World Class Work Holding Solutions

CLASYS

2016-2017

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Equipment	Formulas and description	Symbol

General information

Basic equations (static, without any loss)

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

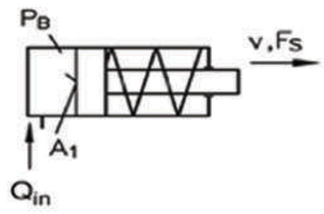
F: force
p: pressure
A: area
Q: flow
v: speed
V: volume
t: time
s: travel (stroke)
M: torque

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):

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

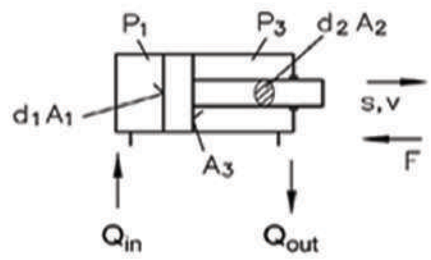
$$Q_{in} = A_1 \cdot v$$
$$Q_{out} = A_3 \cdot v$$

Simplified:

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

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):

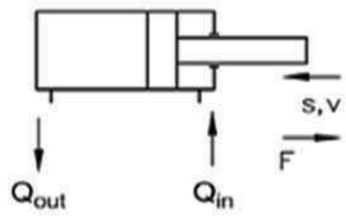
$$p_1 \cdot A_1 = p_3 \cdot A_3 + F$$
$$p_3 = \frac{1}{A_3}\left(p_1 \cdot A_1 - F\right)$$

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

Simplified:

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

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)

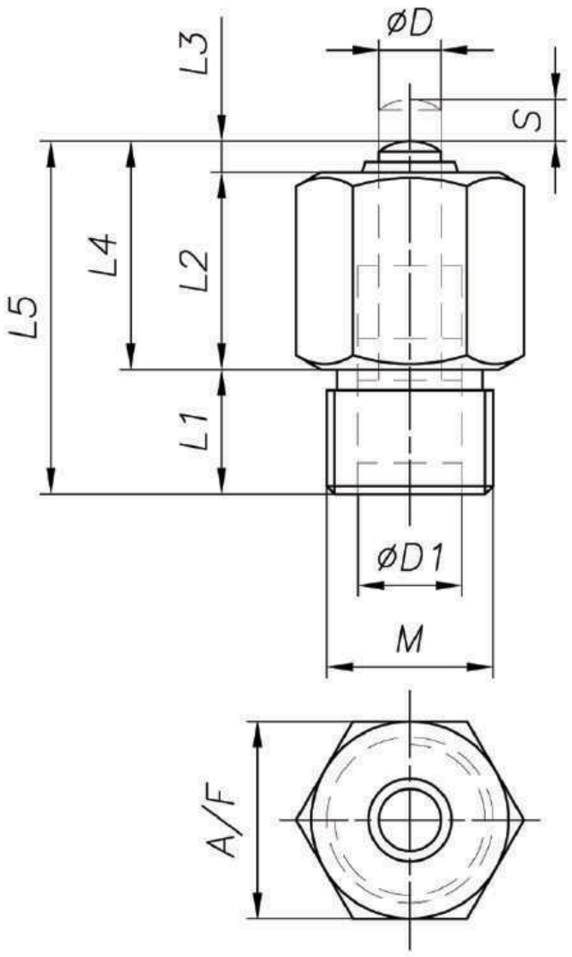
Conversion table

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

INDEX

DESIGNATION	PRODUCT CODE
THREADED BODY CYLINDER Hydraulic (Manifold Mounting)	**0101**



