KP35R series

Features

- Rack-and-pinion rotary cylinder.
- Rotary cylinder for 35kgf/cm^2 with bore sizes from Ø32 to Ø80.
- The rotating angle can be adjusted with a range of ±5°
- Various mounting styles available. (SD, FA, FB)

Symbol

How to Order

KP35R - ① ② ③ ④ - ⑤ ⑥ ⑦

① KP35R

② Type

Nil	Standard
H	With magnet

③ Mounting style

SD	Standard
FA	Top flange
FB	Bottom flange

④ Bore size

32	Ø32
40	Ø40
50	Ø50
63	Ø63
80	Ø80

⑤ Rotating angle

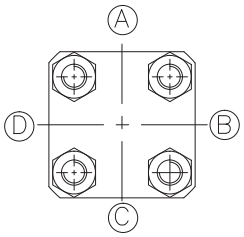
90	90°
180	180°

⑥ Port position

Nil	A (Standard)
B,C,D	Refer to figure below

⑦ Cushion valve position

Nil	B (Standard)
A,C,D	Refer to figure below



When modifying the positions, enter the symbol shown in the dimensional drawings.

Specifications

Type	KP35R
Bore size	Ø32, Ø40, Ø50, Ø63, Ø80
Variation	Rack and pinion type
Rotating angle	90°, 180°
Angle adjustment	±5°
Rated torque (at 35kgf/cm²)	Ø32:60N·m, Ø40:106N·m, Ø50:220N·m, Ø63:436N·m, Ø80:840N·m,
Max. operating pressure	35kgf/cm² (3.6MPa)
Proof pressure	50kgf/cm² (5.1MPa)
Min. operating pressure	5kgf/cm² (0.51MPa)
Ambient & fluid temperature	10 ~ 60℃
Working oil	Petroleum-based fluid
Tolerance of thread	KS class 2
Mounting style	SD, FA, FB

Mass

Unit : kg

Bore size	Basic mass(SD)	Mounting mass
	Standard	FA, FB
Ø32-90°	5.0	0.94
Ø32-180°	5.2	
Ø40-90°	8.8	1.57
Ø40-180°	9.2	
Ø50-90°	13.9	2.09
Ø50-180°	14.7	
Ø63-90°	24.2	3.56
Ø63-180°	25.8	
Ø80-90°	41.0	6.54
Ø80-180°	44.1	

<Calculation>

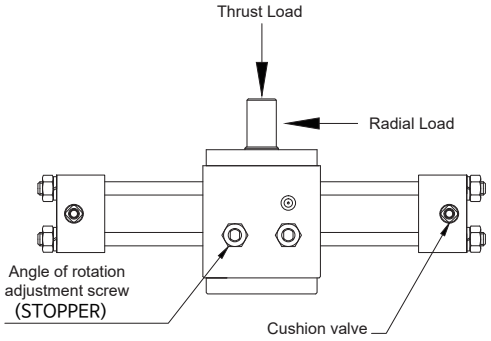
Ex.) KP35R-1 FA40-180
Basic mass: 9.2
FA mounting:1.57
9.2 + 1.57 = 10.77kg

Volume of Fluid Required for Rotation

Unit : ml

Bore size (mm) \ Rotating angle	90°	180°
Ø32	28.3	53.4
Ø40	51.9	99.5
Ø50	104.3	202.6
Ø63	203.8	399.9
Ø80	410.5	788.3

Precautions



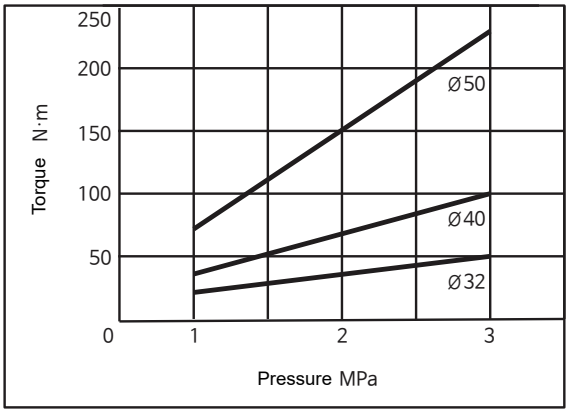
Allowable Radial and Thrust Loads

Bore size(mm) \ Load(kgf)	Radial Load	Thrust Load
Ø32	70	40
Ø40	145	80
Ø50	190	110
Ø63	250	150
Ø80	300	180

