Features:

- Dual bores exert twice the force of a traditional cylinder.
- Parallel piston rods prevent rotation.
- The switch fits in a groove located on the cylinder's housing and leaves it flush with the cylinder body.
- Rectangular housing, design to minimize space.
- The cylinder can be operated with or without lubrication and with ease of maintenance.
- Incorporate into multi-axis assemblies easily as laborsaving robot arms.

Specifications:

Action	Double acting type
Series	DF
Bore	ø10, ø16, ø20, ø25
Operating fluid	Compressed air
Operating pressure	1-7kgf/cm^2
Proof pressure	10.5kgf/cm^2
Speed range	100-500mm/sec
Temperature range	-10^{o}C~+70^{o}C
Cushion	PU pad bumper
Lubrication	Not required
Non-rotating accurary	±0.4^o

How to Order:

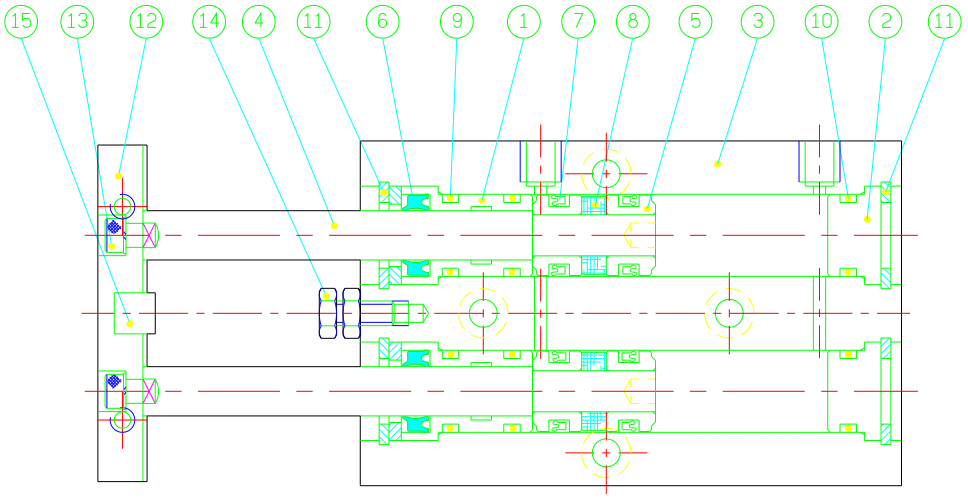
DF	20	x	50	TA	2
Series	**Bore**		**Stroke**	**Reed switch**	**Switch quantity**
DF Standard type 	ø10 ø16 ø20 ø25		10~70mm 10~100mm 10~100mm 10~100mm	TA-22(DF16~25): DC/AC 4~220V  TD-11(DF10): DC/AC 4~110V  UT-22(DF16~25): DC/AC 4~220V 	1 : 1 PC 2 : 2 PCS

Theoretical Output Force (kgf):

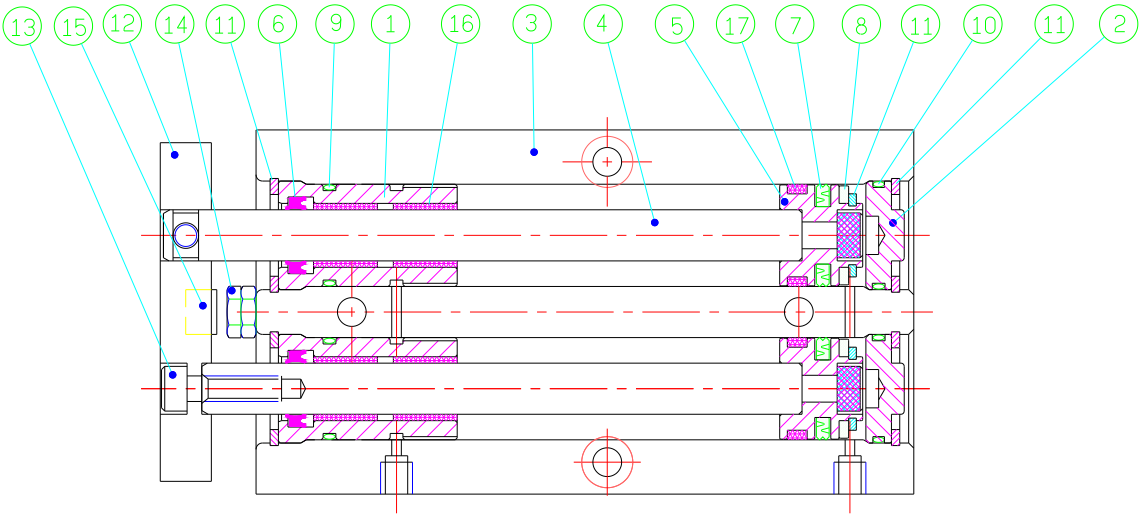
Bore mm	Rod dia mm	Direction	Effective area cm^2	Compressed air (kgf/cm^2)							
				2	3	4	5	6	7	8	9
ø10	6	Push	1.57	3.14	4.71	6.28	7.85	9.42	10.99	12.56	14.13
		Pull	1.01	2.02	3.03	4.04	5.05	6.06	7.07	8.08	9.09
ø16	8	Push	4.02	8.04	12.06	16.08	20.10	24.12	28.14	32.16	36.18
		Pull	3.01	6.02	9.03	12.04	15.05	18.06	21.07	24.08	27.09
ø20	10	Push	6.28	12.56	18.84	25.15	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