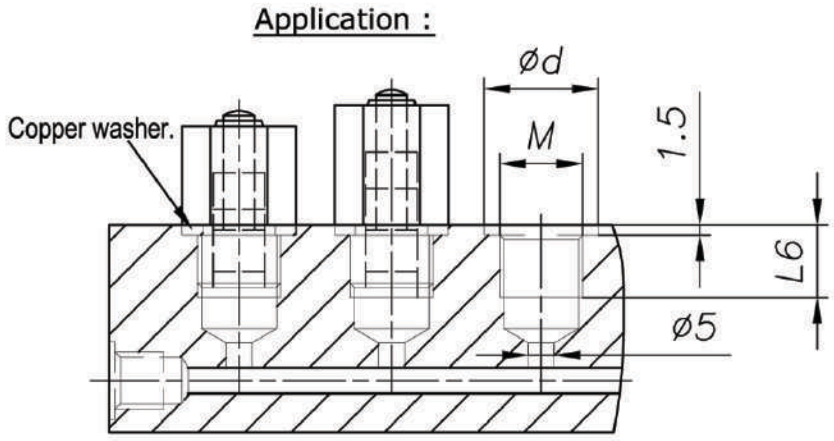
DESCRIPTION :

Compact design
Space saving mounting
Male & Female threaded piston ends
Cylinders are threaded directly into manifold
Pushing,Pulling,Ejection & Riveting operations

Min. Operating Pressure : 0.5 MPa
Max.Operating Pressure : 20 Mpa

Model.		0101-0101	0101-0102	0101-0201	0101-0202	0101-0301	0101-0302	0101-0401	0101-0402	0101-0501	0101-0502
Rod dia.D.	mm	6		8		10		12		16	
Piston dia.D1	mm	10		12		16		20		25	
Stroke - S.	mm	4	8	4	8	6	10	8	12	12	16
M	mm	M16x1.5		M20x1.5		M24x1.5		M30x1.5		M36x1.5	
L1	mm	12		12		14		18		21	
L2	mm	19	23	19	23	21	25	27	31	33	37
L3	mm	3	3	3	3	3	3	3	3	3	3
L4	mm	22	26	22	26	24	28	30	34	36	40
L5	mm	34	38	34	38	38	42	48	52	57	61
A/F	mm	19		24		27		36		41	
Ød	mm	22		28		32		42		48	
L6	mm	14		14		16		23		23	
Pushing force. at 70 bar.	N.										
Oil volume forward stroke.	cc										

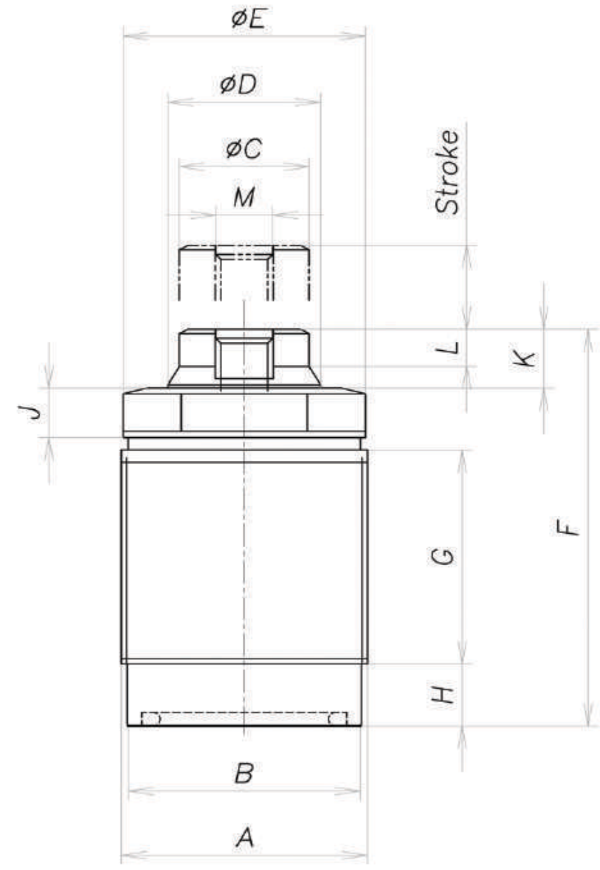
Application :