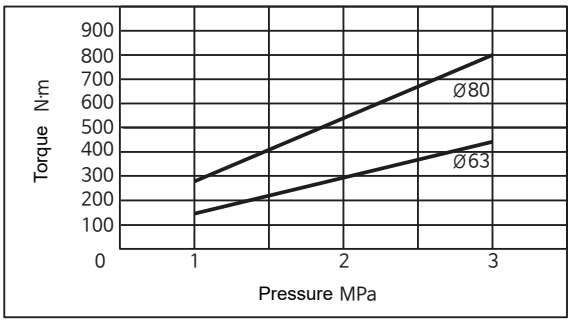
※Avoid from applying a greater load (than those listed above) directly to the rod.
※At the rotating end of the rotary actuator, bring the shaft into contact with the rotation angle adjusting screw under the condition of sufficient cushioning effect.
※If the cushion is not effective, the rotation angle adjusting screw may be damaged.
※When using without shock absorber, be sure to use a cushion and shock absorber as the rack, pinion or stop key may be damaged.
※Remove the low-pressure air from the cylinder and slowly increase the pressure to the operating pressure.

Theoritical Output Torque Charts

Bore size Ø32, Ø40, Ø50



Bore size Ø63, Ø80



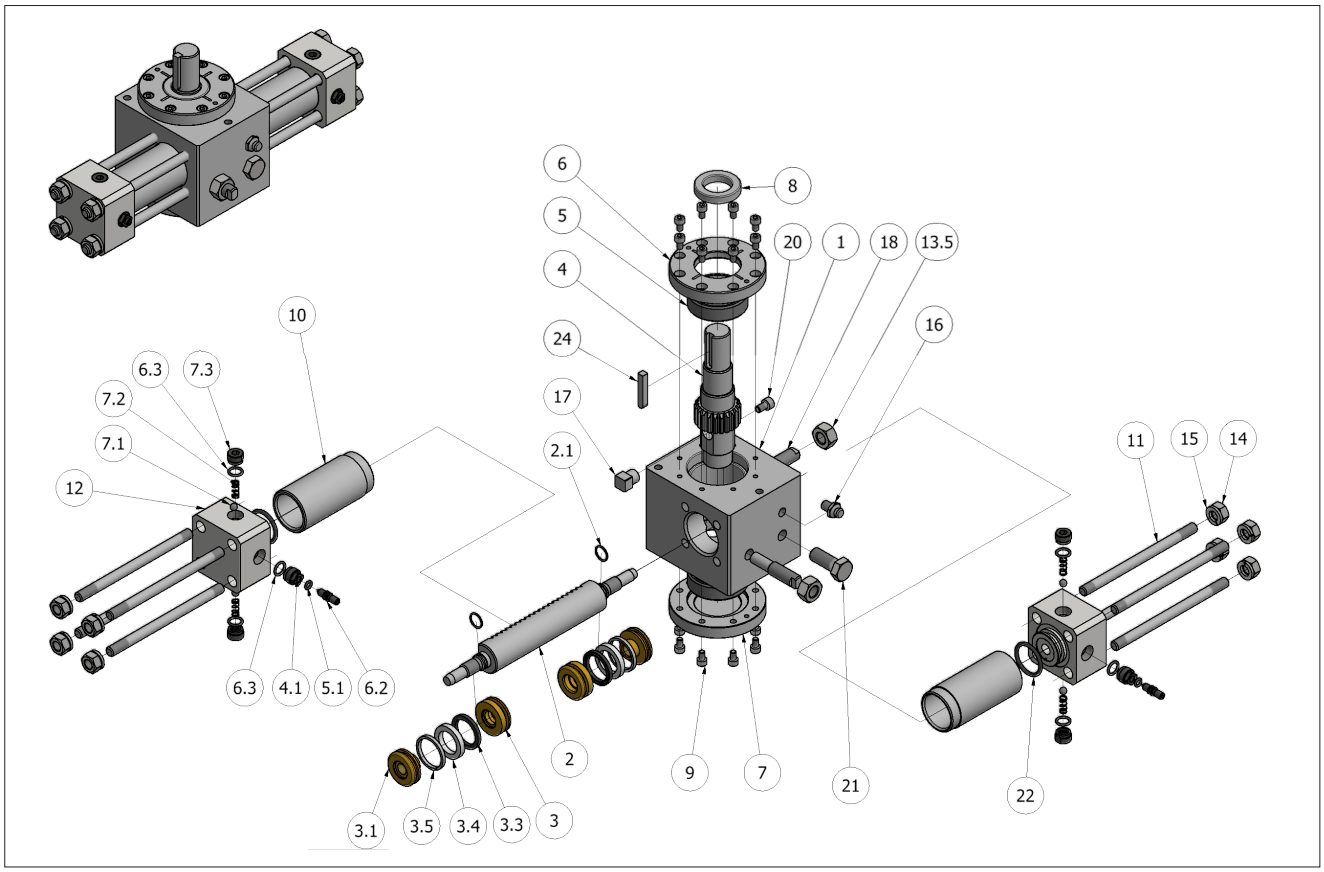
※ 1MPa=10.2kgf/cm², 100N·m=10.2kgf·m

How to Read the Graph

If the operating pressure is 2MPa and the required torque is 400N · m, find the point where the pressure intersection the vertical axis and the horizontal axis of the torque.
