3320 Series / 3305 Series

Installation and Application

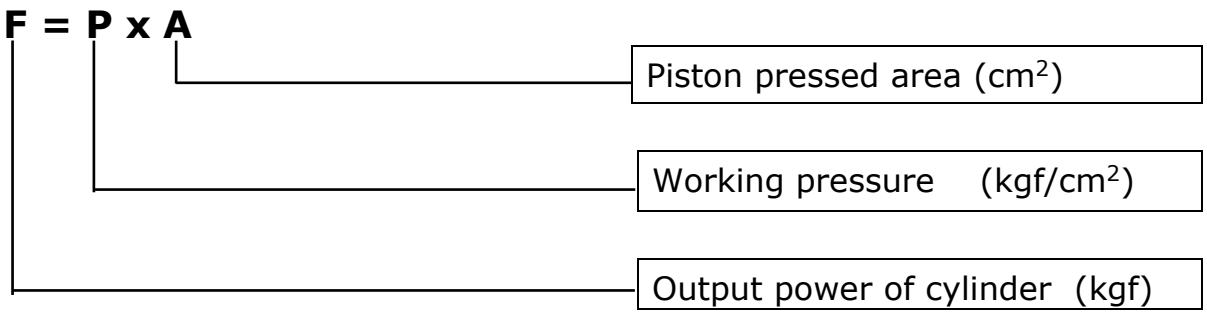
- For the operation load is different, it should adopt the cylinder with ample output force. While in high-temperature working condition, it should adopt high-temperature resistant cylinder.
- Before using the trachea, keep the trachea clean to avoid impurities entering into the cylinder.
- The fluid should be filtered by an element with a filter finesse in 40μm.
- In the low-temperature condition, it is very important to take measurements to avoid water icing.
- Before application, make the cylinder operate with no load in the maximal cushion at the beginning, then turn the cushion less gradually, which would avoid great impact to cylinder.
- In operation, the cylinder should avoid to be impacted by the side load to maintain its normal working state and life period.
- When the torn-down cylinder is left unused for quite some time, it is important to protect the surface against rustiness and plug the inlet/outlet ports with a blocking cap.

Theoretic force of cylinder

Bore	Rod size	Action mode		Pressure area (cm2)	Air pressure (kgf/cm2)							
					1	2	3	4	5	6	7	8	9
32	12	Double action	Push side	8,04	8,04	16,08	24,12	32,16	40,2	48,24	56,28	64,32	72,36
			Pull side	6,90	6,90	13,80	20,70	27,60	34,50	41,40	48,30	55,20	62,10
40	16		Push side	12,56	12,56	25,12	37,68	50,24	62,8	75,36	87,92	100,24	113,04
			Pull side	10,55	10,55	21,1	31,65	42,2	52,75	63,3	73,85	84,4	94,95
50	20		Push side	19,63	19,63	39,26	58,89	78,52	98,15	117,78	137,41	157,04	176,67
			Pull side	16,49	16,49	32,98	49,47	65,96	82,45	98,94	115,43	139,92	148,41
63	20		Push side	31,17	31,17	62,34	93,51	124,68	155,85	187,02	218,19	249,36	280,53
			Pull side	28,03	28,03	55,06	84,09	112,12	140,15	168,18	196,21	224,24	252,27
80	25		Push side	50,26	50,26	100,52	150,78	201,04	251,3	301,56	351,82	402,08	452,34
			Pull side	45,36	45,36	90,72	136,08	181,44	226,8	272,16	317,52	362,88	408,24
100	25		Push side	78,53	78,53	157,06	235,59	314,12	392,65	417,18	428,82	628,24	706,77
			Pull side	73,62	73,62	147,24	220,86	294,86	368,1	441,72	515,34	588,96	662,58
125	32		Push side	122,72	122,72	245,44	368,16	490,88	613,6	736,32	859,04	981,76	1104,48
			Pull side	114,68	114,68	229,36	344,04	458,72	573,4	688,08	802,76	917,44	1032,12
160	40		Push side	201,06	201,06	402,12	603,18	804,24	1005,3	1206,36	1407,42	1608,48	1809,54
			Pull side	188,49	188,49	376,98	565,47	753,96	942,45	1130,94	1319,43	1507,92	1696,41
200	40		Push side	314,16	314,16	628,32	942,48	1256,64	1570,8	1884,96	2199,12	2513,28	2827,44
			Pull side	301,57	301,57	603,14	904,71	1206,28	1507,85	1809,42	2110,99	2412,56	2714,13
250	50		Push side	490,63	490,63	981,26	1471,89	1962,52	2453,15	2943,78	3434,41	3925,04	4415,67
			Pull side	471,00	471,00	942,00	1413,00	1884,00	2355,00	2825,00	3297,00	3768,00	4239,00
320	63		Push side	803,84	803,84	1607,68	2411,52	3215,36	4019,2	4823,04	5626,88	6430,72	7234,56
			Pull side	772,78	772,78	1545,56	2318,34	3091,12	3863,9	4636,68	5409,46	6182,24	6955,02