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

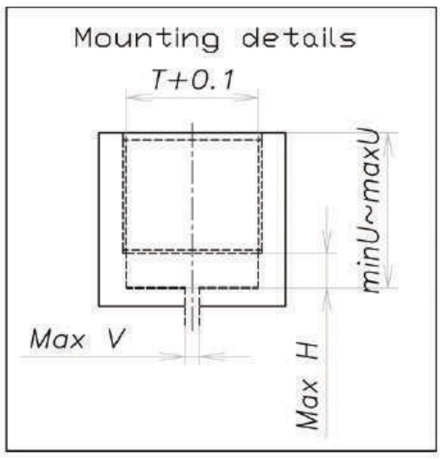
(Specifications subject to change)

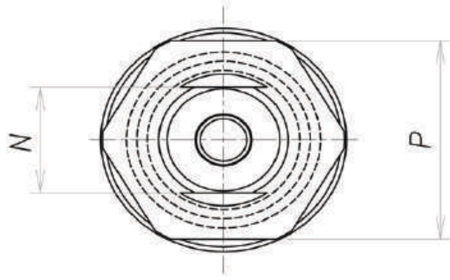
CLASYS	DESIGNATION **THREADED BODY CYLINDER** Hydraulic (Manifold Mounting)	PRODUCT CODE **0102**



DESCRIPTION :
Compact design
Space saving mounting
Male & Female threaded piston ends
Cylinders are threaded directly into manifold
Spring Return Type Cylinder

APPLICATION :
* Can be used for direct clamping as well as positioning & support
* Threaded body eases installation





Size & Mounting Details :

Model code	0102 0101			0102 0201			0102 0301			0102 0401			0102 0501			0102 0601			0102 0701			0102 0801			0102 0901		
	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
A (Nominal sizex pitch)	M16 x 1.5			M22x1.5			M24x1.5			M30x1.5			M36x1.5			M45x1.5			M55x2			M65x2			M80x2		
B	14.3			20.3			22.3			28.3			34.3			43.3			52.6			62.6			77.6		
C	7.5			11.2			13			17			19			28			34.5			42			52		
D	8			12			14			18			22.4			30			35.5			45			55		
E	16.0			21.2			24.5			30			35.5			45			55			66			80		
F	40.5	44.5	50.5	35	43	56	39.5	47	63.5	43.5	52.5	72	51	64	85	59	72	94.5	64	79.5	102	78	94	123.5	88	106	137
G	18.0	24.0	33.0	13	21	34	17.5	25	41.5	18	27	46.5	23.5	36.5	57.5	23	36	58.5	27	42.5	65	35	51	80.5	42	60	91
H	6			8			8			9			10			12			12			13			13		
J	5			7			7			8			8			12			12			14			14		
K	5.5			7			7			8.5			9.5			12			13			16			19		
L	4			5.5			5.5			7			8			10			11			13			16		
M (Nominal size x depth)	M5x8			M6 x 7			M6 x 7			M8 x 10			M8 x 10			M10 x 11			M12 x 12			M16x16			M20x20		
N	7			10			10			14			17			24			30			36			41		
P	14			19			22			27			32			41			50			60					
T	14.5			20.5			22.5			28.5			34.5			43.5			53			63			78		
Min.U	12			14			14			15			16			18			20			25			25		
Max.U	23	29	38	20	28	41	24	32	48	26	35	54	32	45	66	34	47	69	38	53	76	47	63	92	54	72	103
max. V	3			3			3			6			6			8			8			8			8		

Stroke & Load details :

