

Series WFC3

ø16, ø20, ø25, ø32, ø40, ø50, ø63, ø80, ø100, ø125

How to Order

Bore size

ø16 to ø25 **WFC3-20 D-**

Number of fingers • **3** 3 fingers

Bore size •

16	16 mm
20	20 mm
25	25 mm

Action • **D** Double acting

Bore size

ø32 to ø125 **WFC3-50** **D-**

Number of fingers • **3** 3 fingers

Bore size •

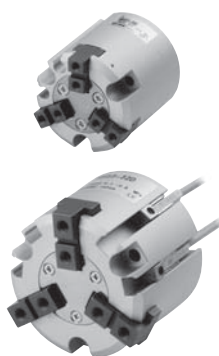
32	32 mm
40	40 mm
50	50 mm
63	63 mm
80	80 mm
100	100 mm
125	125 mm

Action • **D** Double acting

Port thread type

Symbol	Type	Cylinder bore
Nil	M thread	ø32 to ø63
	Rc	
TN	NPT	ø80 to ø125
TF	G	

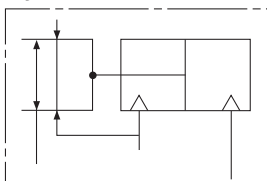
Models/Specifications

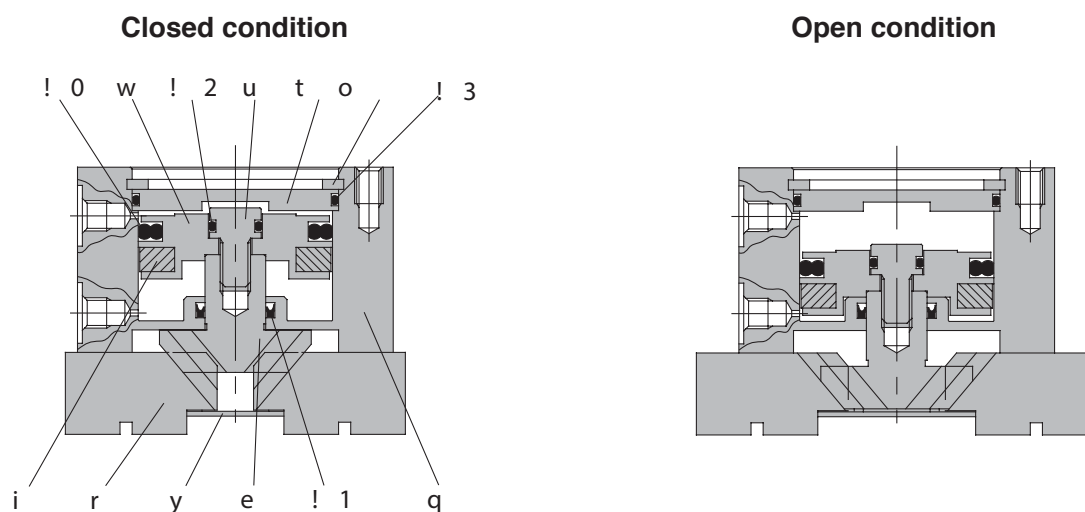


Model		WFC3-16D	WFC3-20D	WFC3-25D	WFC3-32D	WFC3-40D	WFC3-50D	WFC3-63D	WFC3-80D	WFC3-100D	WFC3-125D
Cylinder bore size (mm)		16	20	25	32	40	50	63	80	100	125
Fluid		Air									
Operating pressure (MPa)		0.2 to 0.6				0.1 to 0.6					
Ambient and fluid temperature (°C)		−10 to 60									
Repeatability (mm)		±0.01									
Max. operating frequency (c.p.m.)		120				60			30		
Lubrication		Not required									
Action		Double acting									
Effective gripping force (N) at 0.5 MPa (Note 1)	External grip	14	25	42	74	118	187	335	500	750	1,270
	Internal grip	16	28	47	82	130	204	359	525	780	1,320
Opening/Closing stroke (mm) (dia.)		4	4	6	8	8	12	16	20	24	32
Mass (g)		60	100	140	237	351	541	992	1,850	3,340	6,460

Note 1) Values for ø16 to ø25 are with gripping point L = 20 mm, for ø32 to ø63 with gripping point L = 30 mm, and for ø80 to ø125 with gripping point L = 50 mm. Refer to "Effective Gripping Force" data on pages 555 to 557 for the gripping force at each gripping position.

Symbol



Construction

Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Hard anodized
3	Cam	Carbon steel	Heat treated, Specially treated
4	Finger	Carbon steel	Heat treated, Specially treated
5	Cap	Aluminum alloy	Hard anodized
6	End plate	Stainless steel	
7	Piston bolt	Stainless steel	

No.	Description	Material	Note
8	Rubber magnet	Synthetic rubber	
9	Type C snap ring	Carbon steel	Nickel plated
10	Piston seal	NBR	
11	Rod seal	NBR	
12	Gasket	NBR	
13	Gasket	NBR	

Replacement Parts

Description	WFC3-16D	WFC3-20D	WFC3-25D	WFC3-32D	WFC3-40D	Main parts
Seal kit	MHS16-PS	MHS20-PS	MHS25-PS	MHS32-PS	MHS40-PS	! D ! 2 3
Finger	P3316004	P3316104	P3316204	P3316304	P3316404	r
Cam	P3316003	P3316103	P3316203	P3316303	P3316403	e
Piston assembly	MHS-A1601	MHS-A2001	MHS-A2501	MHS-A3201	MHS-A4001	wui

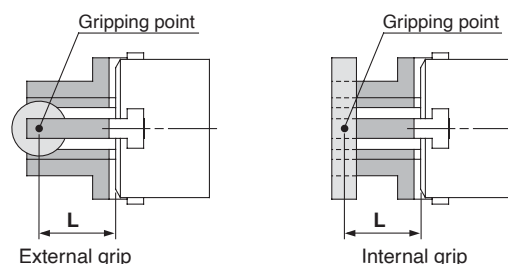
Description	WFC3-50D	WFC3-63D	WFC3-80D	WFC3-100D	WFC3-125D	Main parts
Seal kit	MHS50-PS	MHS63-PS	MHS80-PS	MHS100-PS	MHS125-PS	! D ! 2 3
Finger	P3316504	P3316604	P3316704	P3316804	P3316904	r
Cam	P3316503	P3316603	P3316703	P3316803	P3316903	e
Piston assembly	MHS-A5001	MHS-A6301	MHS-A8001	MHS-A10001	MHS-A12501	wui

Order 3 pieces of fingers for one unit.

Replacement part/Grease pack part no.: MH-G01 (30 g)

Gripping Point

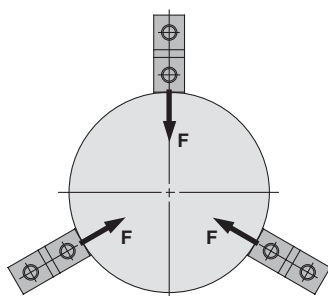
- The workpiece gripping point distance should be within the gripping force ranges given for each pressure in the effective gripping force graphs below.
- If operated with the workpiece gripping point beyond the indicated ranges, an excessive offset load will be applied to the sliding section of the fingers, which can have an adverse effect on the service life of the product.



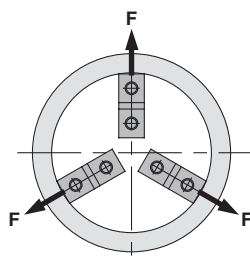
L: Gripping point distance

Effective Gripping Force

- Indication of effective gripping force
The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger when all 3 of the fingers and attachments are in full contact with the workpiece as shown in the figure below.



