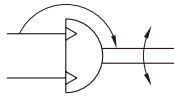


Symbol



Order example

MCRQ – 20R – □

MODEL TUBE I.D.

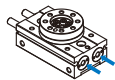
ANGLE ADJUSTER

A: With adjusting bolt
R: With shock absorber

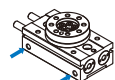
※ $\phi 12$ without shock absorber

PIPING TYPE(※)

Blank: End port



E: Front port



※ $\phi 12$ only option.

※ Piping port cannot be changed after delivery.

Features

- Centering boss and locating hole for accurate positioning.
- Operating range of table is 0°~190° by angle adjusting screw.
- Compact design using double rack and single pinion.
- Hollow shaft standard for wiring and piping.
- Possible to fit shock absorbers as stops.
- Ease of mounting with integral table.

Specification

Model	MCRQ						
Acting type	Double acting						
Tube I.D. (mm)	$\phi 12$	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$	
Port size	M5 \times 0.8		Rc1/8				
Medium	Air						
Max. operating pressure	adjusting bolt	0.7 MPa		1 MPa			
	shock absorber	—	0.6 MPa (※1)				
Min. operating pressure	0.1 MPa (※2)						
Ambient temperature	0~+60°C (No freezing)						
Cushion	adjusting bolt	Rubber bumper					
	shock absorber	—	Shock absorber				
Angle adjustment range	0° to 190°(max.) (※3)						
Sensor switch (※4)	RDF						
Weight (kg)	adjusting bolt	0.25	0.60	1.31	2.10	4.18	7.67
	shock absorber	—	0.61	1.31	2.12	4.19	7.72

※1. The maximum operating pressure of the actuator is restricted by the maximum allowable thrust of the shock absorber.

※2. No-load conditions.

※3. Be careful if the rotation angle of a type with internal shock absorber is set below the value in the table below, the piston stroke will be smaller than the shock absorber's effective stroke, resulting in decreased energy absorption ability.

Tube I.D. (mm)	$\phi 16$	$\phi 20$	$\phi 25$	$\phi 32$	$\phi 40$
Minimum rotation that will not allow decrease of energy absorption ability	72°	58°	69°	77°	82°

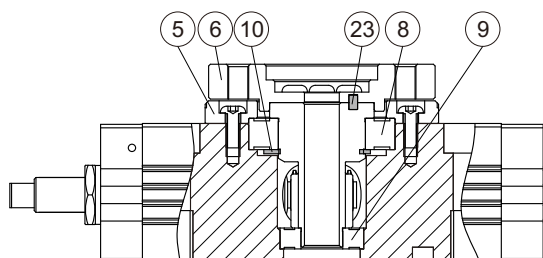
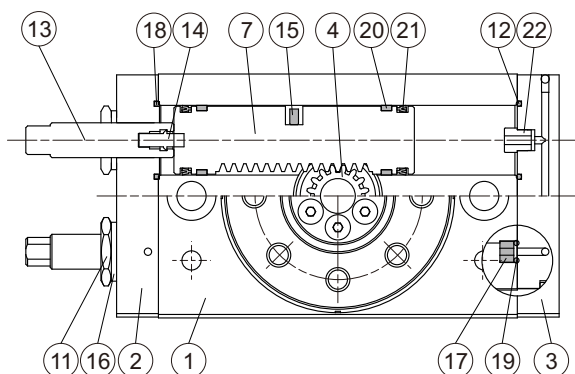
※4. RDF specification, please refer to page 5-10.

Allowable kinetic energy and rotation time adjustment range

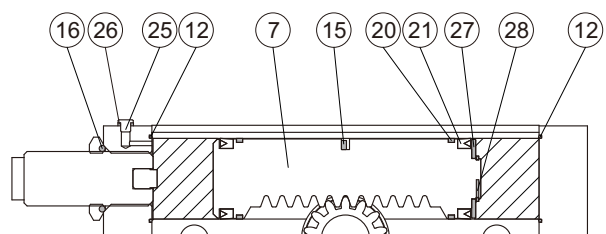
Model	Allowable kinetic energy (J)		Rotation time adjustment range for stable operation(s/90°)	
	Adjustment bolt	Internal shock adsorber	Adjustment bolt	Internal shock adsorber
MCRQ-12	0.006	—	0.2 to 1.0	—
MCRQ-16	0.007	0.039		0.2 to 0.7
MCRQ-20	0.048	0.116		
MCRQ-25	0.081	0.294	0.2 to 2.0	0.2 to 1.0
MCRQ-32	0.32	1.6		
MCRQ-40	0.56	2.9	0.2 to 2.5	

※ Be careful if a type with internal absorber is used below the minimum speed, the energy absorption ability will decrease drastically.