3320 Series / 3305 Series

Formula for cylinder output power



Product features

- Free of lubrication: Oil bearing is adopted so the piston rod do not need to be lubricated.
- According to ISO 15552 (ISO 6431) Standard
- Cushion: Air Cushioning adjust smoothly
- The piston ring is the Y type seals which have longer lifetime and request air pressure is lower.
- High temperature available: by using a special sealing material, the cylinder can work normally at 150°C.
- Various mounting accessories are supplied
- Magnetic property: Cylinder piston is equipped with a permanent magnet that can trigger the magnetics switch of cylinder to detect the moving position of cylinder

Characteristic

Bore	32	40	50	63	80	100	125	160	200	250	320
Action mode	Double action										
Fluid	Filter compressed air, lubricated or not										
Max. pressure (bar)	10 bar										
Proof pressure	15 bar										
Operating temperature °C	-20 ~ 80										
Speed range (mm/s)	30-800						30-500			20-300	
Cushion mode	Adjustable cushion										
Cushion length (mm)	27		30		36		40	50			
Port size	PT1/8	PT1/4		PT3/8		PT1/2		PT3/4		PT1	

3320 Series / 3305 Series

Stroke

Bore	Standard stroke																						Max. stroke	Allowed stroke
32	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500							1000	1800
40	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800				1200	1800
50	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1200	1800
63	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	1800
80	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	1800
100	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	1800
125	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	1800
160	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	2000
200	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	2000
250	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	2000
320	25	50	75	80	100	125	150	160	175	200	250	300	350	400	450	500	600	700	800	900	1000		1500	2000

Ordering code

Profile Cylinder – 3320 Series: (Bore: Ø32 to Ø200)

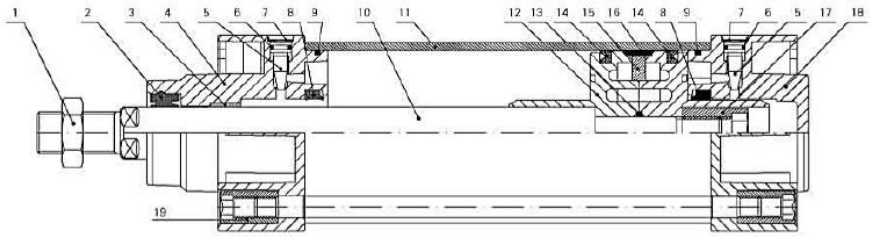
Code	Description
3320. Ø . Stroke . 01	Basic version
3320. Ø . Stroke . 01MA__	Basic Front Spring
3320. Ø . Stroke . 01MP__	Basic Rear Spring
3320. Ø . Stroke . 02	Push/Pull version
3320. Ø . Stroke . 02AS	Push/Pull (Adjusting 1 - 100)
3320. Ø . Stroke . 02AL	Push/Pull (Adjusting 125 - 150)

Tie-rod Cylinder – 3305 Series: (Bore: Ø32 to Ø320)

Code	Description
3305. Ø . Stroke . 01	Basic version
3305. Ø . Stroke . 01MA__	Basic Front Spring
3305. Ø . Stroke . 01MP__	Basic Rear Spring
3305. Ø . Stroke . 02	Push/Pull version
3305. Ø . Stroke . 02AS	Push/Pull (Adjusting 1 - 100)
3305. Ø . Stroke . 02AL	Push/Pull (Adjusting 125 - 150)