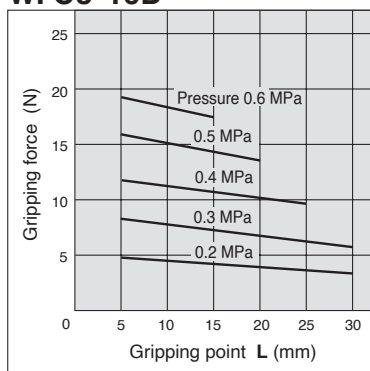
External grip



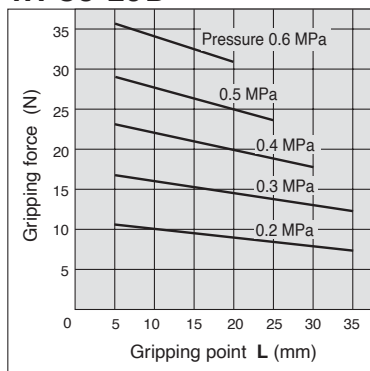
Internal grip

External Gripping Force

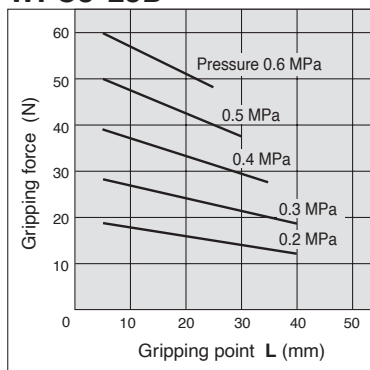
WFC3-16D



WFC3-20D

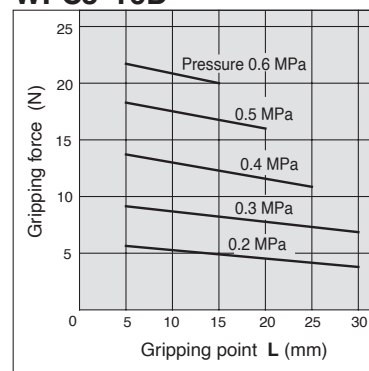


WFC3-25D

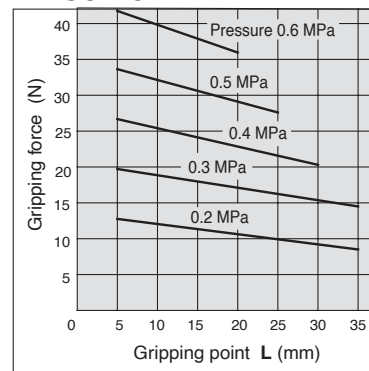


Internal Gripping Force

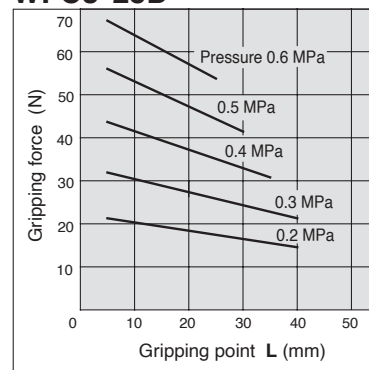
WFC3-16D



WFC3-20D



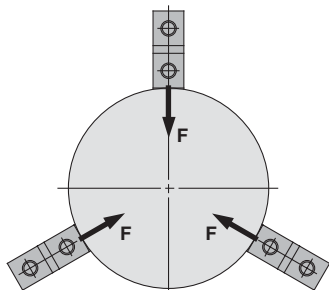
WFC3-25D



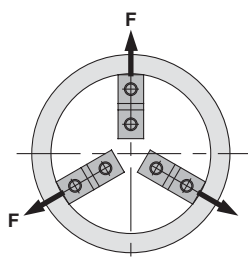
Effective Gripping Force

- Indication of effective gripping force

The effective gripping force shown in the graphs to the right is expressed as F , which is the thrust of one finger when all 3 of the fingers and attachments are in full contact with the workpiece as shown in the figure below.