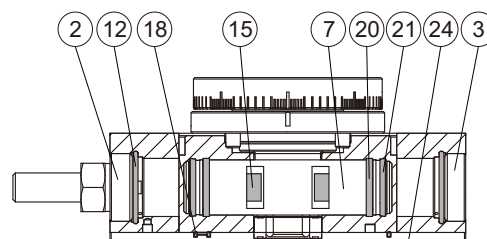
$\phi 16 \sim \phi 32$



$\phi 40$



$\phi 12$



Material

No.	Part name	Material	Q'y				Repair kits (inclusion)
			Tube I.D.				
			12	16	20~32	40	
1	Body	Aluminum alloy	1				
2	Cover	Aluminum alloy	2	1			
3	End cover	Aluminum alloy	2	1			
4	Pinion	SCM	1				
5	Bearing retainer	Aluminum alloy	1				
6	Table	Aluminum alloy	1				
7	Piston	Stainless steel	2				
8	Rolling bearing	Bearing steel	1				
9	Rolling bearing	Bearing steel	1				
10	Snap ring	Spring steel	—	1	—		
11	Seal nut	Carbon steel	2				
12	O-ring	NBR	4	2	4		●
13	Shock absorber	Stainless steel (※1)	2				
14	Cushion pad	NBR	2				
15	Magnet	Magnet material	4	2			
16	Seal washer	※2	2				●
17	Fixed	Copper	—	4	2	—	
18	Piston packing	NBR	1	—	2	—	●
19	O-ring	NBR	—	4	2	—	●
20	Wear ring	Complex resin	4				

