20	78	20	58	20	35	35	40	45	50	55	60	65	70	75	10	55	10	28	M4X0.7dp6	55	61	24
Ø25	81	19	62	30	40	40	45	50	55	60	65	70	75	80	10	70	9	40.2	M5X0.8dp6	66	72	29

Bore	Model		P1		P2		Q	R	S	T	U	V	
	M1	N1	N2										
Ø16	M4X0.7	22	10	Ø4.5Through, C'bore Ø8, dp7.2		Ø4.5Through, C'bore Ø8, dp4.3		34	4	57	21	15	8
Ø20	M4X0.7	24	12	Ø4.5Through, C'bore Ø8, dp7.2		Ø4.5Through, C'bore Ø8, dp4.3		44	6	65	25	15	10
Ø25	M4X0.7	27	12	Ø4.5Through, C'bore Ø8, dp7.2		Ø4.2Through, C'bore Ø8, dp4.3		56	5	80	30	15	12