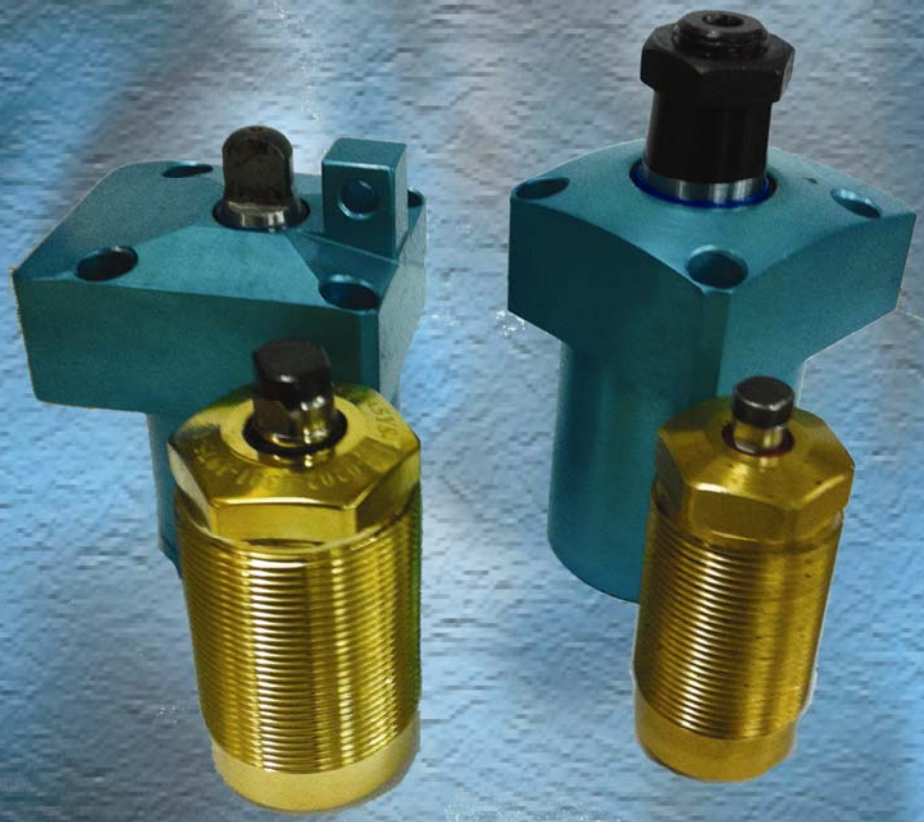
PNEUMATICS

PROVEN TECHNOLOGY
STRINGENT QUALITY
RELIABILITY

CLASYS

World Class Work Holding Solutions



#3, 2nd main Kanakanagar, Near Sreenivasanagar, Bangalore-560072,INDIA
080-23103021, 98806 68893
e-mail :hydcyl.clasys@gmail.com

Equipment	Formulas and description	Symbol

General information

Basic equations (static, without any loss)

$$Q = \frac{V}{t}$$
$$V = A \cdot s$$
$$F = p \cdot A$$
$$p = \frac{F}{A}$$
$$Q = A \cdot v$$
$$M = \frac{V \cdot p}{2\pi}$$
$$v = \frac{s}{t}$$

F: force
p: pressure
A: area
Q: flow
v: speed
V: volume
t: time
s: travel (stroke)
M: torque

Hydraulic cylinders

• Single acting

$$A\ [mm^2] = \frac{\pi}{4} d^2\ [mm]$$

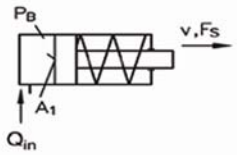
$$v\left[\frac{m}{s}\right] = \frac{s\ [mm]}{1000\ t\ [s]}$$

$$F_s\ [N] = -0.1 \cdot p_B\ [bar] \cdot A\ [mm^2]$$

$$p_B\ [bar] = \frac{-10\ F_s\ [N]}{A_1\ [mm^2]}$$

$$Q_{in}\ [lpm] = 0.06 \cdot A\ [mm^2] \cdot v\left[\frac{m}{s}\right]$$

d: piston diameter (mm)
A: piston area (mm^2)
F_s: force (N)
p_B: operating pressure (bar)
v: piston speed $\left(\frac{m}{s}\right)$
Q_{in}: inflow (lpm)
s: stroke (mm)
t: time (S)



• Double acting

Extending

Basic equations (balance of forces):

$$A_1 = \frac{\pi}{4} d_1^2 = 0.78 d_1^2$$
$$A_3 = \frac{\pi}{4}\left(d_1^2 - d_2^2\right)$$
$$p_1 \cdot A_1 = p_3 \cdot A_3 - F$$
$$p_1 = \frac{1}{A_1}\left(p_3 \cdot A_3 - F\right)$$

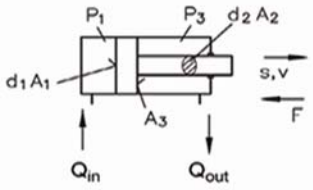
Simplified:

$$p_1\ [bar] = \frac{p_3\ [bar] \cdot A_3\ [mm^2] - 10F\ [N]}{A_1\ [mm^2]}$$

$$F\ [N] = \frac{-p_1\ [bar] \cdot A_1\ [mm^2] + p_3\ [bar] \cdot A_3\ [mm^2]}{10}$$

$$Q_{in} = A_1 \cdot v$$
$$Q_{out} = A_3 \cdot v$$

p_3 is the result of back pressure from pipes and valves for Q_{out}
Attention: Pressure intensification could occur!