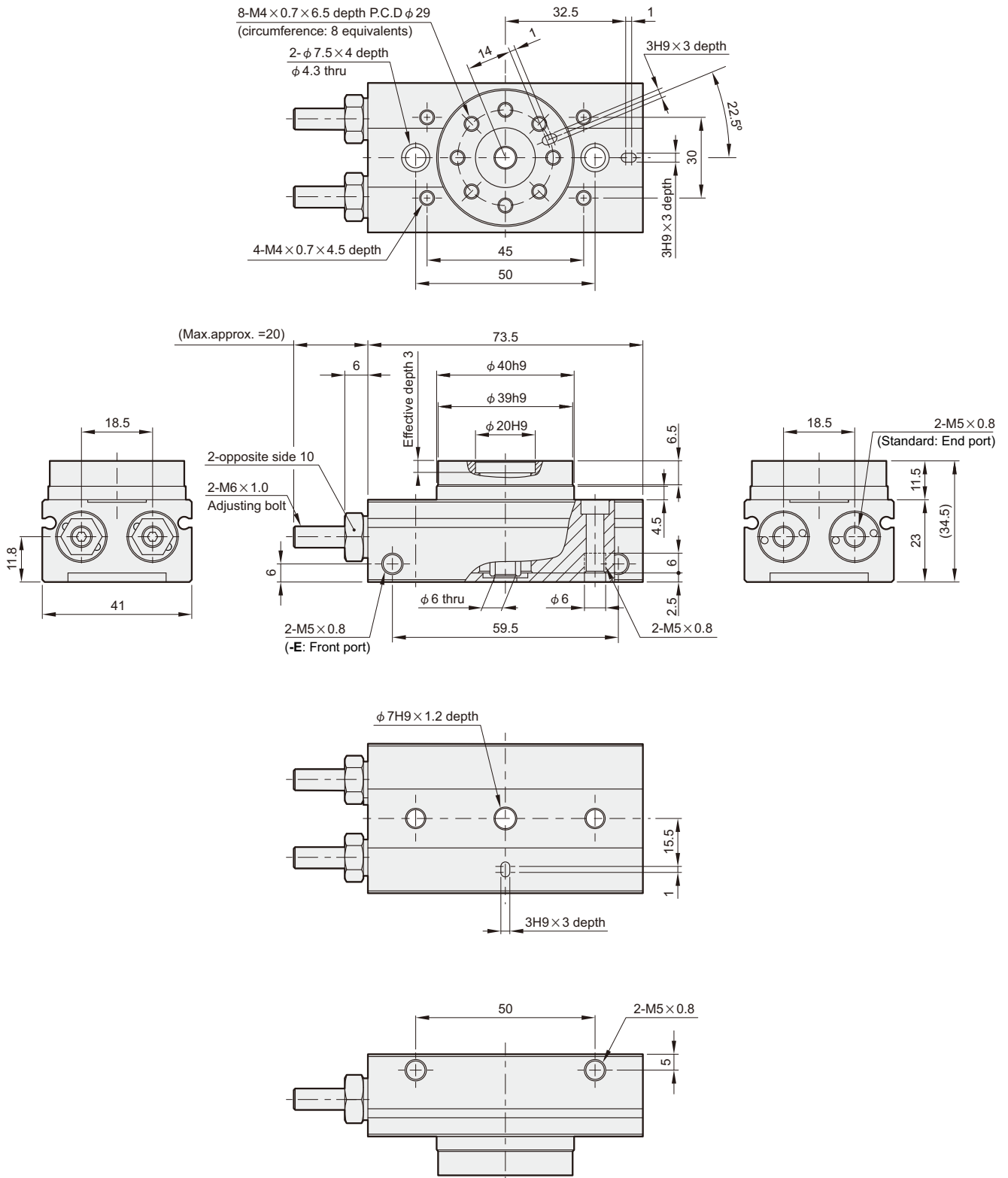
※1: $\phi 40$: Carbon steel

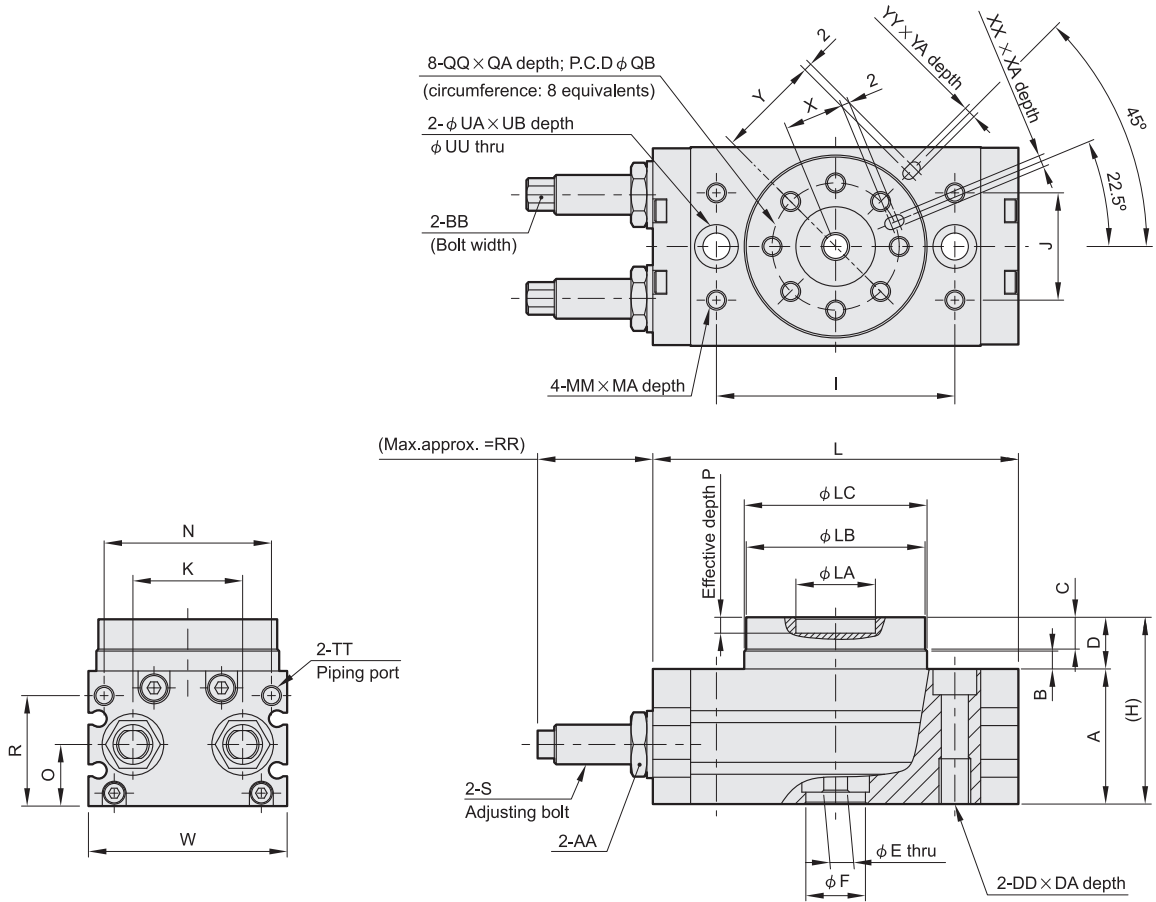
※2: $\phi 12 \sim \phi 32$: NBR+Stainless steel; $\phi 40$: NBR