Select the cylinder Ø80 (cylinder bore) above the intersection.

Note) Determine the effective torque based on the following data.
When the inertia force is low: 60-80%
When the inertia force is high: 25-35%

Structure



Part List

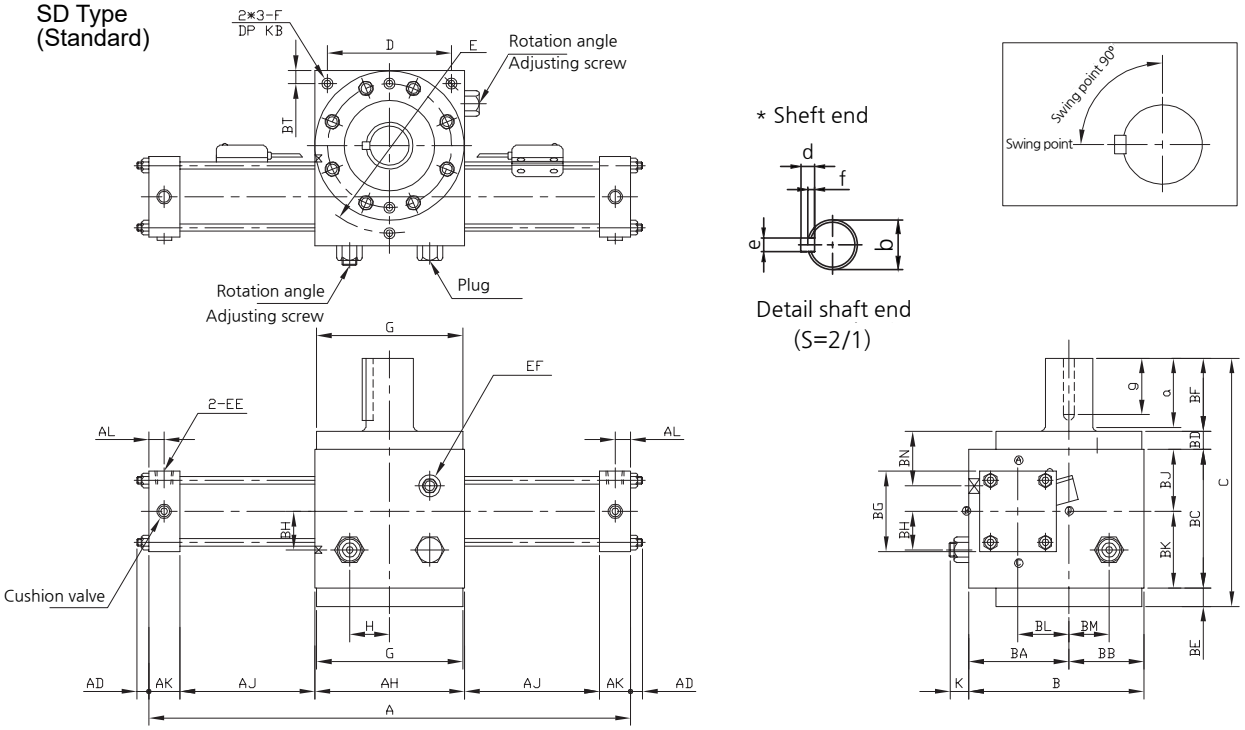
Part no.	Parts	Material	Quantity	Part no.	Parts	Material	Quantity
1	BASE	SS400	1	8	OIL SEAL	NBR	1
2	RACK GEAR	SCM440	1	9	WRENCH BOLT	SCM435	16
3	PISTON	BC6	2	10	TUBE	STKM13C / STS304	2
3.1	MAGNET HOLDER	BC6	2	11	TIE ROD	SM45C	8
3.2	PISTON (ALL-IN-ONE)	SM45C	1	12	HEAD COVER	SS400	2
3.4	MAGNET	PLASTIC	2	13.5	HEX NUT	SM45C	2
4	PINION GEAR	SCM440	1	14	NUT for TIE ROD	SM45C	8
4.1	CUSHION NEEDLE	SUM24L	2	15	WASHER for COVER	SWRH	8
5	BEARING	-	2	16	GREASE NIPPLE	BRASS	1
6	TOP COVER	SM45C	1	17	STOPPER KEY	SM45C	1
6.2	CUSHION BODY	SUM24L	2	18	90° ADJUSTING BOLT	SM45C	2
7	CAP COVER	SM45C	1	20	WRENCH BOLT	SCM435	1
7.1	STEEL BALL	SUJ2	4	21	HEX BOLT	SCM435	1
7.2	SPRING for CHEAK	SUP	4	24	KEY	SM45C	1
7.3	CHECK BODY	SUM42L	4				