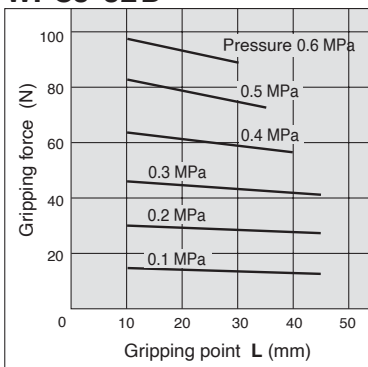
External grip



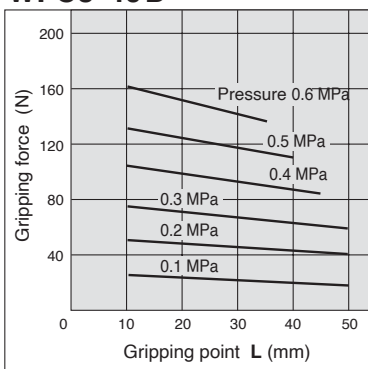
Internal grip

External Gripping Force

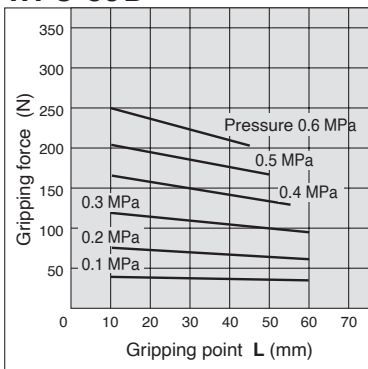
WFC3-32D



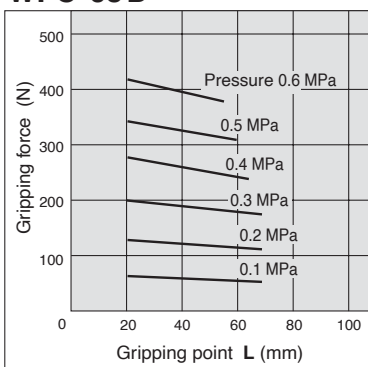
WFC3-40D



WFC-50D

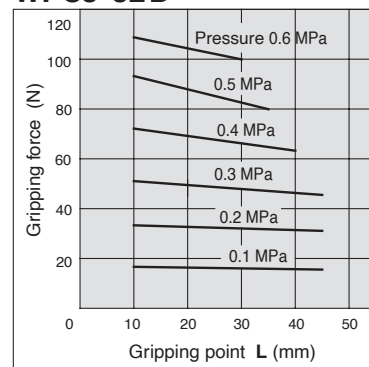


WFC-63D

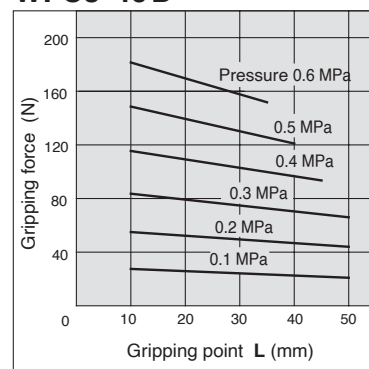


Internal Gripping Force

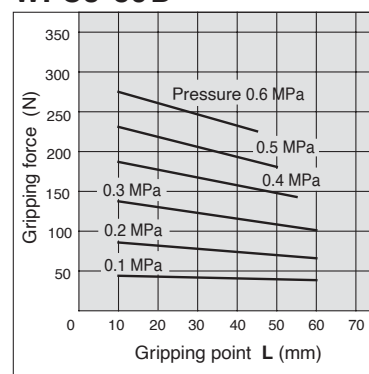
WFC3-32D



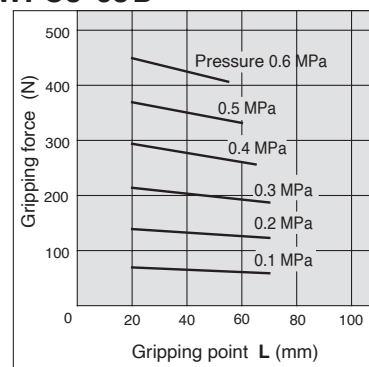
WFC3-40D



WFC3-50D

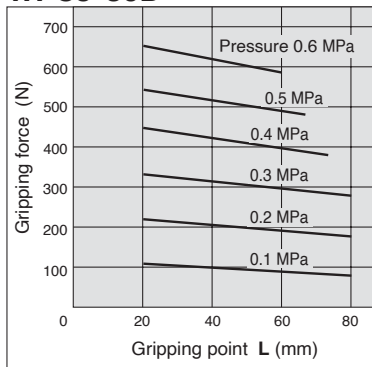


WFC3-63D

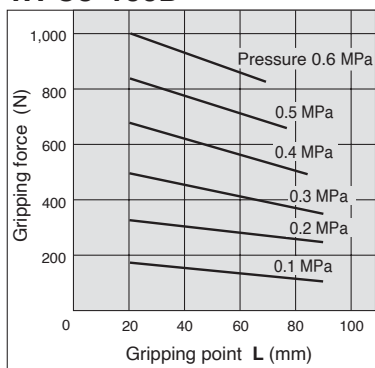


External Gripping Force

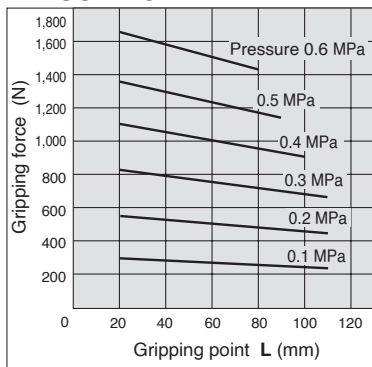
WFC3-80D



WFC3-100D

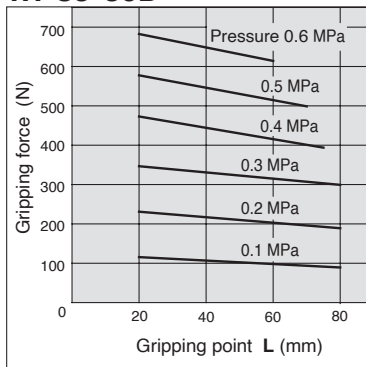


WFC3-125D

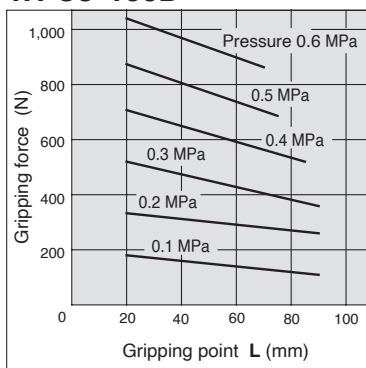


Internal Gripping Force

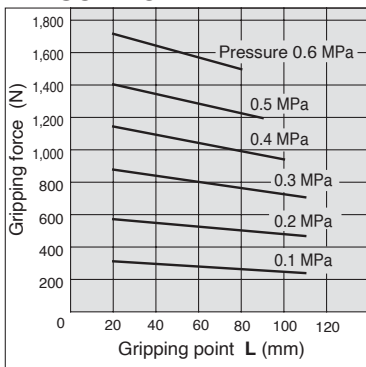
WFC3-80D

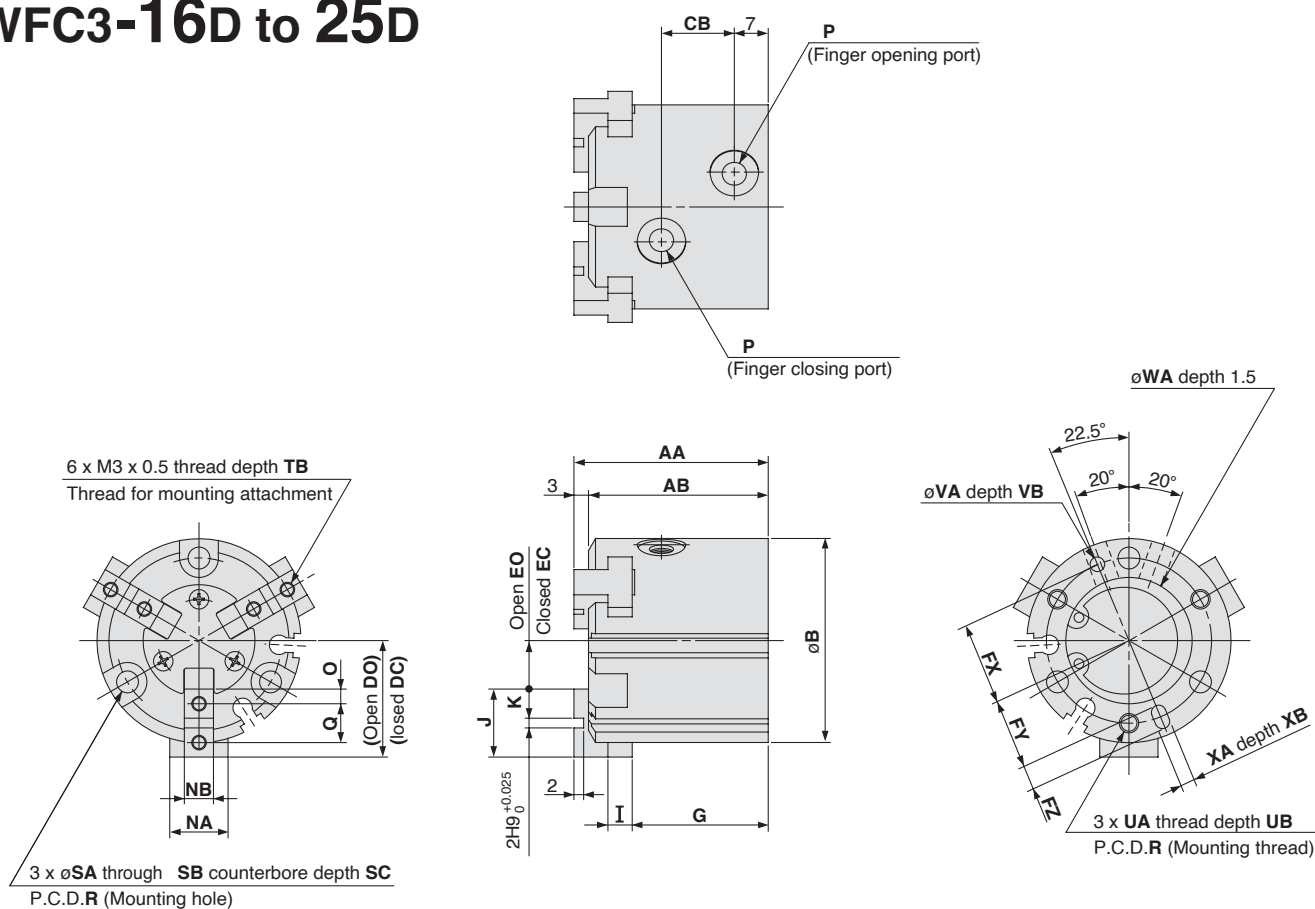
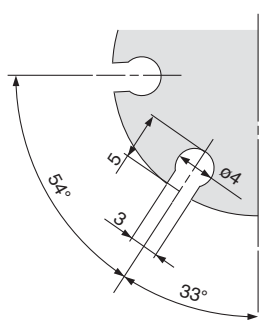
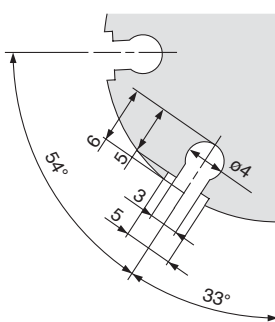
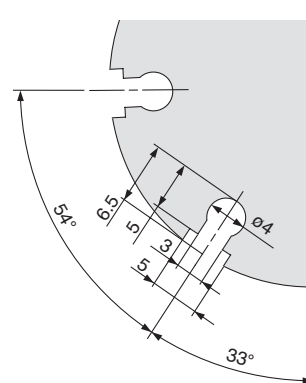


WFC3-100D



WFC3-125D

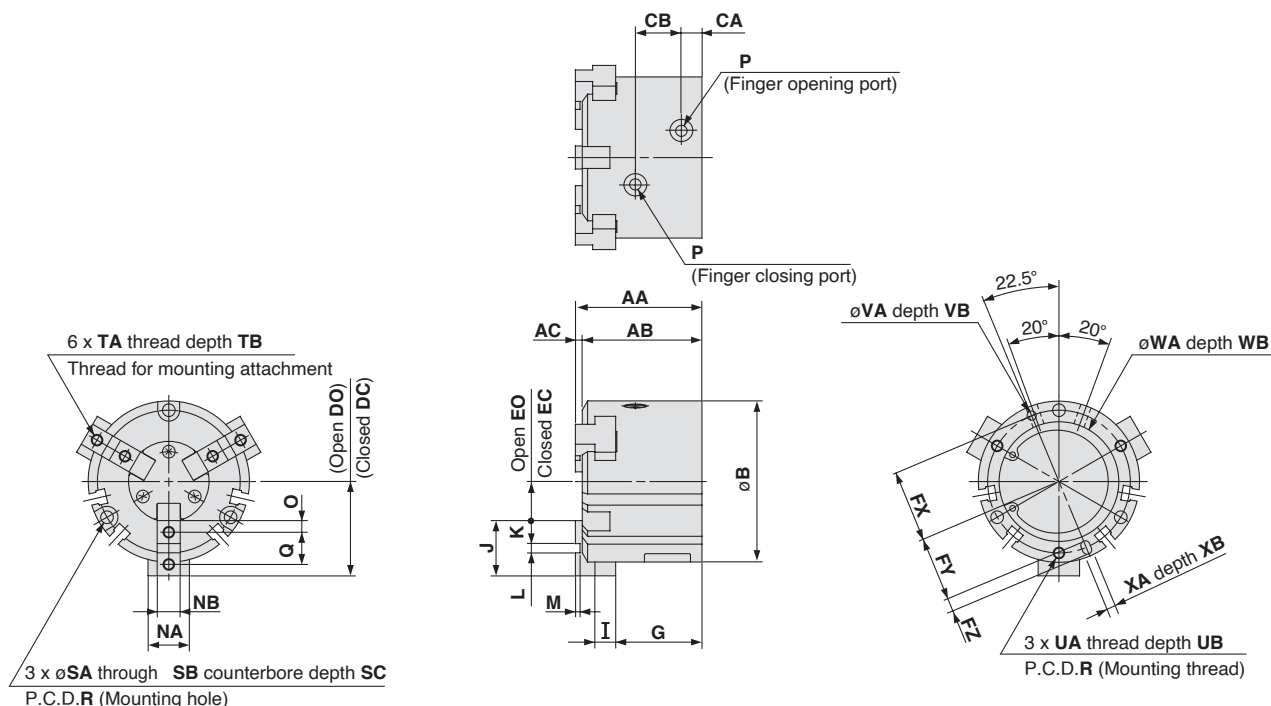


Dimensions
WFC3-16D to 25D

Auto switch mounting groove dimensions (2 locations)
WFC3-16D

WFC3-20D

WFC3-25D


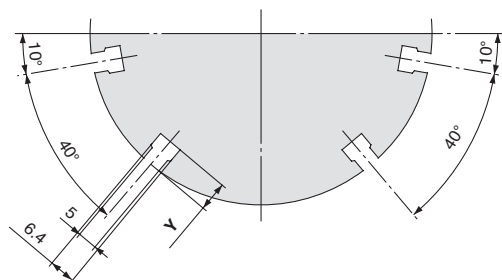
Model	AA	AB	B	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	NA	NB	O	P	Q	R
WFC3-16D	35	32	30	11	15	17	5	7	12.5	11	3	25	4	10	4	8	5h9 ⁰ _{-0.030}	2	M3 x 0.5	6	25
WFC3-20D	38	35	36	13	18	20	6	8	14.5	13	3	27	5	12	5	10	6h9 ⁰ _{-0.030}	2.5	M5 x 0.8	7	29
WFC3-25D	40	37	42	15	21	24	7	10	17	14.5	5	28	5	14	6	12	6h9 ⁰ _{-0.030}	3	M5 x 0.8	8	34