Retracting

Basic equations (balance of forces):

$$p_1 \cdot A_1 = p_3 \cdot A_3 + F$$
$$p_3 = \frac{1}{A_3}\left(p_1 \cdot A_1 - F\right)$$

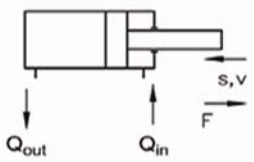
Simplified:

$$p_1\ [bar] = \frac{p_1\ [bar] \cdot A_1\ [mm^2] - 10F\ [N]}{A_3\ [mm^2]}$$

$$F\ [N] = \frac{p_1\ [bar] \cdot A_1\ [mm^2] - p_3\ [bar] \cdot A_3\ [mm^2]}{10}$$

$$Q_{in} = A_3 \cdot v$$
$$Q_{out} = A_1 \cdot v$$

p_1 result of back pressure from pipes and valves for Q_{out}



A_1: piston area (mm^2)
A_3: rod side area (mm^2)
d_1: piston ∅ (mm)
d_2: rod ∅ (mm)
F: force (N)
Q_{in}: inflow (lpm)
O_{out}: outflow (lpm)
p_1: pressure, piston side (bar)
p_3: pressure, rod side (bar)
s: stroke, travel (mm)

Conversion table

Nomenclature	Codings	Unit	≈	Factor	x	Unit
Pressure	p	$1\ \frac{N}{mm^2}$	≈	10		bar
		1 MPa	≈	10		bar
		$1\ \frac{kgf}{cm^2}$	≈	1		bar
		1 psi	≈	0.07		bar
Force	F	$1\ \frac{kg \cdot m}{s^2}$	=	1		N
		1 lbf	≈	4.45		N

INDEX

DESIGNATION

WORK SUPPORT

Pneumatic (Threaded Body)

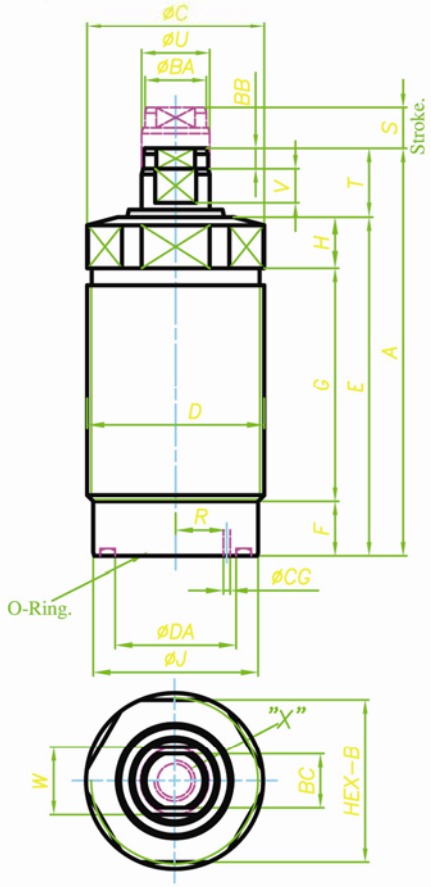
PRODUCT CODE

0211

ORDERING METHOD.
PRODUCT CODE--MODEL NO.
Eg. 0201–0101.

DESCRIPTION :

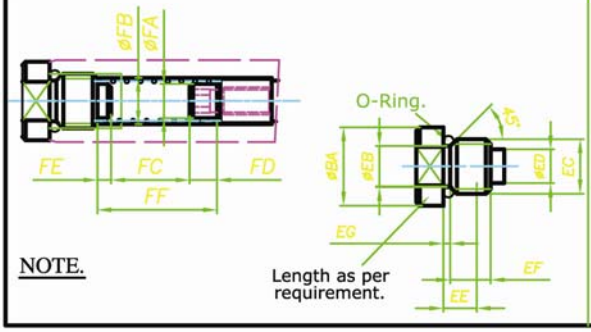
Compact design
Manifold Mounted
Wide Operating Pressure Range
Hydraulic Advance
Single Acting



NOTE.

The drawing shows plunger in retracted position
Refer to recommendations for making new contact bolt
Refer to recommendations for mounting torque
Do not exceed recommended torque
Do not exceed recommended working pressure

Plunger Spring & Contact Bolt Dimensions

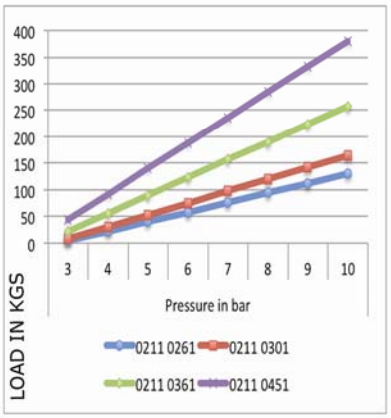


NOTE.