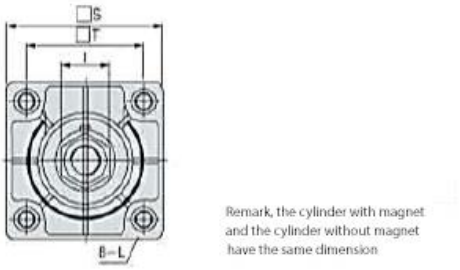
3320 Series / 3305 Series

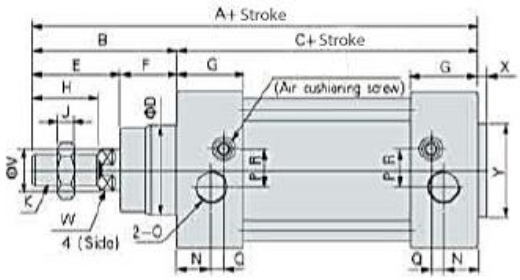
Internal construction and material parts



No	Name	Material	No	Name	Material
1	Not for piston rod	Carbon steel	11	Tube	Aluminium alloy
2	Anti-dust seals	PU	12	Piston	Alminium alloy
3	Oil bearing	Sinterized bronze	13	O-ring for piston & piston rod	NBR
4	Front cover	Aluminium alloy	14	Piston ring	NBR
5	Air cushioning screw	H59 brass	15	Magnet	Ferrite
6	O-ring for air cushioning screw	NBR	16	Wearing ring	POM
7	Snap ring for air cushion hole screw	Spring steel	17	Nut for piston and piston rod fixed	Carbon steel
8	Cushioning seals	NBR	18	Back cover	Aluminium alloy
9	O-ring for front cover	NBR	19	Tie-rod screw nut	Carbon steel
10	Piston rod	Carbon steel			

Dimension

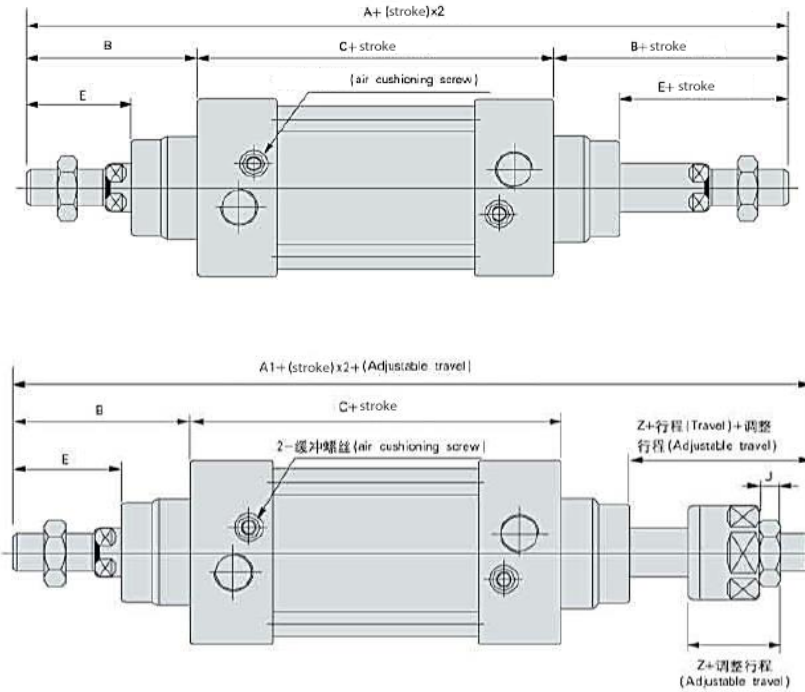




Bore	A	B	C	D	E	F	G	H	I	J	K	L	N
32	142	48	94	30	29	19	27.5	22	17	6	M10X1.25	M6	13
40	159	54	105	35	33	21	32	24	17	7	M12X1.25	M6	17
50	175	69	106	40	42	27	31	32	23	8	M16X1.5	M8	15.5
63	190	69	121	45	42	27	33	32	23	8	M16X1.5	M8	16.5
80	214	86	128	45	53	33	33	40	26	10	M20X1.5	M10	16.5
100	229	91	138	55	55	36	37	40	26	10	M20X1.5	M10	18.5
125	279	119	160	60	79	40	46	54	41	14	M27X2	M12	23
160	332	152	180	65	94	58	50	72	55	18	M36X2	M16	25
200	347	167	180	75	100	67	50	72	55	18	M36X2	M16	25
250	389	189	200	90	114	75	60	84	64	20	M42X2	M20	30
320	436	216	200	110	126	90	65	96	72	20	M48X2	M24	30