Packing List

Part no.	Parts	Material	Quantity	Bore size				
				Ø32	Ø40	Ø50	Ø63	Ø80
2.1	O-RING for RACK GEAR	NBR	2	1A-S12.5	1A-P14	1A-P18	1B-P22A	1A-P29
3.3	PISTON PACKING	NBR	2	OMK MR(32×24.5×3.2)	USH30×40×6	USH 40×50×6	USH 53×63×6	USH 70×80×6
3.5	WEAR RING	NBR	2	-	40×35×10W	50×45×10W	63×58×10W	80×75×10W
5.1	O-RING for CUSHION NEEDLE	NBR	2	1B-P5	1B-P5	1B-P5	1B-P5	1B-P6
6.3	O-RING for C.B	NBR	6	1B-P10	1B-P10	1B-P10	1B-P10	1B-P11
22	O-RING for TUBE	NBR	2	1B-P26/1B-G30	1B-G35	1B-G45	1B-G58	1B-G75

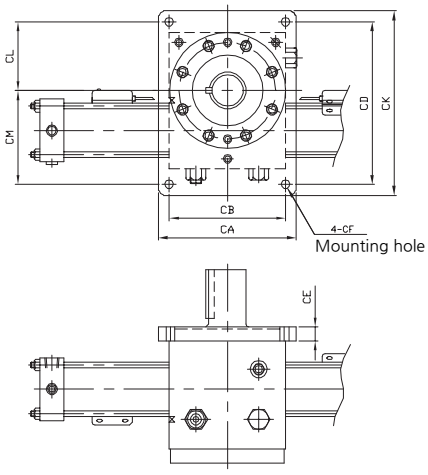
Dimensions-Rotating Angle 90°

SD Type
(Standard)