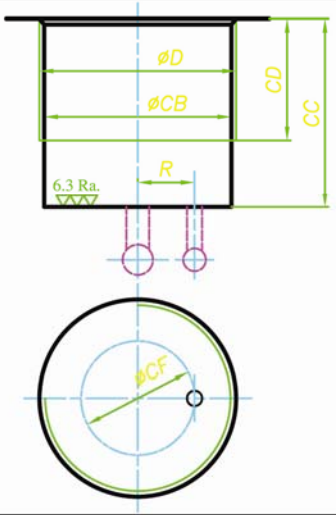
SPECIFICATIONS

Model No.	0211 0261	0211 0301	0211 0361	0211 0451
Support Force at 0.5Mpa (kN)	0.4	0.525	0.89	1.4
Support Force Formula for Operating pressure (Mpa)	1.80XP - 0.5	2.25xP-0.6	3.38xP-0.8	4.8xP-01.0
Plunger Stroke - S (mm)	6	8	8	10
Plunger Rising Force L (N)	2.8~4.1	3.6~5.7	4.7~7.8	5.8~9.7
Plunger Rising Force H (N)	3.8~5.9	4.9~8	6.2~11	7.9~13.6
Cylinder Volume (cm³)	0.60	0.90	1.30	2.00
Min Operating Pressure	0.25Mpa			
Max Operating Pressure	1.0 Mpa			
Weight kg	0.20	0.25	0.35	0.75
A	62	70	80	80
B	24	27	32	41
ØC	26	30	36	45
D	M26x1.5	M30X1.5	M36X1.5	M45X1.5
E	53	60	67.5	68.5
F	7	8	9	10
G	36	42	46	46
H	8	9	8.5	10
ØJ	24.6	28.4	34	43
R	10.7	11.5	13.5	18
T	9.5	9.5	12.5	11.5
ØU	10	12	15	16
V	5	5	5.5	6
W	8	10	13	14
X	M6	M8	M10	M10
ØBA	9.5	11.5	12.5	12.5
BB	4	4	4	4
BC	8	10	12	13
ØCB	24.5	28.5	34.5	43.5
CC	16~47	17~50	18~48	21~58
CD	CC -7	CC -7	CC -8	CC -8
ØCF	pcd 21.4	pcd 23.0	pcd 27.0	pcd 36.0
ØCG	2	2	2	2
ØDA x thick	Ø12x2	Ø14x2	Ø14x2	Ø20x2
=PAD Dimensions=				
ØEB	4.9	6	8.2	10
EC	M6	M8	M10	M10
ØED	2.5	5	5	5.5
EE	9	10	10	10
EF	6	7	8	7
EG	2	2	2	2
O-Ring	Ø5x1.5	Ø4x2	Ø8X1.5	Ø8x1.5
ØFA	2.6	5.0	5.8	5.8
ØFB	3.6	6	8.5	8.5
FC	11.5	13	10	12
FD	4	4	8	8
FE	2	2	2	2
FF	18	19	20	20
Mounting Torque (Nm)	16.0	25	40	63

LOAD GRAPHS



MOUNTING DIMENSIONS.



(Specifications subject to change)

DESIGNATION

SWING CYLINDER (Top Mount)

Pneumatic (Double Acting)

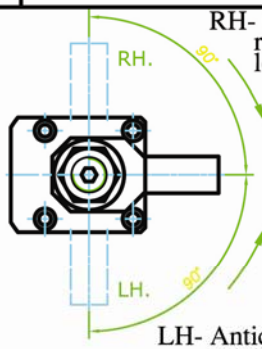
PRODUCT CODE

0311

DESCRIPTION :

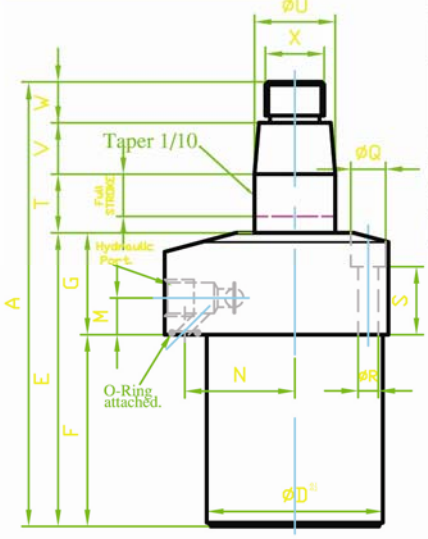
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting

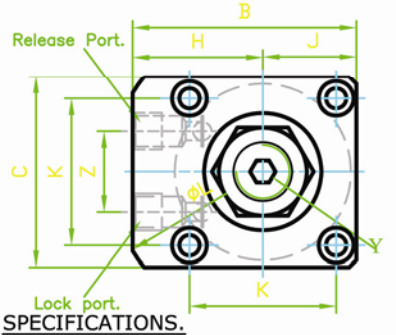
Min Operating Pressure : 0.25Mpa
Max Operating Pressure : 1.5Mpa



RH- Clockwise rotation for locking.

LH- Anticlockwise rotation for locking.





ORDERING METHOD.

PRODUCT CODE–MODEL NO.
Eg. 0311–0481.

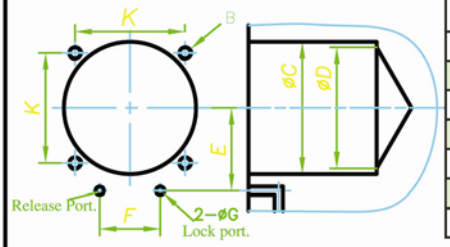
Model							
	90° RH.	0311-0361	0311-0401	0311-0481	0311-0551	0311-0651	0311-0751
	90° LH.	0311-0362	0311-0402	0311-0482	0311-0552	0311-0652	0311-0752
A		95	111	122	137.5	145	171.5
B		49	54	61	69	81	92
C		40	45	52	60	70	80
D		36	40	48	55	65	75
E		64.5	75	80	87	93	108
F		39.5	50	52	59	63	71
G		25	25	28	28	30	37
H		29	31.5	35	39	46	52
J		20	22.5	26	30	35	40
K		31.5	34	40	47	55	63
øL		66	73	83	88	106	116
M		11	11	11	11	12	12
N		23.5	26	30	33.5	39.5	45
P		3	3	3	3	3	3
Q		7.5	9.5	9.5	11	11	14.5
R		4.5	5.5	5.5	6.6	6.6	9
S		18	17	18.5	17	18	22
T		14.5	15	16	19	20	23.5
U		10	12	14	16	20	25
V		09	12	14	20	20	26
W		07	09	12	12	12	14
X		M10x1	M12x1.5	M16x1.5	M16x1.5	M20x1.5	M20x1.5
Y (Hex,xDepth)		5x4	6x5	6x6	8x6	10x8	10x8
Z		16	18	22	24	30	32
Hyd. Port.		G1/8	G1/8	G1/8	G1/8	G1/4	G1/4
TAPER ANGLE °		6	6	6	6	6	6

SPECIFICATIONS.