Parts List:

NO	Description	Material	Qty
❶	Front end cover	Anodized aluminium alloy	2
❷	Rear end cover	Anodized aluminium alloy	2
❸	Housing	Anodized aluminium alloy	1
❹	Piston rod	Hard chrome plated stainless steel	2
❺	Piston	ø10 Brass	4
		ø16~25 Aluminium alloy	2
❻	Front end cover seal	NBR	2
❼	Piston seal	ø10 NBR	4
		ø16~25 NBR	2
❽	Magnet	Resinous magnet	2
❾	Front end cover seal	ø10 NBR	4
		ø16~25 NBR	2
❿	Rear end cover seal	NBR	2
⓫	Snap ring	SK5M	4
⓬	Tool plate	Aluminium alloy	1
⓭	Set screw	Carbon steel	2
⓮	Screw Nut	Carbon steel	2
⓯	Bumper	POM	1

NO	Description	Material	Qty
⓰	Bush	Oil filled, sintered bronze	2
⓱	Wear ring	POM	2
⓲	Washer	Stainless steel	2

Seals List:

Bore\Desc.	❻ Piston rod seal	❼ Piston seal	❾ Front end cover seal	❿ Rear end cover seal
ø10	EL6	PZ10	SM8	SM8
ø16	DRP8	PZ16	SM12	SM12
ø20	DRP10	PZ20	SM16	SM16
ø25	DRP12	PZ25	SM21	SM21

Standard Stroke:

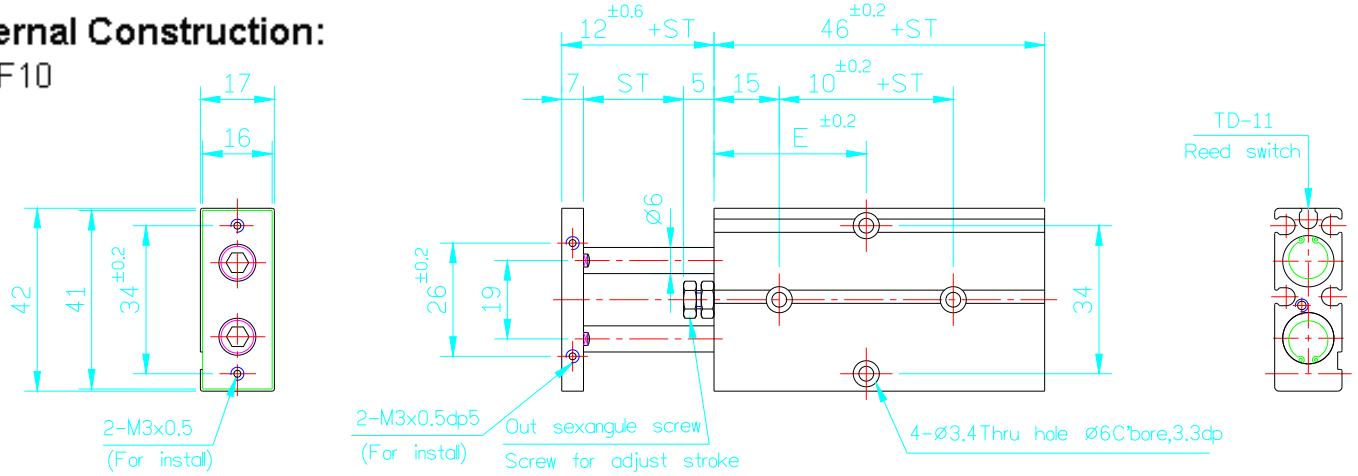
Unit: mm

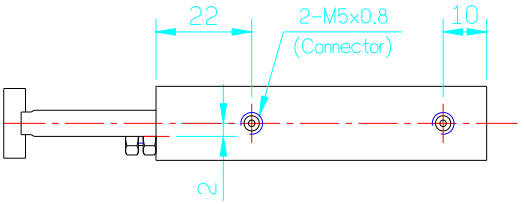
Bore	Stroke
ø10	10, 20, 30, 40, 50, 60, 70
ø16, ø20, ø25	10, 20, 30, 40, 50, 60, 70, 80, 90, 100

Non-standard strokes are avaliable upon request.