Model	SA	SB	SC	TB	UA	UB	VA	VB	WA	XA	XB
WFC3-16D	3.4	6.5	8	5	M3 x 0.5	4.5	2H9 ^{+0.025} ₀	2	17H9 ^{+0.043} ₀	2H9 ^{+0.025} ₀	2
WFC3-20D	3.4	6.5	9.5	6	M3 x 0.5	6	2H9 ^{+0.025} ₀	2	21H9 ^{+0.052} ₀	2H9 ^{+0.025} ₀	2
WFC3-25D	4.5	8	10	6	M4 x 0.7	6	3H9 ^{+0.025} ₀	3	26H9 ^{+0.052} ₀	3H9 ^{+0.025} ₀	3

WFC3-32D to 80D



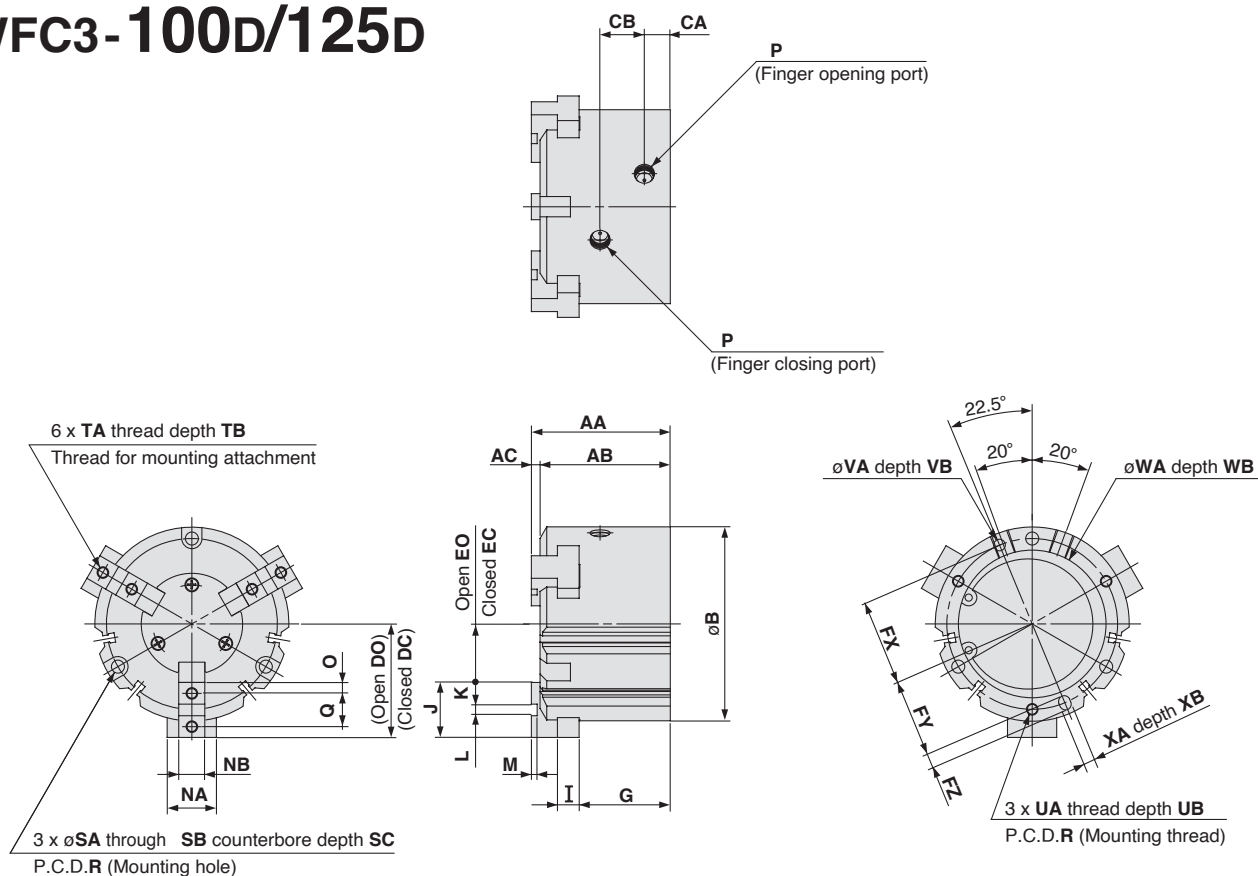
Auto switch mounting groove dimensions (4 locations)



(mm)																					
Model	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M	NA	NB
WFC3-32D	44	41	3	52	8	16	28	32	8	12	22	19.5	5	30.5	6	20	9	2H9 ^{+0.025} ₀	2	14	8h9 ⁰ _{-0.036}
WFC3-40D	47	44	3	62	9	17	31	35	10	14	26.5	23.5	6	32	7	21	9	3H9 ^{+0.025} ₀	2	16	8h9 ⁰ _{-0.036}
WFC3-50D	55	52	3	70	9	20	35	41	11	17	31	28	6	37.5	9	24	10	4H9 ^{+0.030} ₀	2	18	10h9 ⁰ _{-0.036}
WFC3-63D	66	62	4	86	12	22	43	51	15	23	38	34.5	7	44	11	28	11	6H9 ^{+0.030} ₀	3	24	12h9 ⁰ _{-0.043}
WFC3-80D	82	77	5	106	13.5	27	53.5	63.5	21.5	31.5	47.5	43.5	8	56	12	32	12	8H9 ^{+0.036} ₀	4	28	14h9 ⁰ _{-0.043}
Model	O	P	Q	R	SA	SB	SC	TA	TB	UA	UB	VA	VB	WA	WB	XA	XB	Y			
WFC3-32D	4.5	M5 x 0.8	11	44	4.5	8	9	M4 x 0.7	8	M4 x 0.7	6	3H9 ^{+0.025} ₀	3	34H9 ^{+0.062} ₀	2	3H9 ^{+0.025} ₀	3	6			
WFC3-40D	4.5	M5 x 0.8	12	53	5.5	9.5	9	M4 x 0.7	8	M5 x 0.8	7.5	4H9 ^{+0.030} ₀	4	42H9 ^{+0.062} ₀	2	4H9 ^{+0.030} ₀	4	8			
WFC3-50D	5	M5 x 0.8	14	62	5.5	9.5	12	M5 x 0.8	10	M5 x 0.8	10	4H9 ^{+0.030} ₀	4	52H9 ^{+0.074} ₀	2	4H9 ^{+0.030} ₀	4	7			
WFC3-63D	5.5	M5 x 0.8	17	76	6.6	11	14	M5 x 0.8	10	M6 x 1	9	5H9 ^{+0.030} ₀	5	65H9 ^{+0.074} ₀	2.5	5H9 ^{+0.030} ₀	5	7.5			
WFC3-80D	6	Rc 1/8 (G 1/8, NPT 1/8)	20	95	6.6	11	19	M6 x 1	12	M6 x 1	12	6H9 ^{+0.030} ₀	6	82H9 ^{+0.087} ₀	3	6H9 ^{+0.030} ₀	6	8			

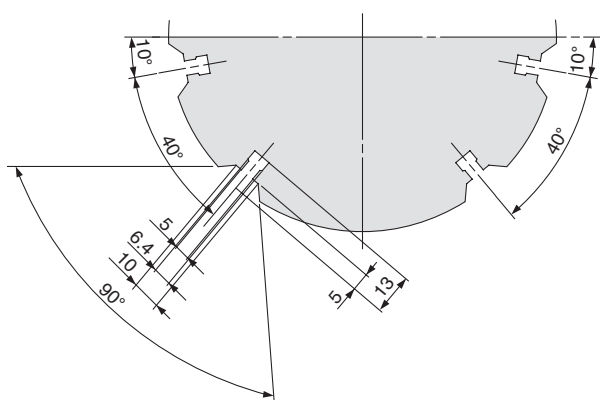
Dimensions

WFC3-100D/125D

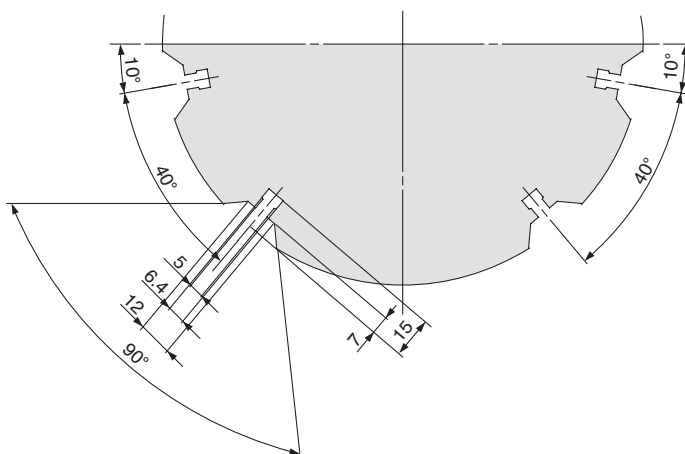


Auto switch mounting groove positions (4 locations)