No.	Part name	Material	Q'y				Repair kits (inclusion)
			Tube I.D.				
			12	16	20~32	40	
21	Piston Seal	NBR	4				●
22	Stop chunk	Aluminum alloy	—	2	—		
23	Pin	SCM	1				
24	Plate	Aluminum alloy	1	—			
25	Plug	Copper	—			1	
26	Plug washer	PET	—			1	
27	Piston retainer	Aluminum alloy	—			2	
28	Piston snap ring	Spring steel	—			2	

Order example of repair kits

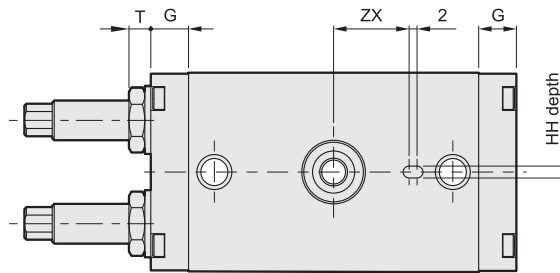
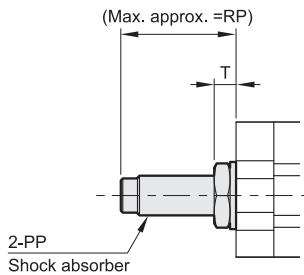
Tube I.D.	Repair kits
$\phi 12$	PS-MCRQ-12
$\phi 16$	PS-MCRQ-16
$\phi 20$	PS-MCRQ-20
$\phi 25$	PS-MCRQ-25
$\phi 32$	PS-MCRQ-32
$\phi 40$	PS-MCRQ-40





MCRQ-16~25R

With shock absorber



Unit: mm

Code Tube I.D.	A	AA	B	BB	C	D	DA	DD	E	F	G	H	HH	I	J	K	L	LA	LB	LC	MA	MM	N
16	34	14	4.5	7	8	13	12	M8 \times 1.25	6	15H9	9.5	47	3H9 \times 3.5	60	27	26	92	20H9	45h9	46h9	8	M5 \times 0.8	37
20	40	17	6.5	8	10	17	15	M10 \times 1.5	10	22H9	12	57	4H9 \times 4.5	84	37	32	127	32H9	65h9	67h9	8	M6 \times 1	54
25	46	22	7.5	8	12	20	18	M12 \times 1.75	13	26H9	15.5	66	5H9 \times 5.5	100	50	37	152	35H9	75h9	77h9	8	M8 \times 1.25	63

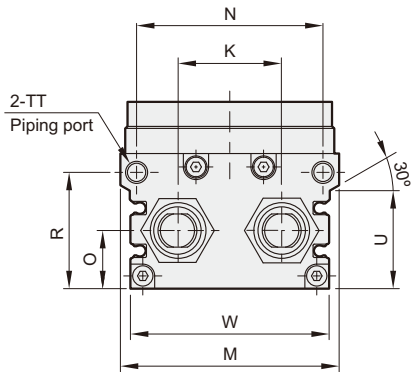
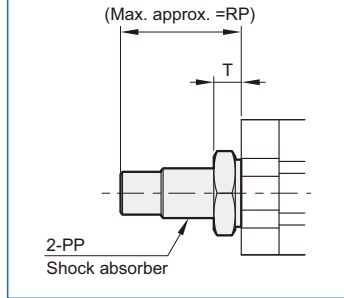
Code Tube I.D.	O	P	PP	QA	QB	QQ	R	RP	RR	S	T	TT	UA	UB	UU	W	X	XA	XX	Y	YA	YY	ZX
16	15.5	4	FK-1008L-S	8	32	M5 \times 0.8	29	29	31	M10 \times 1.0	5.5	M5 \times 0.8	11	6.5	6.8	50	15	3.5	3H9	27	3.5	3H9	19
20	19.5	4.5	FK-1008L-S	10	48	M6 \times 1.0	33	36	23	M10 \times 1.0	4.5	Rc1/8	14	8.5	8.6	70	23	4.5	4H9	39	4.5	4H9	28
25	22	5	FK-1412L-S	12	55	M8 \times 1.25	37.5	33	28	M14 \times 1.5	7.5	Rc1/8	18	10.5	10.5	80	26.5	5.5	5H9	45	5.5	5H9	33