Model	0102 0101			0102 0201			0102 0301			0102 0401			0102 0501			0102 0601			0102 0701			0102 0801			0102 0901		
Stroke code	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
Stroke mm	6	10	16	6	10	16	8	12	20	8	12	20	10	16	25	10	16	25	12	20	32	16	25	40	16	25	40
Cylinder area cm²	0.95			1.1			1.5			2.5			3.9			7.1			9.9			15.9			23.8		
Cylinder volume cm³	0.6	0.95	1.5	0.7	1.1	1.8	1.2	1.8	3.1	2.0	3.1	5.1	3.9	6.3	9.9	7.1	11.3	17.7	11.9	19.8	31.7	25.4	39.8	63.6	38.0	59.4	95.0
Release spring force(N)	12.4~24.0			26.0~43.0			33.0~61.0			50.0~99.0			79.0~150			157~319			236~452			353~657			564~1040		
Supply pressure:(7MPa) (force in kN)	0.665			0.75			1.01			1.66			2.59			4.60			6.44			10.4			15.5		
Calculation formula (kN)	(0.01 P)-0.024			(0.113P)-0.041			(0.154P)-0.060			(0.254P)-0.099			(0.394P)-0.150			(0.707P)-0.319			(0.990P)-0.452			(1.59 P)-0.657			(2.38P)-1.04		
Max.operating pressure(MPa)	15																										
Min. operating pressure (MPa)	0.8																										

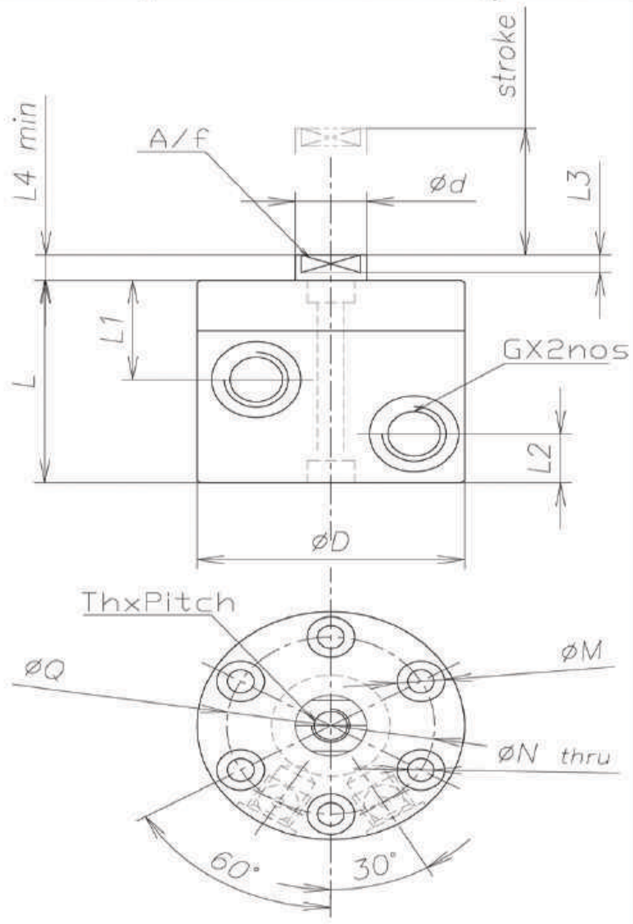
ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0102-0101.

(Specifications subject to change)

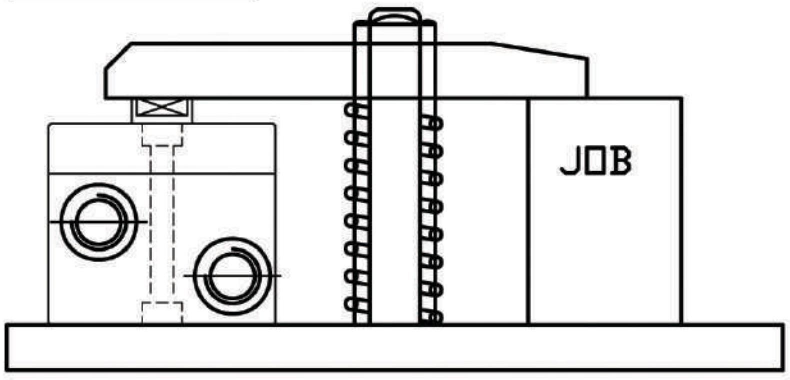
CLASYS	DESIGNATION COMPACT CYLINDER Hydraulic (Manifold Mounting)	PRODUCT CODE 0103