WFC3-100D

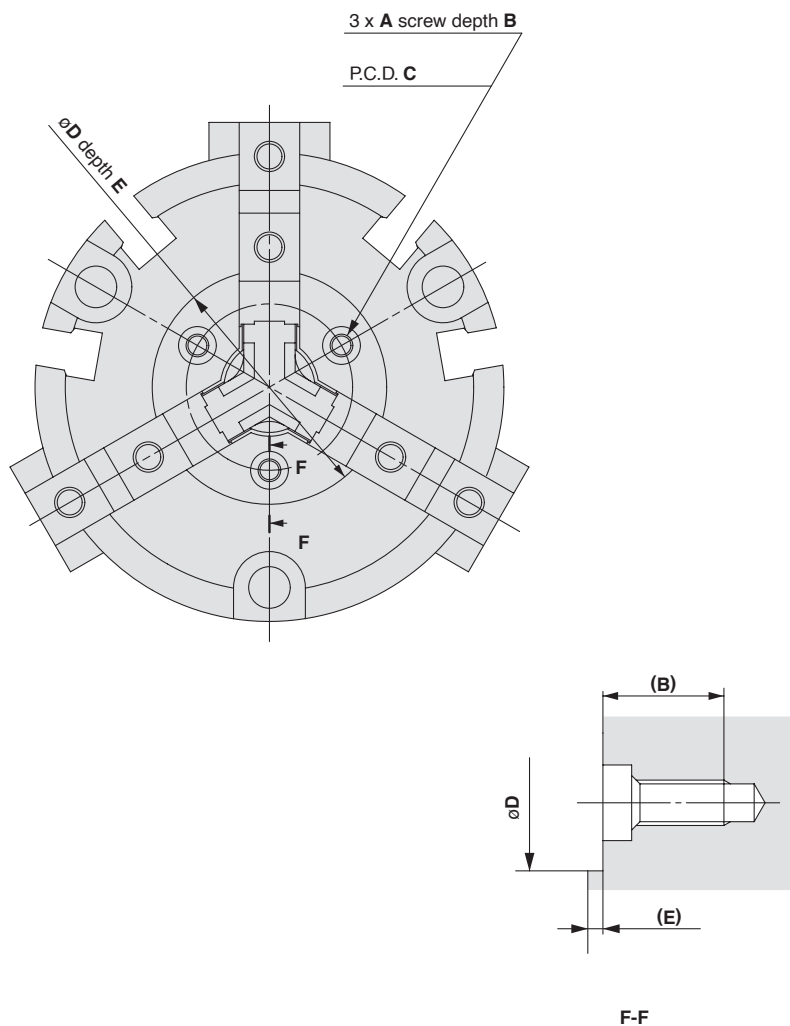


WFC3-125D



(mm)																					
Model	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M	NA	NB
WFC3-100D	96	90	6	134	18	30.6	66	78	28	40	59	54	10	63	15	38	15	8H9 ^{+0.036} ₀	4	34	18h9 ⁰ _{+0.043}
WFC3-125D	122	114	8	166	23.5	38	82	98	30	46	74	68	12	84	18	52	21	10H9 ^{+0.036} ₀	6	40	22h9 ⁰ _{-0.052}
Model	O	P	Q	R	SA	SB	SC	TA	TB	UA	UB	VA	VB	WA	WB	XA	XB				
WFC3-100D	7.5	Rc 1/4 (G 1/4, NPT 1/4)	23	118	9	14	21	M8 x 1.25	16	M8 x 1.25	16	8H9 ^{+0.036} ₀	6	102H9 ^{+0.087} ₀	4	8H9 ^{+0.036} ₀	6				
WFC3-125D	10.5	Rc 3/8 (G 3/8, NPT 3/8)	31	148	11	17.5	34	M10 x 1.5	20	M10 x 1.5	20	10H9 ^{+0.036} ₀	8	130H9 ^{+0.100} ₀	6	10H9 ^{+0.036} ₀	8				

Series WFC3 Detailed Dimensions of Mounting Portion of End Plate



(mm)					
Model	A	B	C	øD	E
WFC3-16D	M2 x 0.4	5.5	12.5	18H8 ^{+0.027} ₀	0.5
WFC3-20D		5.4	15	21H8 ^{+0.033} ₀	0.6
WFC3-25D			17	23H8 ^{+0.033} ₀	
WFC3-32D		5.2	21	27H8 ^{+0.033} ₀	0.8
WFC3-40D	M3 x 0.5	8	22	31H8 ^{+0.039} ₀	1
WFC3-50D			26	35H8 ^{+0.039} ₀	
WFC3-63D			33	42H8 ^{+0.039} ₀	
WFC3-80D			40	52H8 ^{+0.046} ₀	
WFC3-100D	M4 x 0.7	9.5	54	70H8 ^{+0.046} ₀	1.5
WFC3-125D			62	82H8 ^{+0.054} ₀	

Series WFC4

ø16, ø20, ø25, ø32, ø40, ø50, ø63

How to Order

Bore size

ø16 to ø25 **WFC4-20 D**

Number of fingers ●
4 4 fingers

Bore size ●

16	16 mm
20	20 mm
25	25 mm

Action ●
D Double acting

Bore size

ø32 to ø63 **WFC4-50 D-**

Number of fingers ●
4 4 fingers

Bore size ●

32	32mm
40	40mm
50	50mm
63	63mm

Action ●
D Double acting

Parallel Style Air Gripper/4-Finger Type **Series WFC4**

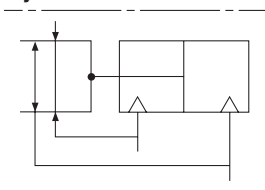
Models/Specifications



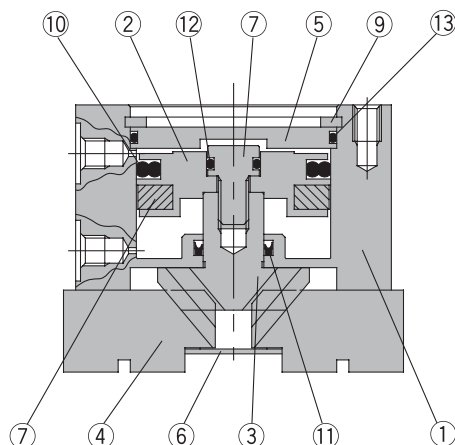
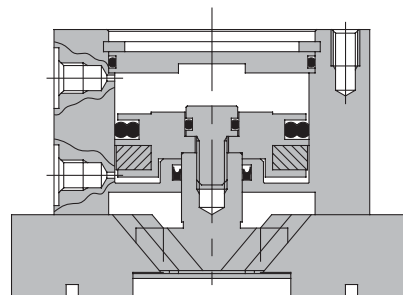
Model		WFC4-16D	WFC4-20D	WFC4-25D	WFC4-32D	WFC4-40D	WFC4-50D	WFC4-63D
Cylinder bore size (mm)		16	20	25	32	40	50	63
Fluid		Air						
Operating pressure (MPa)		0.2 to 0.6			0.1 to 0.6			
Ambient and fluid temperature (°C)		−10 to 60						
Repeatability (mm)		±0.01						
Max. operating frequency (c.p.m.)		120			60			
Lubrication		Not required						
Action		Double acting						
Effective gripping force (N) at 0.5 MPa (Note 1)	External grip	10	19	31	55	88	140	251
	Internal grip	12	21	35	61	97	153	268
Opening/Closing stroke (mm)		4	4	6	8	8	12	16
Mass (g)		66	110	154	300	390	590	1,095

Note 1) Values for ø16 to ø25 are with gripping point L = 20 mm, for ø32 to ø63 with gripping point L = 30 mm. Refer to "Effective Gripping Force" data for the gripping force at each gripping position.

Symbol



Construction

Closed condition

Open condition


Component Parts

No.	Description	Material	Note
1	Body	Aluminum alloy	Hard anodized
2	Piston	Aluminum alloy	Hard anodized
3	Cam	Carbon steel	Heat treated, Specially treated
4	Finger	Carbon steel	Heat treated, Specially treated
5	Cap	Aluminum alloy	Hard anodized
6	End plate	Stainless steel	
7	Piston bolt	Stainless steel	

No.	Description	Material	Note
8	Rubber magnet	Synthetic rubber	
9	Type C retaining ring	Carbon steel	Nickel plated
10	Piston seal	NBR	
11	Rod seal	NBR	
12	Gasket	NBR	
13	Gasket	NBR	

Replacement Parts

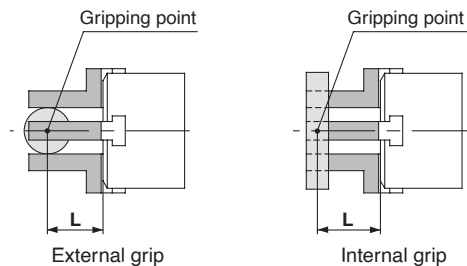
Description	WFC4-16D	WFC4-20D	WFC4-25D	WFC4-32D	WFC4-40D	WFC4-50D	WFC4-63D	Main parts
Seal kit	MHS16-PS	MHS20-PS	MHS25-PS	MHS32-PS	MHS40-PS	MHS50-PS	MHS63-PS	⑩⑪⑫⑬
Finger	P3316004	P3316104	P3316204	P3316304	P3316404	P3316504	P3316604	④
Cam	P3316043	P3316143	P3316243	P3316343	P3316443	P3316543	P3316643	③
Piston assembly	MHS-A1601	MHS-A2001	MHS-A2501	MHS-A3201	MHS-4001	MHS-5001	MHS-6301	②⑦⑧

Order 4 pieces of fingers for one unit.