ROTARY ACTUATOR

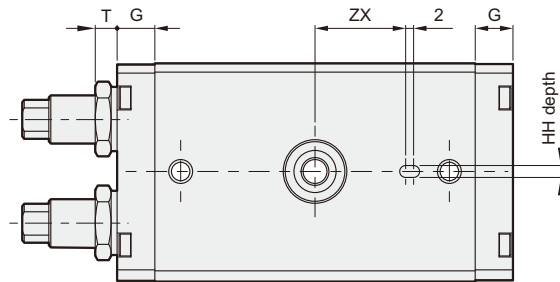
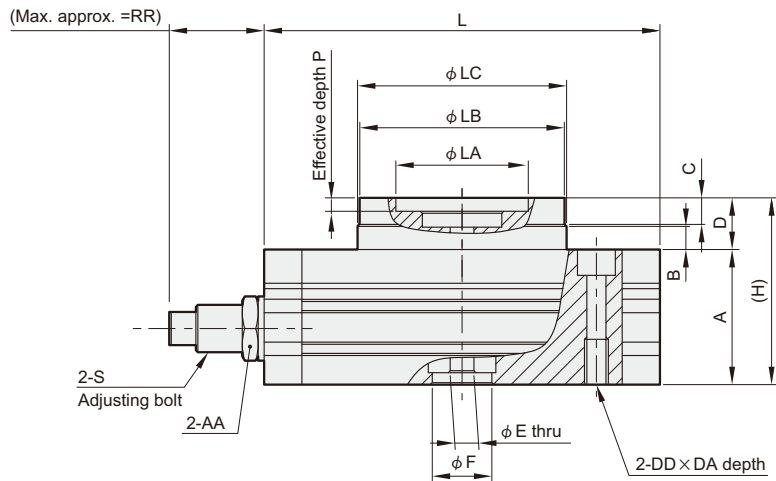
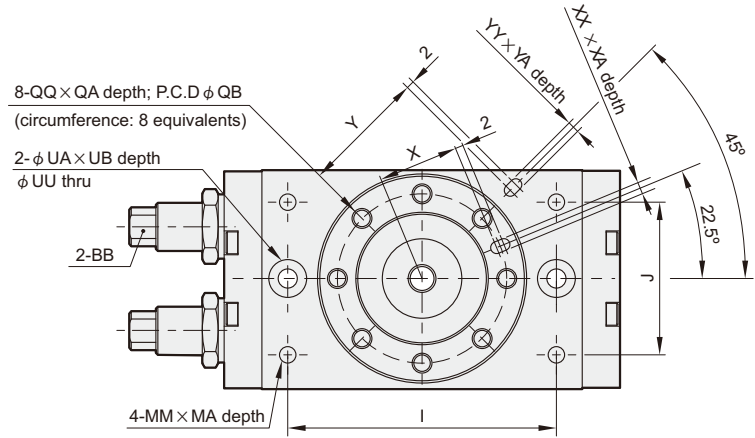
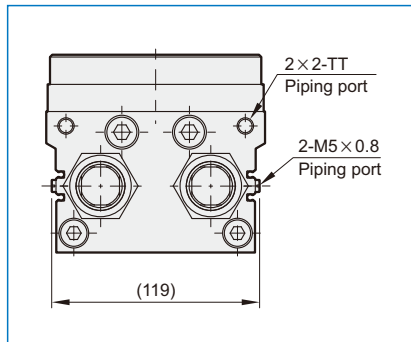
Mindman

MCRQ-32R, 40R

With shock absorber



MCRQ-40



Unit: mm

Code Tube I.D.	A	AA	B	BB	C	D	DA	DD	E	F	G	H	HH	I	J	K	L	LA	LB	LC	M	MA
32	59	30	12	Bolt width 12	14.5	27	18	M12x1.75	13	24H9	17	86	6H9x4.5	130	66	47	189	56H9	98h9	100h9	102	10
40	74	36	15	Bolt width 21	16.5	32	25	M16x2.0	24	32H9	24	106	8H9x6.5	150	80	60	240	64H9	116h9	118h9	120	13

Code Tube I.D.	MM	N	O	P	PP	QA	QB	QQ	R	RP	RR	S	T	TT	U	UA	UB	UU	W	X	XA
32	M8x1.25	85	27.5	6	FK-2016L-S	14.5	77	M10x1.5	50.5	46	34	M20x1.5	10.5	Rc1/8	42	18	10.5	10.5	95	37.5	6.5
40	M12x1.75	100	37	9	FK-2725L-S	16.5	90	M12x1.75	65.5	68	45	M27x1.5	7	Rc1/8	57	20	12.5	14.2	113	44	8.5

Code Tube I.D.	XX	Y	YA	YY	ZX
32	6H9	59	4.5	6H9	49
40	8H9	69	4.5	8H9	54