Bore	O	P	Q	R	S	T	V	W	X	Y
32	PT1/8	5.5	6	6	47	32.5	12	10	3	30
40	PT1/4	6	7.5	8.5	53	38	16	13	3.5	35
50	PT1/4	7.5	6.5	9.5	65	46.5	20	17	3.5	40
63	PT3/8	7.5	7.5	11.5	75	56.5	20	17	4	45
80	PT3/8	9	7.5	13.5	95	72	25	22	4	45
100	PT1/2	9.5	8.5	13.5	115	89	25	22	4	55
125	PT1/2	14	12	14	140	110	32	27	4	60
160	PT3/4	15	12	20	180	140	40	36	4	65
200	PT3/4	15	12	20	220	175	40	36	5	75
250	PT1	25	10	25	270	220	50	46	8	90
320	PT1	30	15	30	350	270	63	55	10	110

3320 Series / 3305 Series



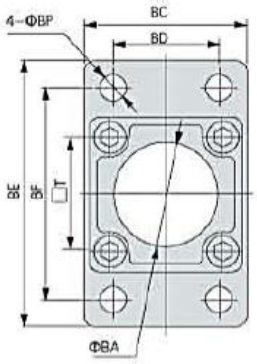
Bore	A	A1	B	C	E	Z	J	K
32	190	188	48	94	29	27	6	M10X1.25
40	213	208	54	105	33	28	7	M12X1.25
50	244	231	69	106	42	29	8	M16X1.5
63	259	246	69	121	42	29	8	M16X1.5
80	300	282.5	86	128	53	35.5	10	M20X1.5
100	320	300.5	91	138	55	35.5	10	M20X1.5
125	398	366.5	119	160	79	42.5	13.5	M27X2
160	484	458	152	180	94	68	18	M36X2
200	514	482	167	180	100	68	18	M36X2
250	578	544	189	200	122	80	20	M42X2
320	652	616	216	200	134	90	17	M48X2

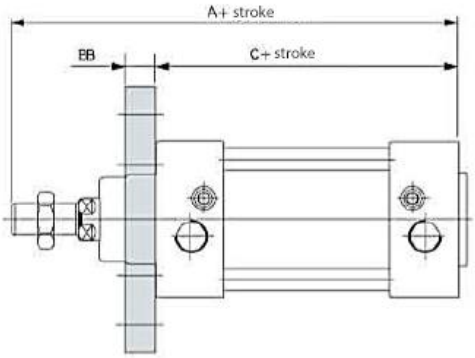
- Remark, the cylinder with magnet, and the cylinder without magnet have the same dimension.

3320 Series / 3305 Series

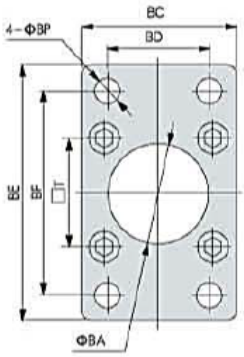
Mounting kits

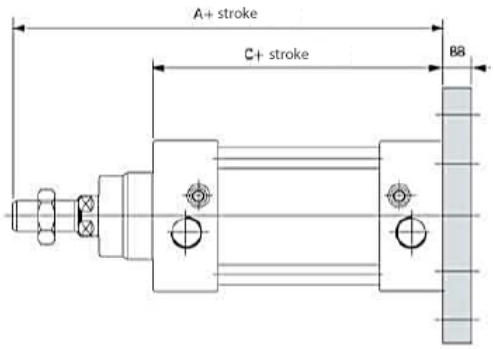
Code	Description
3300. Ø . 03F	Front Flange