DESCRIPTION :

Compact design
Space saving & easy mounting
Male & Female threaded piston ends
Cylinders are provided with Universal Mounting
Clamping, Riveting, Pusing, Pulling & Ejecting
Min. Operating Pressure : 1Mpa
Max. Operating Pressure: 15Mpa



APPLICATION :



All dimensions in mm	0101	0102	0103	0104
Pushing Force (kN)	4.7kN	12kN	19kN	29kN
Pulling Force (kN)	3kN	9kN	14kN	22kN
Thxpitch	M6x10 deep	M10x18 deep	M12x20 deep	M16x25 deep
L4	6	6	7	6
d	12	16	20	25
D	45	65	76	95
G	1/8"	1/8"	1/8"	1/4"
A/F	10	14	17	22
L1	16.5	16.5	17.5	22.5
L2	12	12	12	12
L3	4	4	4	4
ØN	4.5	6.6	6.6	9
ØM x deep	8x5.0	11x7.0	11x7.0	14.5x9.0
ØQ (PCD)	35	50	60	75
Stroke	25	25	25	25
L	63	63	67	73
Oil Vol pushing (cc)	8cc	20cc	31cc	49cc
Oil Vol pulling (cc)	5cc	15cc	24cc	37cc

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0103-0101.

(Specifications subject to change)

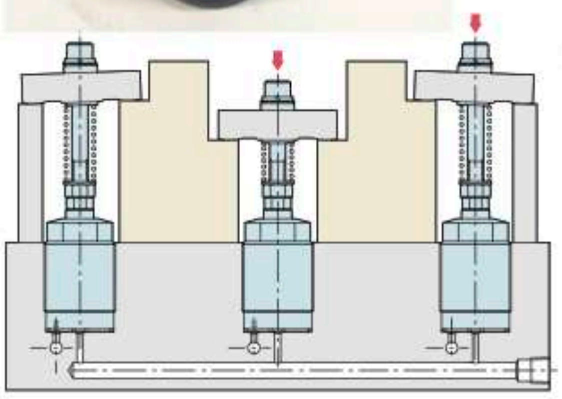
DESIGNATION

PULL CYLINDER

SINGLE ACTING

PRODUCT CODE

0104

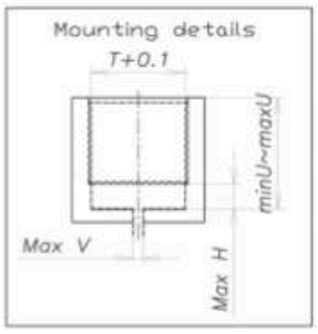


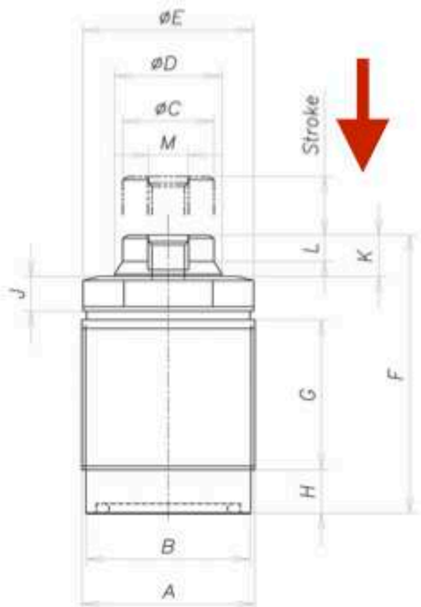
DESCRIPTION :

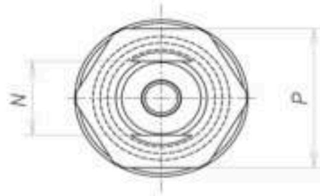
Compact design
Space saving mounting
Male & Female threaded piston ends
Cylinders are threaded directly into manifold
Spring Return Type Cylinder

APPLICATION :

* Can be used for direct clamping as well as positioning & support
* Threaded body eases installation