External Construction:

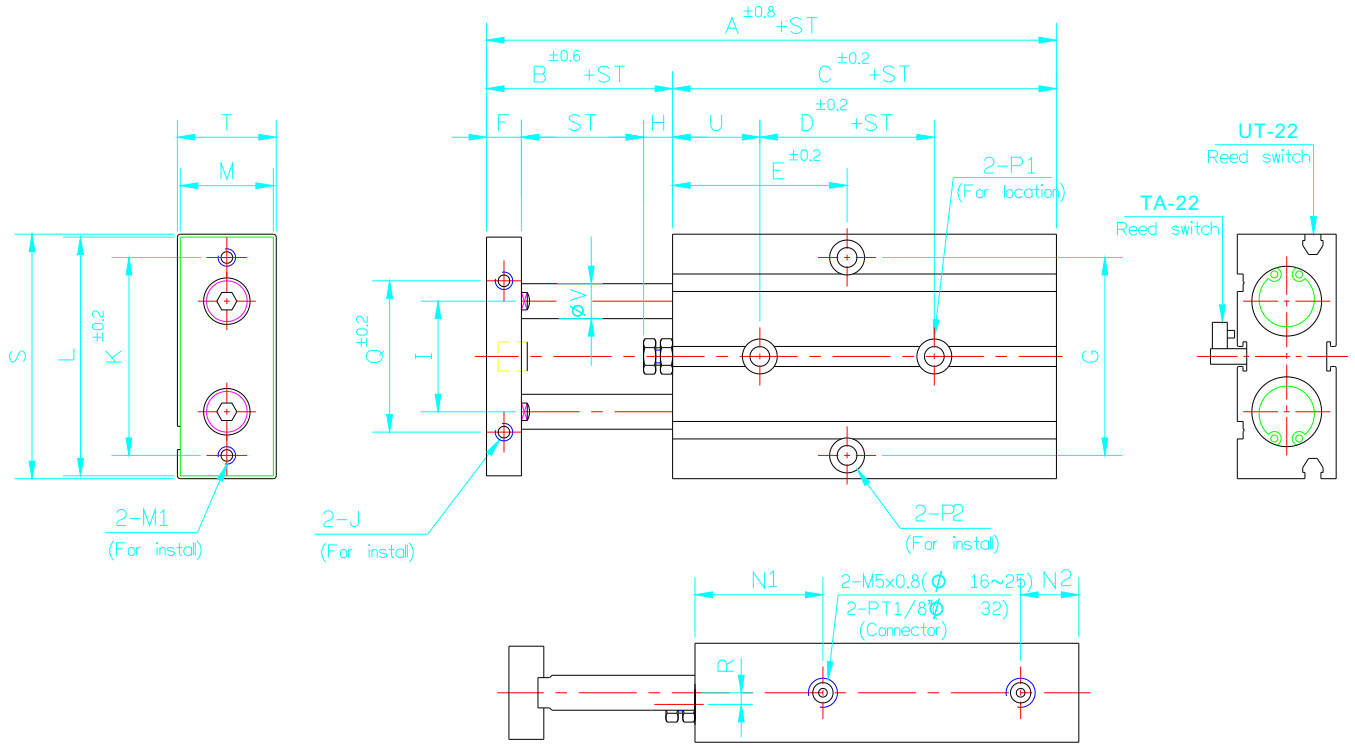
- DF10





Bore\ Mark / Stroke	E						
	10	20	30	40	50	60	70
10	30	30	35	40	45	50	55

- DF16~25



Bore\ Mark / Stroke	A	B	C	D	E										F	G	H	I	J	K	L	M
					10	20	30	40	50	60	70	80	90	100								
16	68	15	53	20	30	35	40	45	50	55	60	65	70	75	8	47	6	24	M4x0.7dp5	47	53	20
20	78	20	58	20	35	35	40	45	50	55	60	65	70	75	10	55	9	28	M4x0.7dp5	55	61	24
25	81	19	62	30	40	40	45	50	55	60	65	70	75	80	10	70	8	40	M4x0.8dp6	66	72	29

Bore \ Mark	M1	N1	N2	P1	P2	Q	R	S	T	U	V
16	M4x0.7	22	10	ø4.5 thru hole ø8C'bore, 7.2dp	ø4.5 thru hole ø8C'bore, 4.4dp	34	4	57	21	15	8
20	M4x0.7	24	12	ø4.5 thru hole ø8C'bore, 7.2dp	ø4.5 thru hole ø8C'bore, 4.4dp	44	6	65	25	15	10
25	M4x0.7	27	12	ø4.5 thru hole ø8C'bore, 7.2dp	ø4.5 thru hole ø8C'bore, 4.4dp	56	5	80	30	15	12