Code	Description
3300. Ø . 04F	Rear Flange



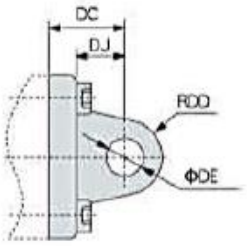


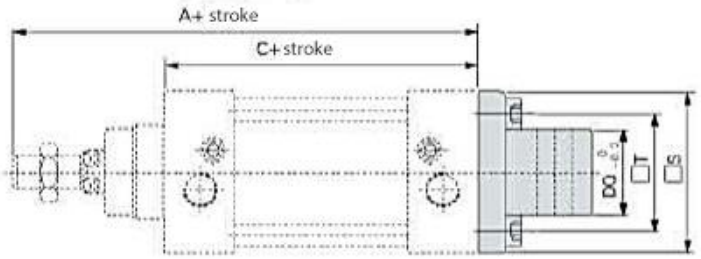
Bore	32	40	50	63	100	125	160	200	250	320
A	142	159	175	190	229	279	332	347	389	436
C	94	105	106	121	138	160	180	180	200	220
BA	30	35	40	45.5	55	61	66	76	91	110
BB	10	10	12	12	16	20	20	25	25	30
BC	45	52	65	75	115	139	180	220	270	349
BD	32	36	45	50	75	90	115	135	165	200
BE	80	90	110	120	175	220	280	320	390	470
BF	64	72	90	100	150	180	230	270	330	400
BP	7	9	9	9	14	16	18	22	26	33
T	32.5	38	46.5	56.5	89	110	140	175	220	270

3320 Series / 3305 Series

Mounting kits

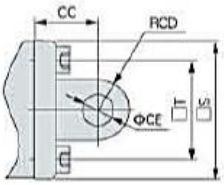
Code	Description
3300. Ø . 09/1F	Rear Clevis Male

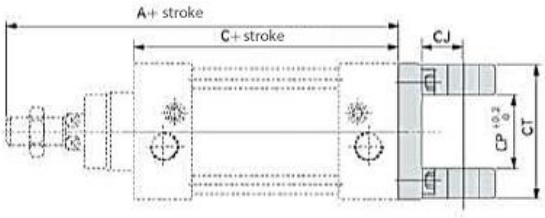




Bore	32	40	50	63	80	100	125	160	200	250	320
A	142	159	175	190	214	229	279	332	347	389	436
C	94	105	106	121	128	138	160	180	180	200	220
S	47	52	64	74	94	113	139	180	220	210	350
T	32.5	38	46.5	56.5	72	89	110	140	175	220	270
DC	22	25	27	32	36	41	50	55	60	70	80
DO	9	10.5	11	13.5	14.5	17	22	25	25	40	45
DE	10	12	12	16	16	20	25	30	30	40	45
DJ	13	16	17	22	22	27	33	35	35	47	52
DO	25.8	27.5	31.7	39.7	49.7	59.7	69.7	90	90	110	120

Code	Description
3300. Ø . 09F	Rear Clevis Female



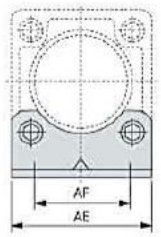


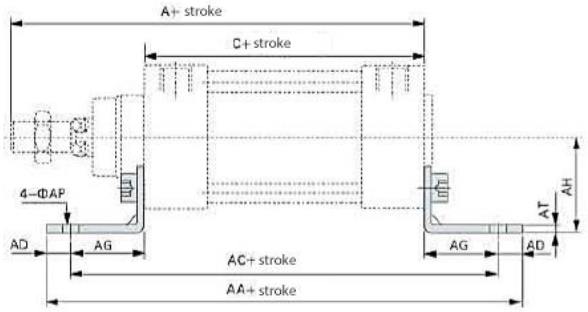
Bore	32	40	50	63	80	100	125	160	200	250	320
A	142	159	175	190	214	229	279	332	347	389	436
C	94	105	106	121	128	138	180	160	180	200	220
CC	22	25	27	32	36	41	50	55	60	70	80
CD	9	10.5	11	13	14	17.5	21.5	30	30	40	45
CE	10	12	12	16	16	20	25	30	30	40	45
CJ	13	16	17	22	22	27	31	35	35	47	52
CP	26	25	32	40	50	60	70	90	90	110	120
CT	45	52	60	70	90	110	130	170	170	200	220
PA1	51	59	67	77	97	119	139	181	181	220	240
PB1	45.5	52.5	60.5	70.5	90.5	10.5	130.5	70.5	170.5	202	222
S	47	52	64	74	94	113	139	180	220	270	350
T	32.5	38	46.5	56.5	72	89	110	140	175	220	270