MODEL CODE	0104 0101			0104 0201			0104 0301			0104 0401			0104 0501			0104 0601			0104 0701			0104 0801		
SIZE CODE	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
Stroke mm	4	6	10	5	8	12	6	10	16	6	10	16	8	12	20	8	12	20	10	16	25	10	16	25
Cylinder Force (Calculation Formula) kN	F=(0.072×P)-0.051			F=(0.126×P)-0.067			F=(0.217×P)-0.108			F=(0.412×P)-0.175			F=(0.628×P)-0.313			F=(0.993×P)-0.471			F=(1.55×P)-0.726			F=(2.53×P)-1.08		
Cylinder Area cm^2	0.7			1.3			2.2			4.1			6.3			9.9			15.5			25.3		
Cylinder Capacity cm^3	0.3	0.4	0.7	0.6	1.0	1.5	1.3	2.2	3.5	2.5	4.1	6.6	5.0	7.5	12.6	7.9	11.9	19.9	15.5	24.9	38.9	25.3	40.5	63.3
Release Spring Force N	30.2～50.8			38.8～67.2			56.5～108			92～175			141～313			213～471			327～726			513～1076		
Max. Operating Pressure MPa	25																							
Min. Operating Pressure MPa	1.0																							
Withstanding Pressure MPa	37.5																							
Operating Temperature ℃	0～70																							
Mass kg	0.07	0.08	0.1	0.1	0.1	0.15	0.2	0.2	0.3	0.3	0.3	0.4	0.5	0.6	0.7	0.8	0.9	1.0	1.3	1.5	1.8	2.2	2.5	3.0

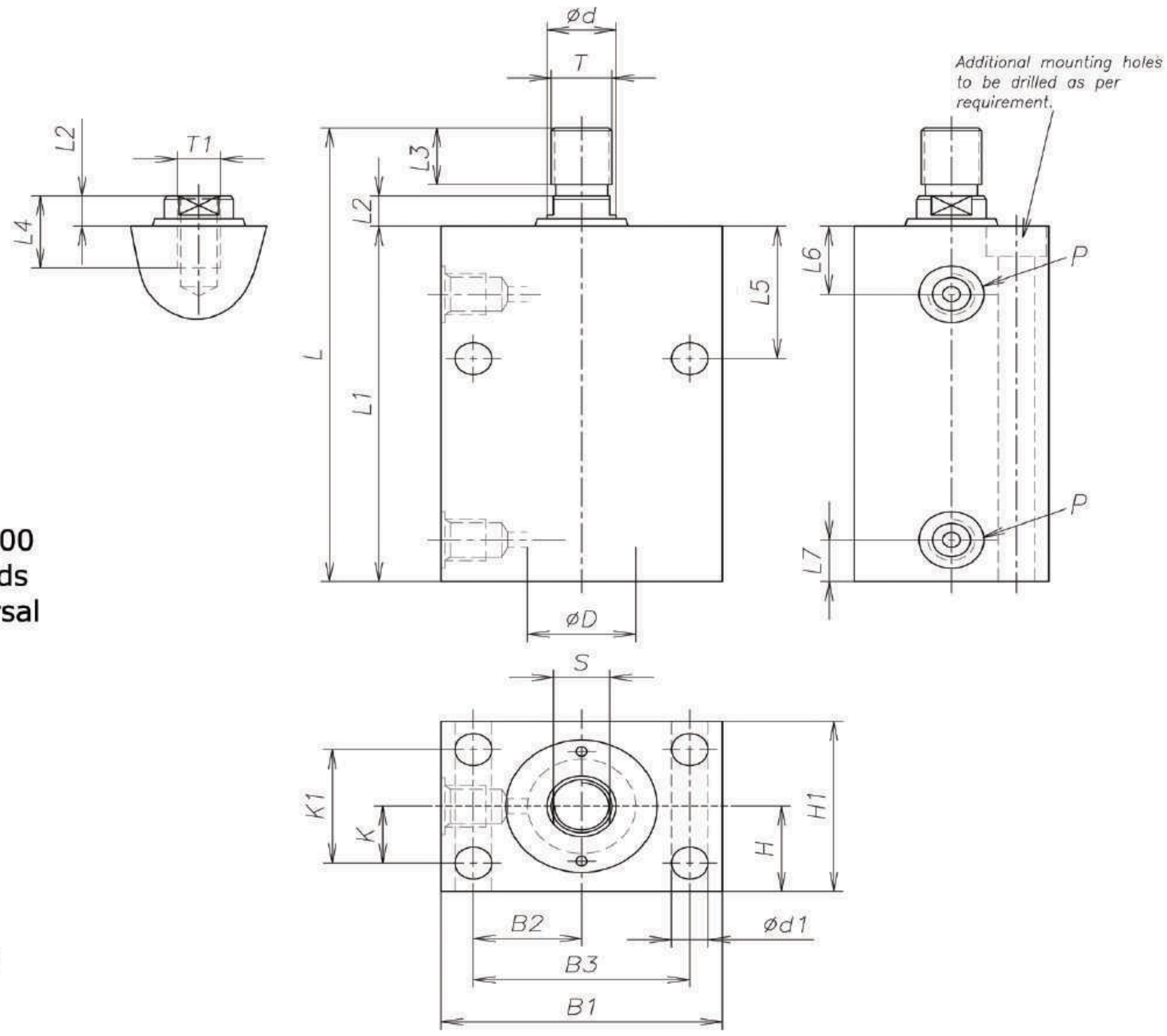
(mm)