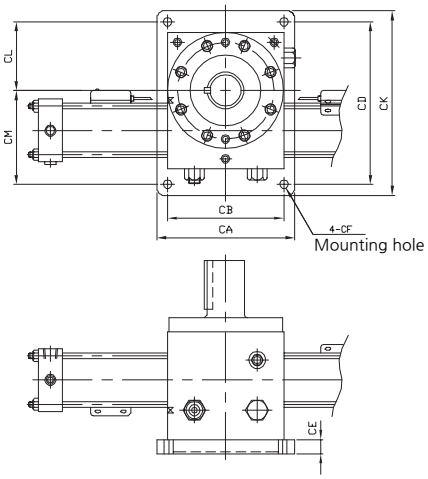


Detail shaft end
(S=2/1)

FA Type



FB Type



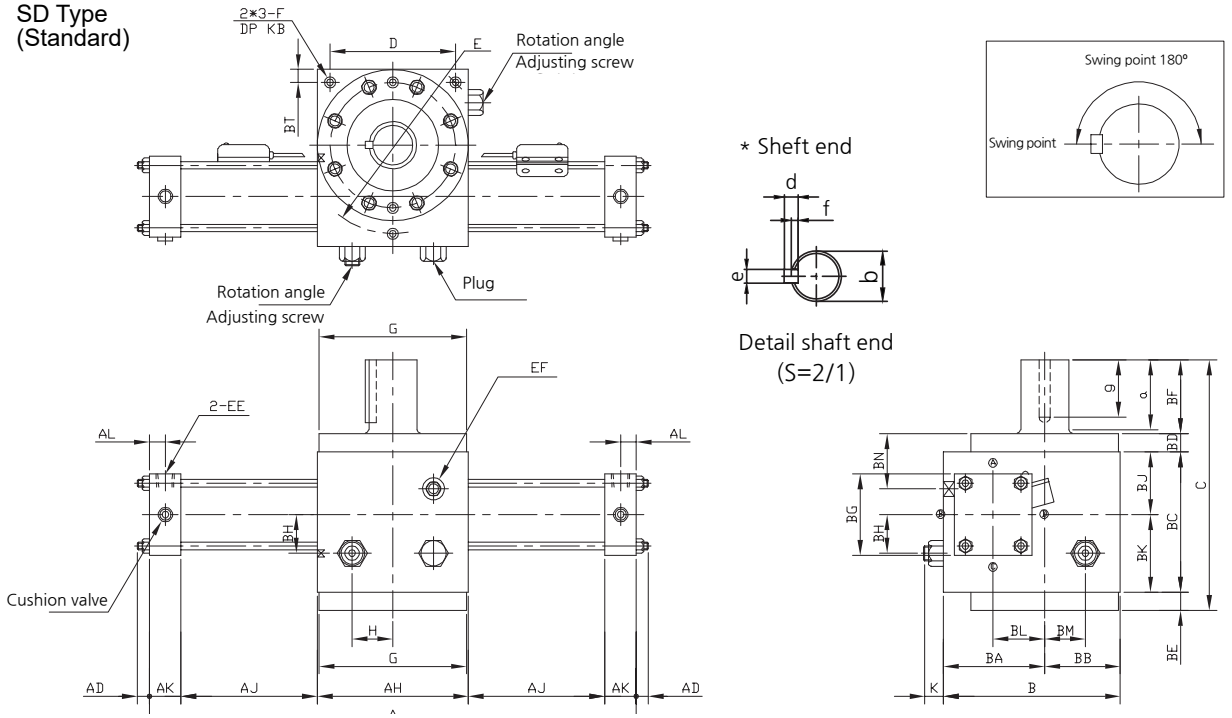
Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	B	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN	BT	C	CA	CB	CD
Ø32	307	14	88	73.5	36	13	102	58	44	84	12	12	38	□58	16	36	48	24	20	28	8.2	146	105	85	125
Ø40	324	15	106	78	31	13	125	72	53	97	13	14	60	□65	21	43	54	30	27	30	9.9	184	125	100	150
Ø50	377	15	120	93.5	35	15	140	80	60	112	15	15	60	□76	33	50	62	40	33	35	10.9	202	145	120	170
Ø63	446	17	144	116	35	15	168	96	72	133	14	16	84	□90	38	60	73	50	40	40	13.7	247	175	140	210
Ø80	504	23	168	127	41	18	200	116	84	156	18	20	84	□110	48	68	88	59	43	40	15	278	210	170	250

Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	H	K	KB	Shaft end					
															a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	10	20	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	27	12	20	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	33	14	18	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	40	16	18	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	43	19	21	82	Ø55h7	10	16	6	70

Dimensions-Rotating Angle 180°

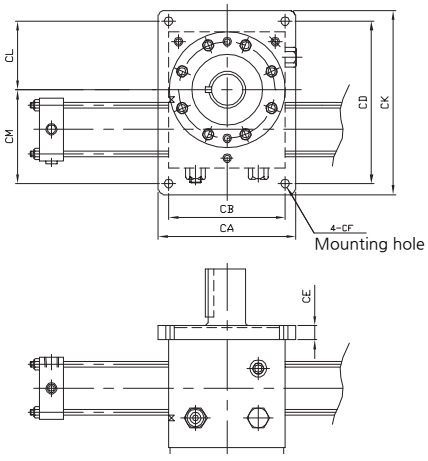
SD Type
(Standard)



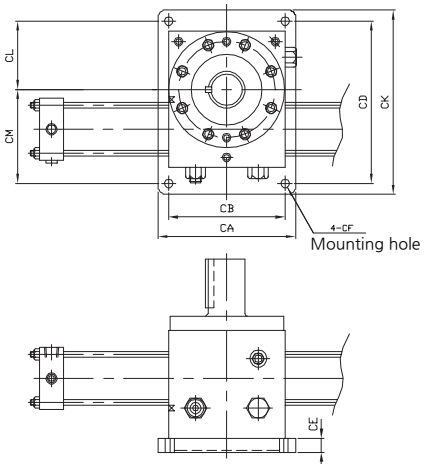
* Sheft end

Detail shaft end
(S=2/1)

FA Type



FB Type



Unit : mm

Bore size	A	AD	AH	AJ	AK	AL	B	BA	BB	BC	BD	BE	BF	BG	BH	BJ	BK	BL	BM	BN	BT	C	CA	CB	CD
Ø32	382	14	88	111	36	13	102	58	44	84	12	12	38	□58	16	36	48	24	20	28	8.2	146	105	85	125
Ø40	405	15	106	120.5	31	13	125	72	53	97	13	14	60	□65	21	43	54	30	27	30	9.9	184	125	100	150
Ø50	482	15	120	146	35	15	140	80	60	112	15	15	60	□76	33	50	62	40	33	35	10.9	202	145	120	170
Ø63	578	17	144	182	35	15	168	96	72	133	14	16	84	□90	38	60	73	50	40	40	13.7	247	175	140	210
Ø80	644	23	168	197	41	18	200	116	84	156	18	20	84	□110	48	68	88	59	43	40	15	278	210	170	250

Bore size	CE	CF	CK	CL	CM	D	E	EE	EF	F	G	H	K	KB	RN	UX	Shaft end					
																	a	b	d	e	f	g
Ø32	12	Ø9	145	55	70	71.4	101	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø83h7	20	10	20	7	23	36	Ø22h7	6	6	3	32
Ø40	15	Ø9	180	65	85	86.2	122	Rc(PT)3/8	Rc(PT)1/8	M8×P1.25	Ø104h7	27	12	20	6	27	58	Ø30h7	7	8	4	50
Ø50	16	Ø11	195	75	95	98.3	139	Rc(PT)1/2	Rc(PT)1/4	M10×P1.5	Ø117h7	33	14	18	6	30	58	Ø38h7	8	10	5	50
Ø63	18	Ø14	240	90	120	116.7	165	Rc(PT)1/2	Rc(PT)1/4	M12×P1.75	Ø140h7	40	16	18	4	39	82	Ø50h7	9	14	5.5	70
Ø80	22	Ø16	290	110	140	137.9	195	Rc(PT)3/4	Rc(PT)1/4	M16×P2.0	Ø164h7	43	19	21	3	40	82	Ø55h7	10	16	6	70