Lock cyl. area.		cm2	3.0	3.75	8	10.5	16.5	23.3
Full stroke.		mm	13	13	14	17	18	21.5
Swing stroke. (90° rotation)		mm	5	5	6	8	8	9.5
Locking stroke		mm	8	8	8	9	10	12
Cyl. volume.	At lock.	cm3	2.6	3.07	7	13.2	25.2	42.3
	At release.	cm3	4.9	6.38	12.5	20.9	37.1	68.7
Max. operating pressure.		MPa	1.5					
Min. operating pressure.		MPa	0.25					
Design pressure.		MPa	3.0					
Operating temp.		°C	0–70					
Weight.		Kg.	1.3	1.8	2.7	4.2	5.5	9

(Single Acting Cylinders available on request. Please contact nearest Dealer)

MACHINING FOR MOUNTING CLAMP.



Model							
	90° RH.	0311-0361	0311-0401	0311-0481	0311-0551	0311-0651	0311-0751
	90° LH.	0311-0362	0311-0402	0311-0482	0311-0552	0311-0652	0311-0752
K		31.5	34	40	47	55	63
B		M4	M5	M5	M6	M6	M8
C+0.2		36	40	48	55	65	75
D		31	35	45	50	60	70
E		23.5	26	30	33.5	39.5	45
F		16	18	22	24	30	32
G		3	3	3	3	3	3

(Specifications subject to change)

DESIGNATION

SWING CYLINDER (Top Mount)

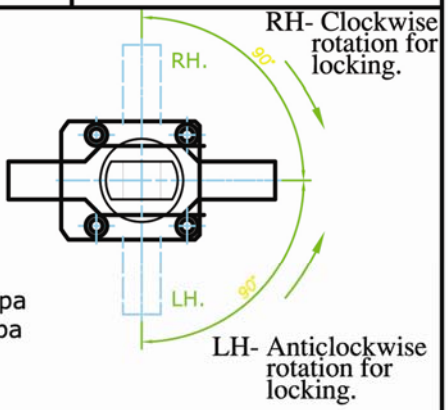
Pneumatic (Double Acting)

PRODUCT CODE

0311- P

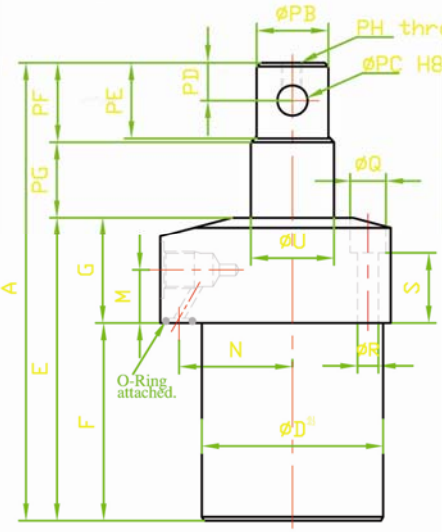
DESCRIPTION :

Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting



Min Operating Pressure : 0.25Mpa
Max Operating Pressure : 1.5Mpa

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0311–0481–P

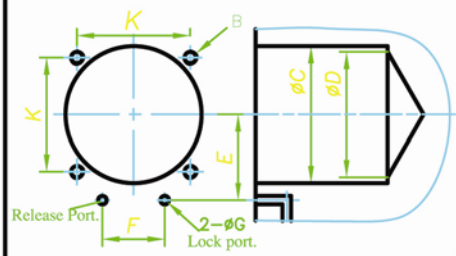


Model	90° RH.	0312-0481	0312-0551	0312-0651	0312-0751
	90° LH.	0312-0482	0312-0552	0312-0652	0312-0752
A		122	137.5	145	171.5
B		61	69	81	92
C		52	60	70	80
D		48	55	65	75
E		80	87	93	108
F		52	59	63	71
G		28	28	30	37
H		35	39	46	52
J		26	30	35	40
K		40	47	55	63
øL		83	88	106	116
M		11	11	12	12
N		30	33.5	39.5	45
P		3	3	3	3
Q		9.5	11	11	14.5
R		5.5	6.6	6.6	9
S		18.5	17	18	22
U		14	16	20	25
PG		16	18.5	20	23.5
PF		25	30.5	32	40
PE		23.5	29	30.5	38.5
PH Thread		M4	M5	M6	M6
PD		10	12	15	16.5
ø PB		20	23	28	34
øPC H8		8	10	12	12
PA		10	12	14	16
Z		22	24	30	32
Hyd. Port.		G1/8	G1/8	G1/4	G1/4

SPECIFICATIONS.

Lock cyl. area.		cm2	8	10.5	16.5	23.3
Full stroke.		mm	14	17	18	21.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5
Locking stroke		mm	8	9	10	12
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3
	At release.	cm3	12.5	20.9	37.1	68.7
Max. operating pressure.		MPa	1.5			
Min. operating pressure.		MPa	0.25			
Design pressure.		MPa	3.0			
Operating temp.		°C	0–70			
Weight.		Kg.	1.3	1.8	2.7	4.2

MACHINING FOR MOUNTING CLAMP.