3320 Series / 3305 Series

Mounting kits

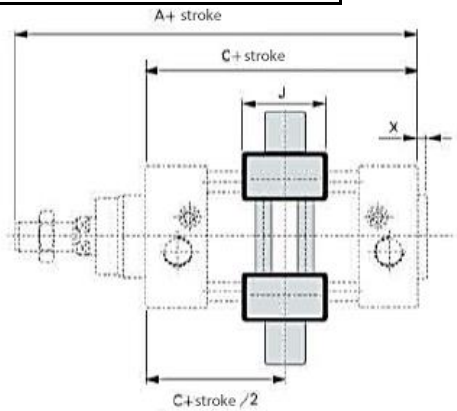
Code	Description
3300. Ø . 05/1F	Foot mounting

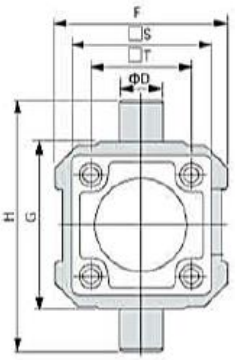




Bore	32	40	50	63	80	100	125	160	200	250	320
A	142	159	175	190	214	229	279	332	347	389	436
C	94	105	106	121	128	138	160	180	180	200	220
AA	158	179	190	209	248	266	290	340	380	420	470
AC	142	161	170	185	210	228	250	300	320	350	390
AD	8	9	10	12	19	19	20	20	30	35	40
AE	47	53	65	75	95	115	140	180	220	270	350
AF	32	36	45	50	63	75	90	115	135	165	200
AG	24	28	32	32	41	45	45	60	70	75	85
AH	32	36	45	50	63	71	90	115	135	165	185
AP	7	9	9	9	12.5	14.5	16.5	18	22	28	35
AT	3	3	3	3	4	4	8	8	9	20	23

Code	Description
3300. Ø . 12F	Trunnion Intermediate



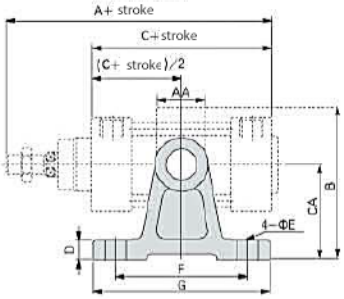


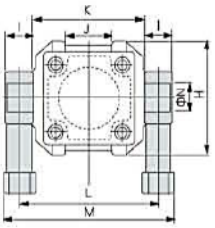
Borel	A	C	D	F	G	H	J	S	X	T
32	142	94	12	52	50	74	22	47	3	32.5
40	159	105	16	65	63	95	28	53	3.5	38
50	175	106	16	75	75	107	28	65	3.5	46.5
63	190	121	20	90	90	130	30	75	4	56.5
80	214	128	20	112	110	150	32	95	4	72
100	229	138	25	135	132	182	38	115	4	89
125	279	160	25	170	160	210	40	140	4	110
160	332	180	32	210	200	264	50	180	4	140
200	347	180	32	255	250	314	50	220	5	175

3320 Series / 3305 Series

Mounting kits

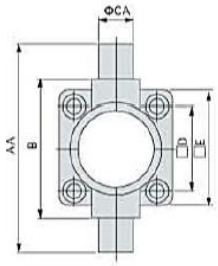
Code	Description
3300. Ø . 12/1F	Trunnion Intermediate Support