Replacement part/Grease pack part no.: MH-G01 (30 g)

Gripping Point

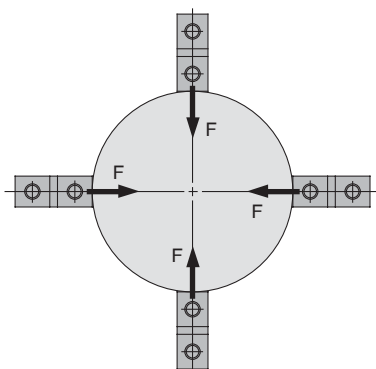
- The workpiece gripping point distance should be within the gripping force ranges given for each pressure in the effective gripping force graphs below.
- If operated with the workpiece gripping point beyond the indicated ranges, an excessive offset load will be applied to the sliding section of the fingers, which can have an adverse effect on the service life of the product.



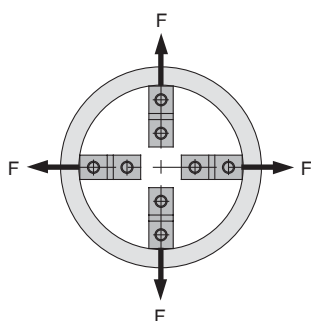
L: Gripping point distance

Effective Gripping Force

- Indication of effective gripping force
The gripping force shown in the tables represents the gripping force of one finger when all fingers and attachments are in contact with the workpiece. The gripping force of Series MHS4 is the same as Series MHS2 while one pair of opposite fingers is used to grip the workpiece and the other pair of fingers is used for positioning.



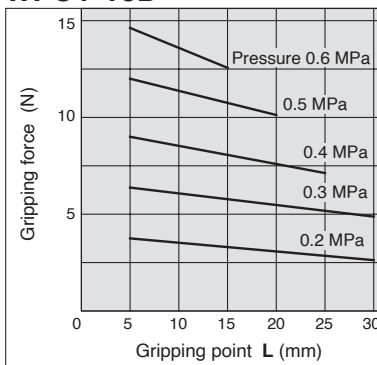
External grip



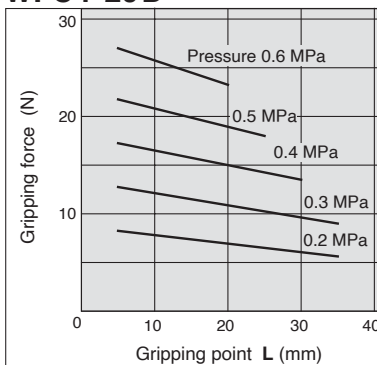
Internal grip

External Gripping Force

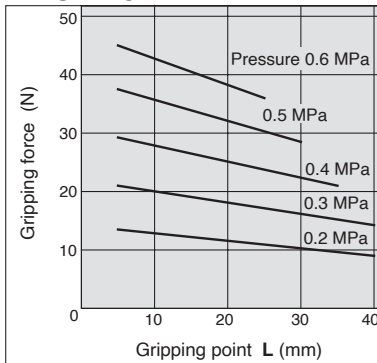
WFC4-16D



WFC4-20D

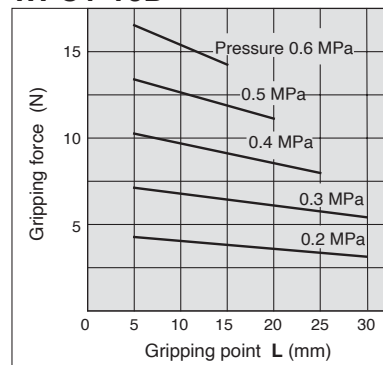


WFC4-25D

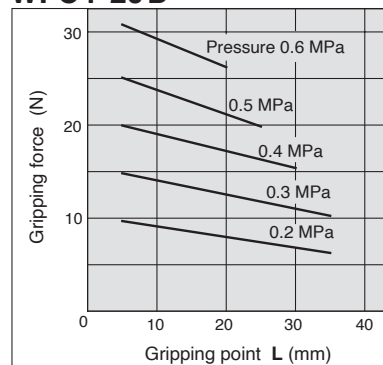


Internal Gripping Force

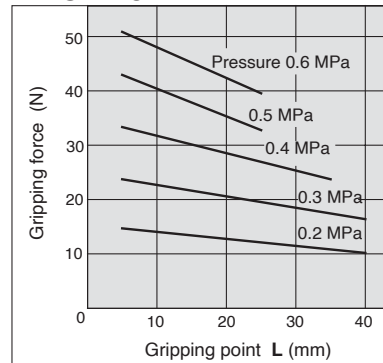
WFC4-16D



WFC4-20D



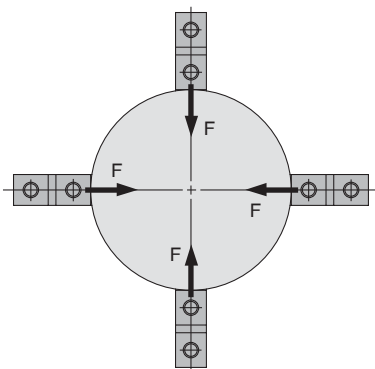
WFC4-25D



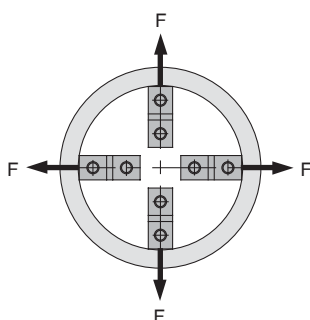
Effective Gripping Force

• Indication of effective gripping force

The gripping force shown in the tables represents the gripping force of one finger when all fingers and attachments are in contact with the workpiece. The gripping force of Series MHS4 is the same as Series MHS2 while one pair of opposite fingers is used to grip the workpiece and the other pair of fingers is used for positioning.