Model	90° RH.	0312-0481	0312-0551	0312-0651	0312-0751
	90° LH.	0312-0482	0312-0552	0312-0652	0312-0752
K		40	47	55	63
B		M5	M6	M6	M8
C+0.2		48	55	65	75
D		45	50	60	70
E		30	33.5	39.5	45
F		22	24	30	32
G		3	3	3	3

(Single Acting Cylinders available on request. Please contact nearest Dealer)

(Specifications subject to change)

DESIGNATION

SWING CYLINDER (Bottom Mount)

Pneumatic (Double Acting)

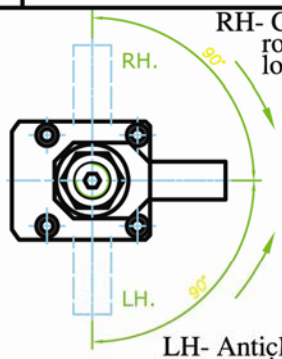
PRODUCT CODE

0312

DESCRIPTION :

Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting

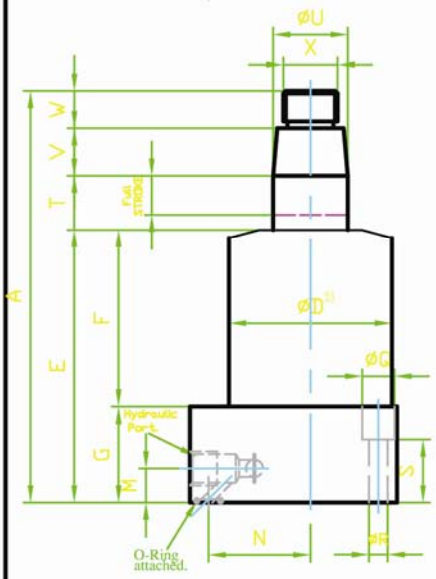
Min Operating Pressure : 0.25Mpa
Max Operating Pressure : 1.5Mpa

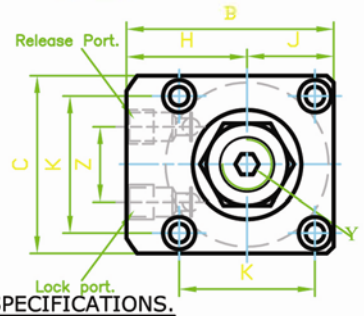


RH- Clockwise rotation for locking.

LH- Anticlockwise rotation for locking.

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0312–0481.





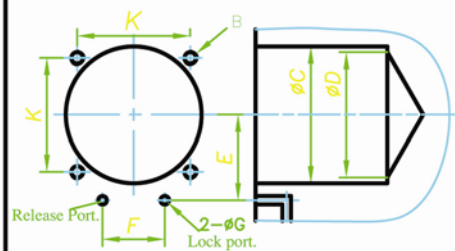
SPECIFICATIONS.

Model	90° RH.	0312-0361	0312-0401	0312-0481	0312-0551	0312-0651	0312-0751
	90° LH.	0312-0362	0312-0402	0312-0482	0312-0552	0312-0652	0312-0752
A		95	111	122	137.5	145	171.5
B		49	54	61	69	81	92
C		40	45	52	60	70	80
D		36	40	48	55	65	75
E		64.5	75	80	87	93	108
F		39.5	50	52	59	63	71
G		25	25	28	28	30	37
H		29	31.5	35	39	46	52
J		20	22.5	26	30	35	40
K		31.5	34	40	47	55	63
ØL		66	73	83	88	106	116
M		11	11	11	11	12	12
N		23.5	26	30	33.5	39.5	45
P		3	3	3	3	3	3
Q		7.5	9.5	9.5	11	11	14.5
R		4.5	5.5	5.5	6.6	6.6	9
S		18	17	18.5	17	18	22
T		14.5	15	16	19	20	23.5
U		10	12	14	16	20	25
V		09	12	14	20	20	26
W		07	09	12	12	12	14
X		M10x1	M12x1.5	M16x1.5	M16x1.5	M20x1.5	M30x1.5
Y (Hex,xDepth)		5x4	6x5	6x6	8x6	10x8	10x8
Z		16	18	22	24	30	32
Hyd. Port.		G1/8	G1/8	G1/8	G1/8	G1/4	G1/4
TAPER ANGLE °		6	6	6	6	6	6

Lock cyl. area.		cm2	3.0	3.75	8	10.5	16.5	23.3
Full stroke.		mm	13	13	14	17	18	21.5
Swing stroke. (90° rotation)		mm	5	5	6	8	8	9.5
Locking stroke		mm	8	8	8	9	10	12
Cyl. volume.	At lock.	cm3	2.6	3.07	7	13.2	25.2	42.3
	At release.	cm3	4.9	6.38	12.5	20.9	37.1	68.7
Max. operating pressure.		MPa	1.5					
Min. operating pressure.		MPa	0.25					
Design pressure.		MPa	3.0					
Operating temp.		°C	0–70					
Weight.		Kg.	1.3	1.8	2.7	4.2	5.5	9

(Single Acting Cylinders available on request. Please contact nearest Dealer)

MACHINING FOR MOUNTING CLAMP.