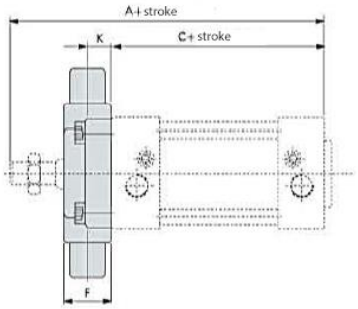




Bore	32	40	50	63	80	100	125	160	200
A	142	159	175	190	214	229	279	332	347
AA	22	28	28	30	32	38	40	50	50
B	66	86.5	91.5	115	126	157.5	175	215	262.5
C	94	105	106	121	128	138	160	180	180
CA	40	54	54	70	70	90	90	110	135
D	11	11	11	11	11	19	19	24	27
E	9	12	12	12	12	18	18	22	22
F	60	75	75	85	85	115	115	140	150
G	80	100	100	110	110	155	155	190	200
H	52	65	75	90	112	135	170	210	255
I	12	16	16	20	20	25	25	32	32
J	20	27	31	42	54	68	80	100	125
K	50	63	76	90	110	132	160	200	250
L	62	79	91	110	130	157	185	232	282
M	77	98	110	133	153	185	213	267	317
N	12	16	16	20	20	25	25	32	32

Code	Description
3300. Ø . 12F/1	Trunnion Front



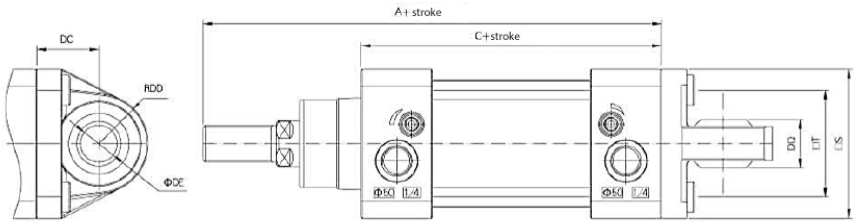


Bore	32	40	50	63	80	100	125	160	200
A	142	159	175	190	214	229	279	332	347
AA	74	95	107	130	150	182	210	264	314
B	50	63	75	90	110	132	160	200	250
C	94	105	106	121	128	138	160	180	180
CA	12	16	16	20	20	25	25	32	32
D	32.5	38	46.5	56.5	72	89	110	140	175
E	46	52	64	74	94	114	139	179	218
F	19	21	26	28	31	35	43	56	64
K	10	10	12	12	16	16	20	20	20

3320 Series / 3305 Series

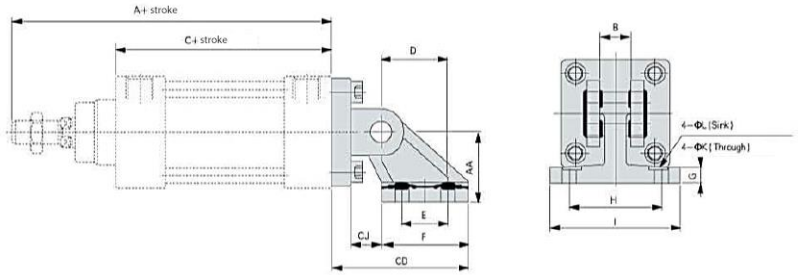
Mounting kits

Code	Description
3300. Ø . 15F	Rear Male Clevis (Bearing)



Bore	32	40	50	63	80	100
A	142	159	175	190	214	229
C	94	105	106	121	128	138
S	47	53	65	75	95	115
T	32.5	38	46.5	56.5	72	89
DC	22	25	27	32	36	41
DD	16	19	21	24	28.5	30
DE	10	12	16	16	20	20
DO	14	16	21	21	25	25

Code	Description
3300. Ø . 23F	Square Angle Complete Trunnion



Bore	32	40	50	63	80	100	125	160	200
A	142	159	175	190	214	229	279	332	347
AA	32	36	45	50	63	71	90	115	135
B	26	28	32	40	50	60	70	90	90
C	94	105	106	121	128	138	160	180	180
CD	50	56	68	77	93	106	135	172	185
CJ	10	12	13	17	19	22	26	25	31
D	21	24	33	37	47	55	70	97	105
E	18	22	30	35	40	50	60	88	90
F	31	35	45	50	60	70	90	126	130
G	8	10	12	14	14	17	20	25	30
H	38	41	50	52	66	76	94	118	122
I	51	54	65	67	86	96	124	156	162
K	6.6	6.6	9	9	11	11	14	14	18
L	-	-	-	-	18	18	21	21	26