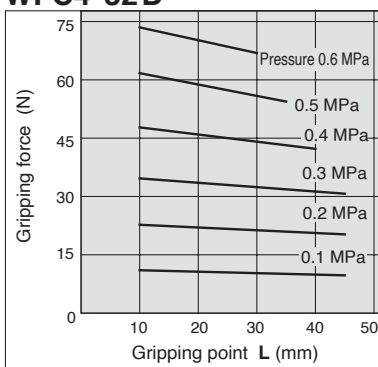
External grip



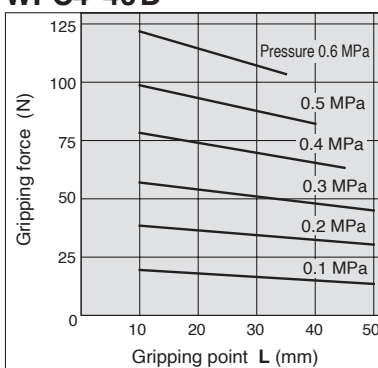
Internal grip

External Gripping Force

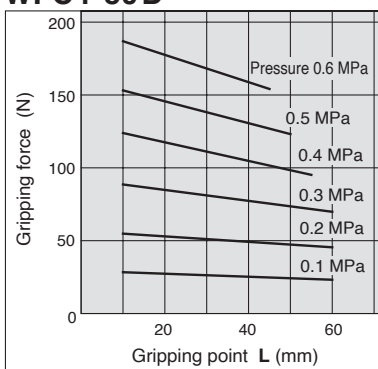
WFC4-32D



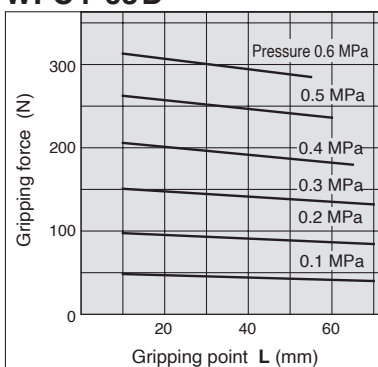
WFC4-40D



WFC4-50D

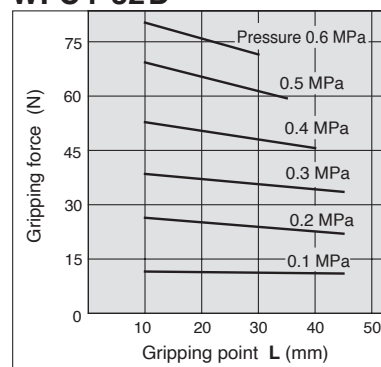


WFC4-63D

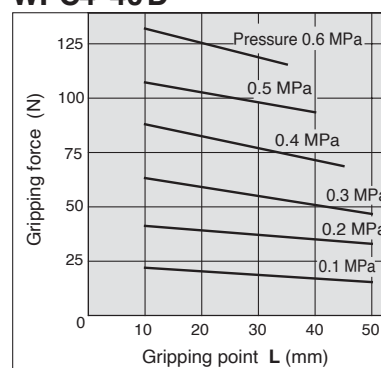


Internal Gripping Force

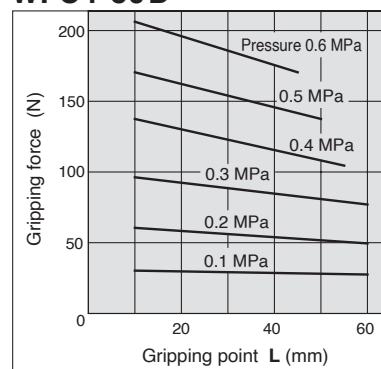
WFC4-32D



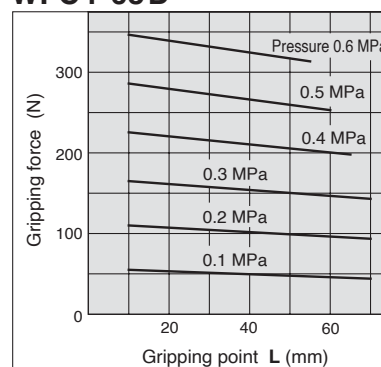
WFC4-40D

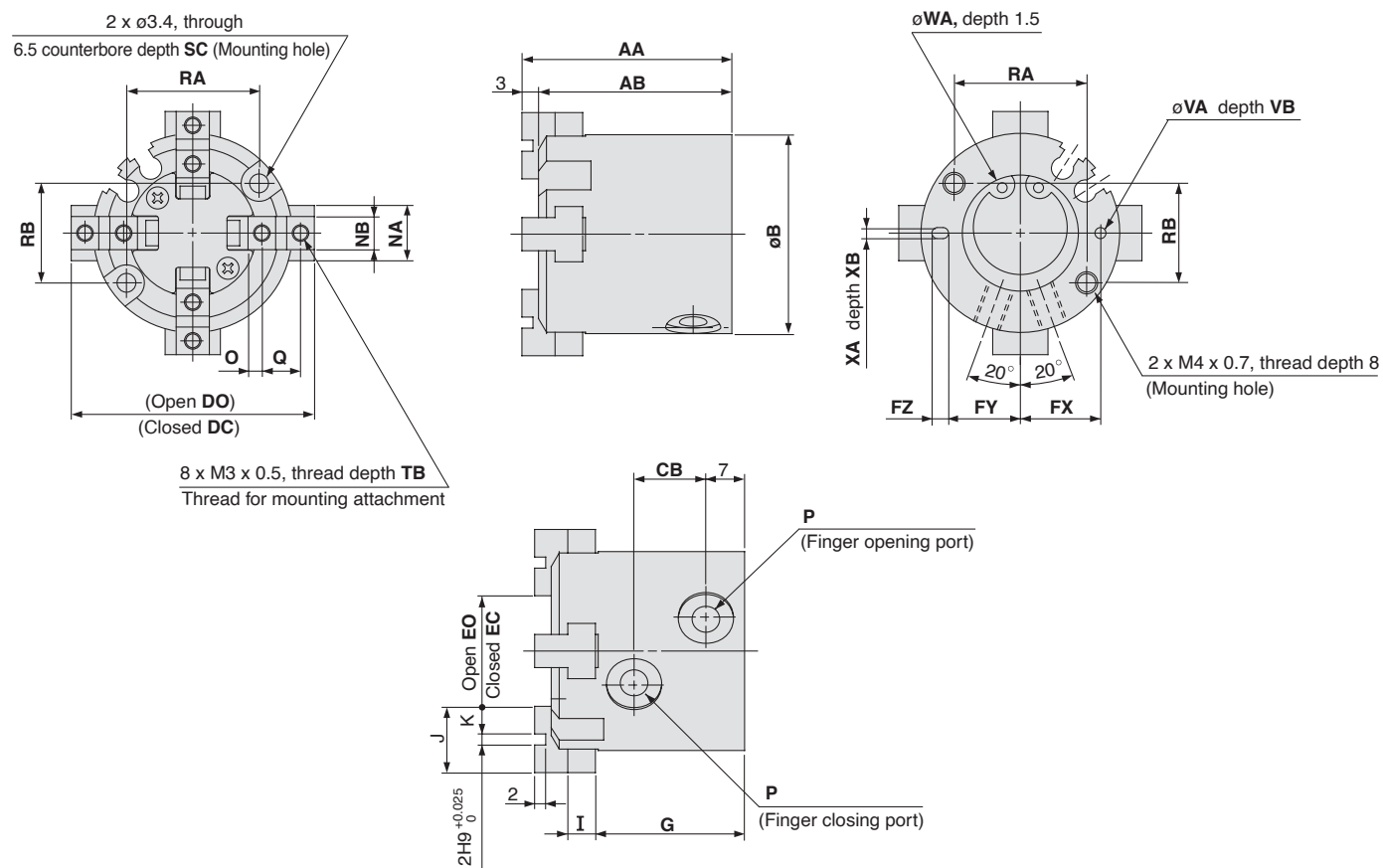
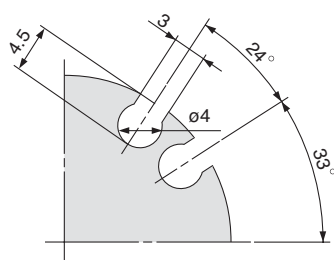
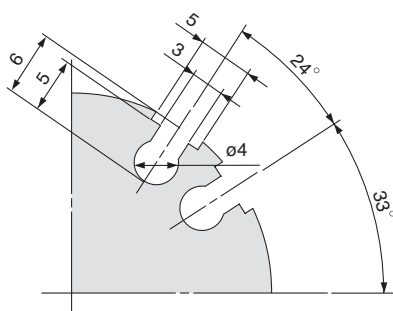
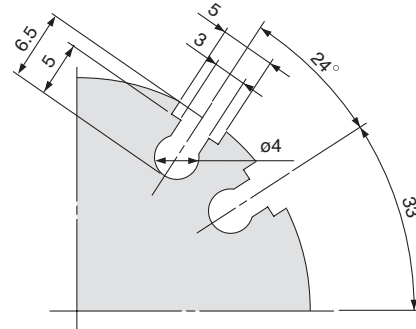


WFC4-50D



WFC4-63D



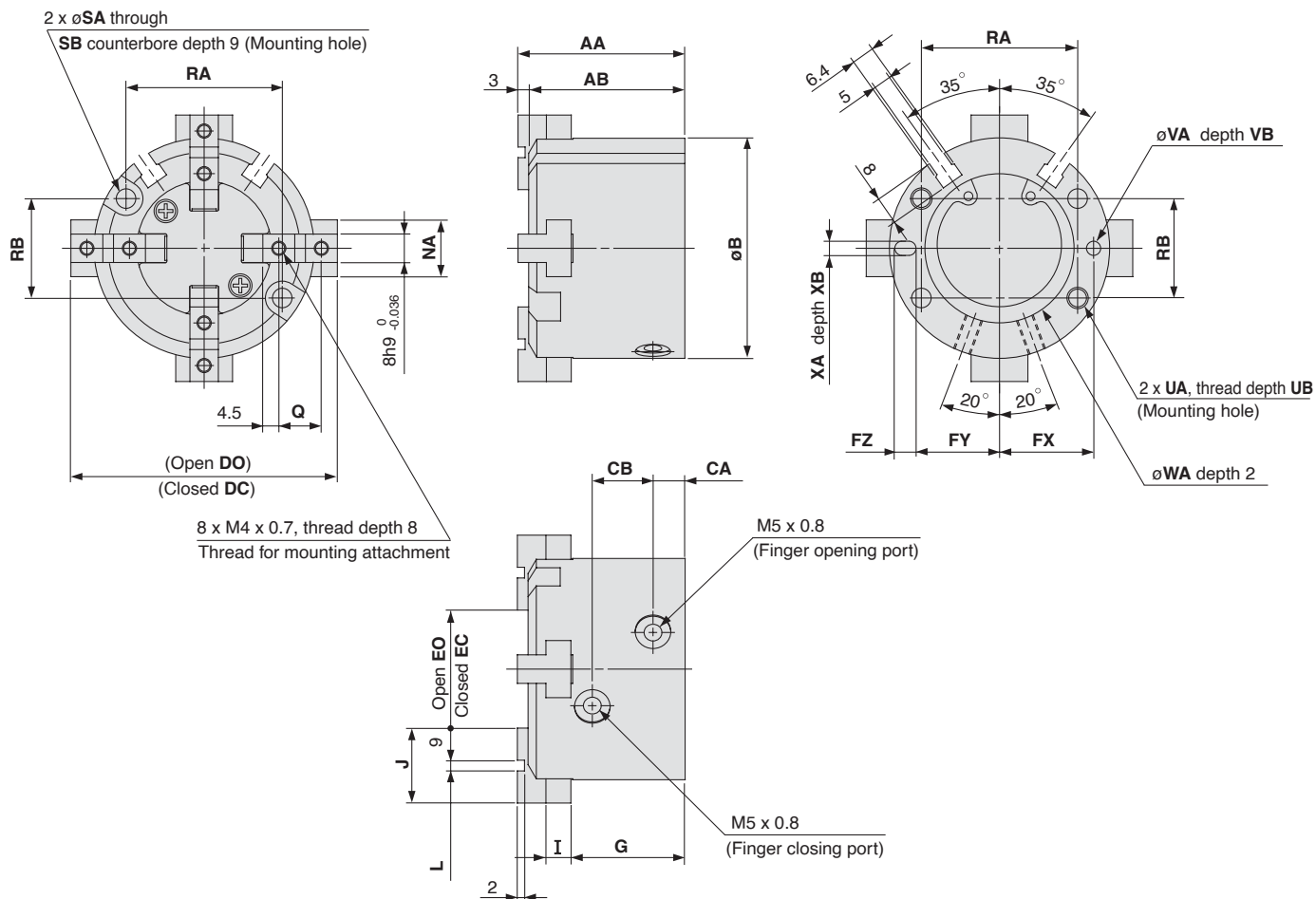
Dimensions
WFC4-16D to 25D

Auto switch mounting groove dimensions (2 locations)
WFC4-16D

WFC4-20D

WFC4-25D


Model	AA	AB	B	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	NA	NB	O	P	Q
WFC4-16D	35	32	30	11	33	37	13	17	12.5	11	3	25	4	10	4	8	5h9 $^{+0.025}_0$	2	M3 x 0.5	6
WFC4-20D	38	35	36	13	39	43	15	19	14.5	13	3	27	5	12	5	10	6h9 $^{+0.025}_0$	2.5	M5 x 0.8	7
WFC4-25D	40	37	42	15	48	54	20	26	17	14.5	5	28	5	14	6	12	6h9 $^{+0.025}_0$	3	M5 x 0.8	8