Model	90° RH.	0312-0361	0312-0401	0312-0481	0312-0551	0312-0651	0312-0751
	90° LH.	0312-0362	0312-0402	0312-0482	0312-0552	0312-0652	0312-0752
K		40	47	55	63		
B		M5	M6	M6	M8		
C+0.2		48	55	65	75		
D		45	50	60	70		
E		30	33.5	39.5	45		
F		22	24	30	32		
G		3	3	3	3		

(Specifications subject to change)

DESIGNATION

SWING CYLINDER (Bottom Mount)

Pneumatic (Double Acting)

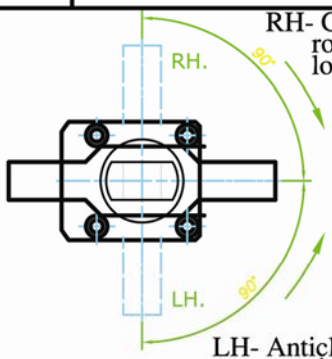
PRODUCT CODE

0312- P

DESCRIPTION :

Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting

Min Operating Pressure : 0.25Mpa
Max Operating Pressure : 1.5Mpa

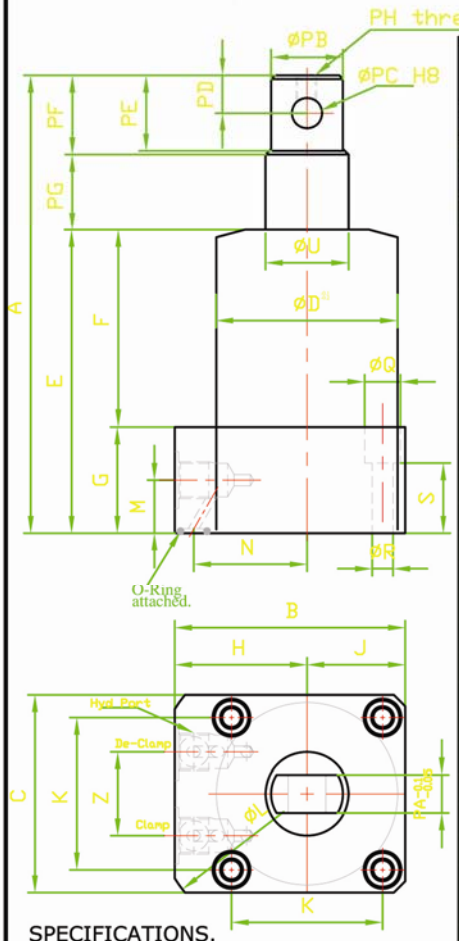


RH- Clockwise rotation for locking.

LH- Anticlockwise rotation for locking.

ORDERING METHOD.

PRODUCT CODE–MODEL NO.
Eg. 0312–0481–P

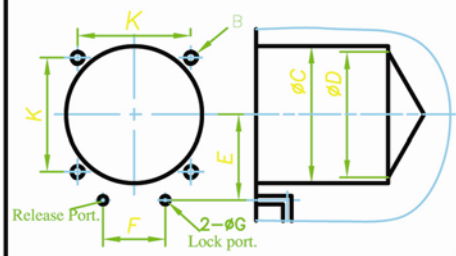


Model	90° RH. 0312-0481 / 90° LH. 0312-0482	0312-0551 / 0312-0552	0312-0651 / 0312-0652	0312-0751 / 0312-0752
A	122	137.5	145	171.5
B	61	69	81	92
C	52	60	70	80
D	48	55	65	75
E	80	87	93	108
F	52	59	63	71
G	28	28	30	37
H	35	39	46	52
J	26	30	35	40
K	40	47	55	63
øL	83	88	106	116
M	11	11	12	12
N	30	33.5	39.5	45
P	3	3	3	3
Q	9.5	11	11	14.5
R	5.5	6.6	6.6	9
S	18.5	17	18	22
U	14	16	20	25
PG	16	18.5	20	23.5
PF	25	30.5	32	40
PE	23.5	29	30.5	38.5
PH Thread	M4	M5	M6	M6
PD	10	12	15	16.5
ø PB	20	23	28	34
øPC H8	8	10	12	12
PA	10	12	14	16
Z	22	24	30	32
Hyd. Port.	G1/8	G1/8	G1/4	G1/4

SPECIFICATIONS.

Lock cyl. area.		cm2	8	10.5	16.5	23.3
Full stroke.		mm	14	17	18	21.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5
Locking stroke		mm	8	9	10	12
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3
	At release.	cm3	12.5	20.9	37.1	68.7
Max. operating pressure.		MPa	1.5			
Min. operating pressure.		MPa	0.25			
Design pressure.		MPa	3.0			
Operating temp.		°C	0–70			
Weight.		Kg.	1.3	1.8	2.7	4.2

MACHINING FOR MOUNTING CLAMP.



Model	90° RH. 0312-0481 / 90° LH. 0312-0482	0312-0551 / 0312-0552	0312-0651 / 0312-0652	0312-0751 / 0312-0752
K	40	47	55	63
B	M5	M6	M6	M8
C+0.2	48	55	65	75
D	45	50	60	70
E	30	33.5	39.5	45
F	22	24	30	32
G	3	3	3	3

(Single Acting Cylinders available on request. Please contact nearest Dealer)

(Specifications subject to change)

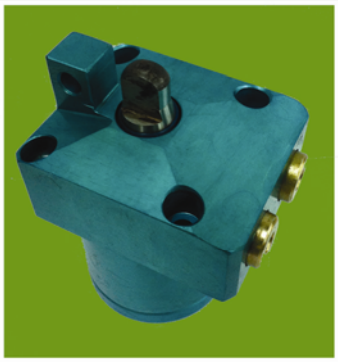
DESIGNATION

COMPACT LINK CLAMP CYLINDER

Pneumatic (Double Acting)

PRODUCT CODE.

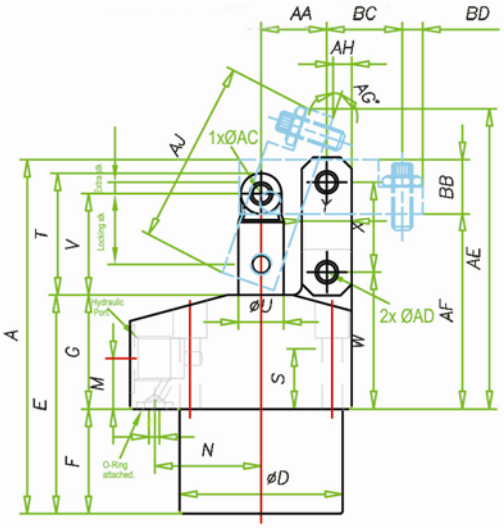
0412

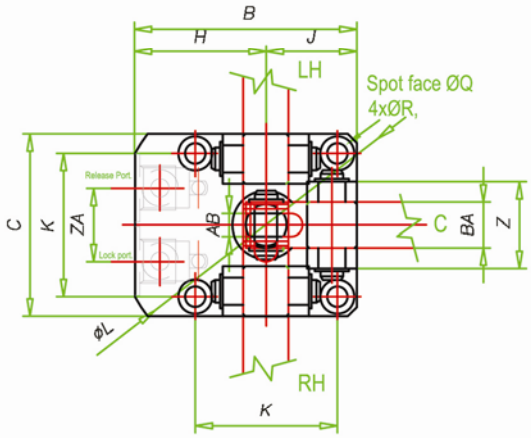


DESCRIPTION :

Double Acting
LH,RH & Centre Port Configurations
Chromium Plated Piston Rod
Aluminium body
Integrated Hinge Mechanism

Flange Mounting
Min Operating Pressure : 0.25Mpa
Max Operating Pressure : 1.5Mpa
Light weight



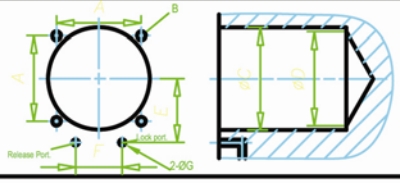


Model.		C	RH	LH
		0412 0361	0412 0362	0412 0363
		0412 0401	0412 0402	0412 0403
		0412-0481	0412-0482	0412-0483
		0412-0551	0412-0552	0412-0553
		0412-0651	0412-0652	0412-0653
		0412-0751	0412-0752	0412-0753
A		79	87.5	101	112.5	129.5	153
B		50	54	61	69	81	94.5
C		41	45	51	60	70	85
D		36	40	48	55	65	75
E		55	56	62	67	75.5	86
F		30	31	34	39	45.5	49
G		25	25	28	28	30	37
H		29.5	31.5	35.5	39	46	52
J		20.5	22.5	25.5	30	35	42.5
K		31.5	34	40	47	55	63
L		68	73	83	88	106	116
M		11	11	11	11	12	12
N		23.5	26	30	33.5	39.5	45
P		3	3	3	3	3	3
Q		7.5	9.5	9.5	11	11	14
R		4.5	5.5	5.5	6.8	6.8	9
S		18	15	17.5	15	15.5	19.5
T		27	30.5	35	37.5	45	55
U		10	12	14	16	18	22
V		22.5	25	29	31.5	37	45
W		30	30.5	34.5	35.5	39	48
X		20	22	26	30	35.5	43.5
Y		10	12	13	16	19	25
Z		19	21	21	28	37	40
ZA		16	18	22	24	30	32
Hyd. Port.		G 1/8"	G 1/8"	G1/8	G1/8	G1/4	G1/4
Link Lever.	AA	14.5	16	18.5	21	24.5	30
	AB	5	5	6	8	10	11
	AC	5	5	6	6	8	10
	AD	6	6	6	8	10	12
	AE	AE	AE	92.4	101.9	111.4	130.8
	AF	43	44.5	51	53.5	59	72
	AG°	19.6°	20.2°	18.9	19.9	20.5	21.4
	AH	5	6	4.3	4.7	4.3	4.5
	AJ	AJ	AJ	61.2	71.7	78.7	90.8
	BA	10	12	12	16	19	22
	BB	12.5	14	16	20	25	32
	BC	19.5	21.5	23.5	29	32	37.5
	BD	5	5	6	8	10	11

SPECIFICATIONS.

Lock cyl. area.		cm²	4.9	7.0	9.6	12.5	19.6	28.2
Full stroke.		mm	18.5	20	23.5	26	29.5	35
Locking stroke.		mm	15.5	17	20.5	23	26.5	32
Extra stroke.		mm	3	3	3	3	3	3
Cyl. volume.	At lock.	cm³	7.6	12.0	19.7	28.9	52.0	90.25
	At release.	cm³	6.4	10.0	16.5	24.25	45.3	78.3
Max. operating pressure.		MPa	1.5					
Min. operating pressure.		MPa	0.25					
Design pressure.		MPa	3					
Operating temp.		°C	0-70					
Weight.		Kg.	0.72	1.15	2.5	4.2	6.5	10.2

MACHINING FOR CLAMP MOUNTING.