Model	RA	RB	SC	TB	VA	VB	WA	XA	XB
WFC4-16D	18	16	8	5	2H9 $^{+0.025}_0$	2	17H9 $^{+0.043}_0$	2H9 $^{+0.025}_0$	2
WFC4-20D	24	18	9.5	6	2H9 $^{+0.025}_0$	2	21H9 $^{+0.052}_0$	2H9 $^{+0.025}_0$	2
WFC4-25D	26	22	10	6	3H9 $^{+0.025}_0$	3	26H9 $^{+0.052}_0$	3H9 $^{+0.025}_0$	3

Dimensions

WFC4-32D/40D

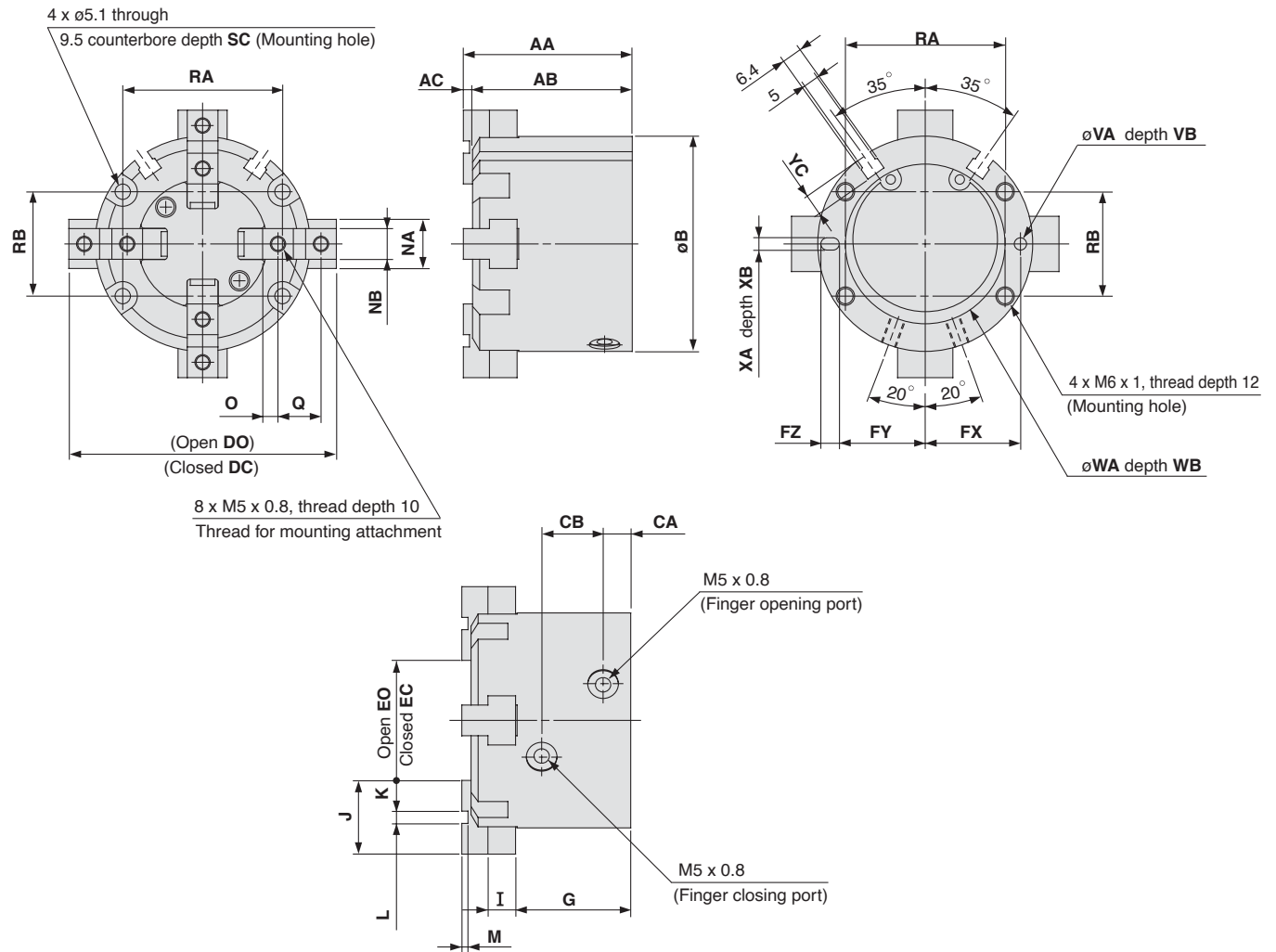


(mm)

Model	AA	AB	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	L	NA	Q	RA	RB	SA
WFC4-32D	44	41	56	8	16	60	68	20	28	23	20.5	5	30.5	6	20	$2H9 \begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	14	11	38	25	4.5
WFC4-40D	47	44	62	9	17	66	74	24	32	26.5	23.5	6	32	7	21	$3H9 \begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	16	12	44	28	5.5

Model	SB	UA	UB	VA	VB	WA	XA	XB
WFC4-32D	8	M5 x 0.8	10	$3H9 \begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	3	$34H9 \begin{smallmatrix} +0.062 \\ 0 \end{smallmatrix}$	$3H9 \begin{smallmatrix} +0.025 \\ 0 \end{smallmatrix}$	3
WFC4-40D	9.5	M6 x 1	12	$4H9 \begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	4	$42H9 \begin{smallmatrix} +0.062 \\ 0 \end{smallmatrix}$	$4H9 \begin{smallmatrix} +0.030 \\ 0 \end{smallmatrix}$	4

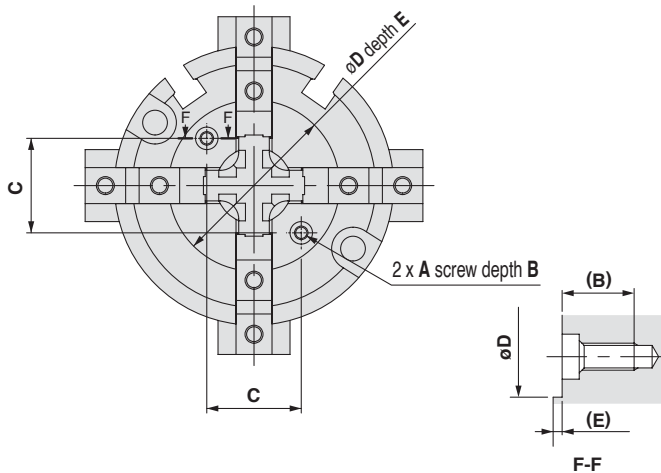
WFC4-50D/63D



Model	AA	AB	AC	B	CA	CB	DC	DO	EC	EO	FX	FY	FZ	G	I	J	K	L	M	NA	NB
WFC4-50D	55	52	3	70	9	20	74	86	26	38	31	28	6	37.5	9	24	10	4H9 ^{+0.030} ₀	2	18	10h9 ⁰ _{-0.036}
WFC4-63D	66	62	4	86	12	22	91	107	35	51	38	34.5	7	44	11	28	11	6H9 ^{+0.030} ₀	3	24	12h9 ⁰ _{-0.043}

Model	O	Q	RA	RB	SC	VA	VB	WA	WB	XA	XB	YC
WFC4-50D	5	14	52	34	12	4H9 ^{+0.030} ₀	4	52H9 ^{+0.074} ₀	2	4H9 ^{+0.030} ₀	4	7
WFC4-63D	5.5	17	66	38	14	5H9 ^{+0.030} ₀	5	65H9 ^{+0.074} ₀	2.5	5H9 ^{+0.030} ₀	5	7.5

Series MHS4 Detailed Dimensions of Mounting Portion of End Plate



Model	A	B	C	øD	E
WFC4-16D	M2 x 0.4	5.5	11	21	0.5
WFC4-20D		5.4	13	24	0.6
WFC4-25D			15	27	
WFC4-32D	M3 x 0.5	5.2	18	32	0.8
WFC4-40D		8	21	38	1
WFC4-50D			24	42	
WFC4-63D			32	54	