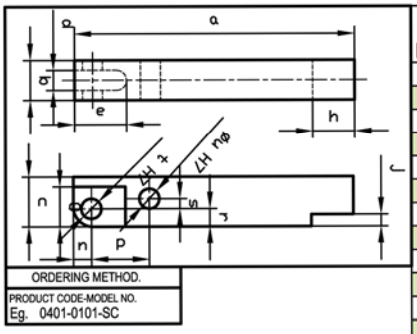
A	31.4	34	55	63	75	88
B	M4	M5	M6	M8	M10	M12
C+0.2	36	40	65	75	90	105
D	30	35	60	70	85	100
E	23.5	26	39.5	45	52.5	60
F	16	18	30	32	37	45
G	2.5	2.5	3	3	3	4

(Specifications subject to change)

ACCESSORIES

PRODUCT CODE
0311 / 0312 / 0411

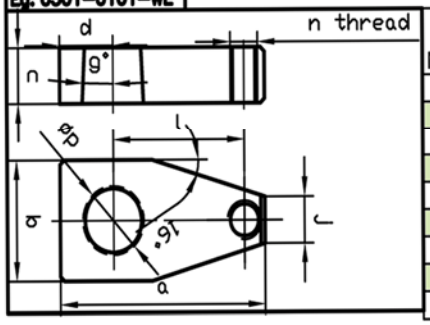
CLAMP LEVER TABLE (Standard) FOR 0411



Model	0401 / 0402	008x / 036x	009x / 040x	010x / 048x	020x / 055x	030x / 065x	040x / 075x	050x / 090x	060x / 105x
a		70	75	85	90	105	110	150	200
$b^{-0.1}$		10	12	12	16	19	22	25	32
c		13	14	16	20	25	32	38	45
d		5	6	6	8	10	11	13	16
e		13	14.5	16	17	22	26	31	36
g		10	12	13	17	18	22	26	31
h		10.5	13	13.	17	22	25	31	38
j		3	3	3	4	5	5	6	6
n		4.5	5.5	6	6	8	10	11	13
p		14.5	16	18.5	21	24.5	30	36	44
r		4.5	5.5	6	6	8	10	11	13
s		2.5	2.5	3.5	6	7.5	9.5	13	16
t^{H7}		5	6	6	6	8	10	12	15
u^{H7}		5	6	6	8	10	12	15	18

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0301-0101-WL

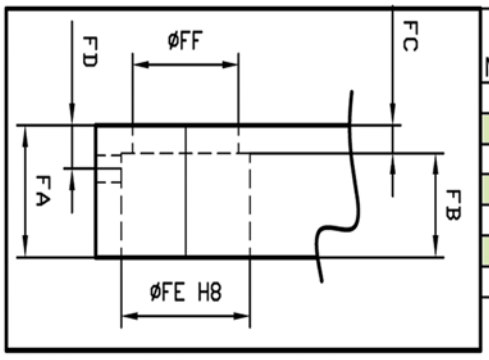
CLAMP LEVER TABLE (WITHOUT SLEEVE) FOR 0311 & 0312



Model	90° RH. / 90° LH.	0081 / 0082	0091 / 0092	0101 / 0102	0201 / 0202	0301 / 0302	0401 / 0402	0501 / 0502	0601 / 0602
a		50	56.5	65.5	77	91.5	105	127	152
b		26	28	35	38	50	58	75	90
c		11	13	16	22	22	28	34	40
d		13	14	17.5	19	25	29	38	45
g°		3°	3°	3°	3°	3°	5.5°	5.5°	5.5°
l		32	36.5	42	50	56.5	65	75	90
j		10	12	12	17	19	22	27	32
n		M5	M6	M6	M8	M10	M12	M16	M20
øp		15	18	22	25	30	36	45	55

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0301-0101-SL

CLAMP LEVER TABLE (WITH SLEEVE) FOR 0301 & 0302

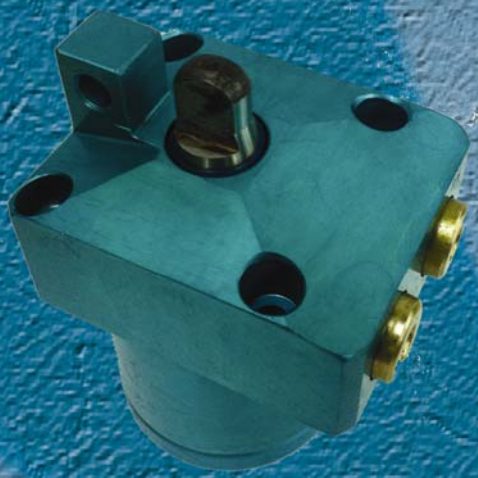


Model	90° RH. / 90° LH.	0081 / 0082	0091 / 0092	0101 / 0102	0201 / 0202	0301 / 0302	0401 / 0402	0501 / 0502	0601 / 0602
FA		12	16	19	25	25	32	38	45
FB		9.5	13	15	21	21	27	33	39
FC		2.5	03	04	04	04	05	05	06
FD		4.3	5.3	6.3	6.3	7.5	8.5	9.5	10.5
øFE		17	20	25	28	34	40	49	60
øFF		13.9	16.7	20.6	23	28	32.9	41.8	51.2
øFG		3	4	4	4	6	6	8	8

(Single Acting Cylinders available on request. Please contact nearest Dealer)

(Specifications subject to change)

Notes :



Single Piece Aluminium Alloy Body
Wide Operating range of
2bar -20 bar
Manifold and Piping Port
option standard in all cylinders

Brass Body and Parts
ball and collet locking
mechanism
Low pressure operation of 3bar
Wide range of 3-10bar
Compact design and mounting

90° cw and ccw swing action
Varied angles available on request
Various types of mounting
Low operating pressure: 2.5bar
Wide range of operation
Manifold and Piping Port design