MODEL CODE	0104 0101			0104 0201			0104 0301			0104 0401			0104 0501			0104 0601			0104 0701			0104 0801		
SIZE CODE	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L	S	M	L
Stroke	4	6	10	5	8	12	6	10	16	6	10	16	8	12	20	8	12	20	10	16	25	10	16	25
A (Nominal × Pitch)	M22×1.5			M24×1.5			M30×1.5			M36×1.5			M45×1.5			M55×2			M65×2			M80×2		
B	20.3			22.3			28.3			34.3			43.3			52.6			62.6			77.6		
C	9.5			9.5			11.5			13.5			15.5			19.5			24.5			29.5		
D	10			10			12			14			16			20			25			30		
E	19			21.2			26.5			33			40			50			60			75		
F	48.5	53.5	65.5	51.5	59.5	71.5	59.5	71.5	88.5	63	74.5	91.5	72	83	103	79	91	112	93	109	135	103	119	145
G	23.5	26.5	34.5	25	30	38	28.5	36.5	47.5	28	35.5	46.5	33	40	52	33	41	54	42	52	69	49.5	59.5	76.5
H	8			8			9			10			12			12			13			13		
J	8			8.5			10			12			12			16			17			17.5		
K	9	11	15	10	13	17	12	16	22	13	17	23	15	19	27	18	22	30	21	27	36	23	29	38
L	4.5			4.5			5.5			6.5			6.5			8.5			10			11.5		
M (Nominal×Pitch×Depth)	M6×1×11			M6×1×11			M8×1.25×18			M8×1.25×18			M10×1.5×20			M12×1.75×22			M16×2×28			M20×2.5×31		
N	8			8			10			12			14			17			22			27		
P	17			19			24			30			36			46			55			-		
S	7			7～7.5			7～10.5			10.5～13.5			12.5～16			14.5～20			18.5～25.5			24.5～32		
T	20.5			22.5			28.5			34.5			43.5			53			63			78		
U (min.)	14	14	14	14	14	14	15	15	15	16	16	16	18	18	18	20	20	20	25	25	25	25	25	25
U (max.)	31	34	42	32	37	45	37	45	56	37	45	56	44	51	63	44	52	65	54	64	81	62	72	89
V	3			3			3			3			5			5			5			5		
W	3			3			3			3			5			5			5			5		

Ordering Method
PRODUCT CODE-MODEL CODE-STK
EG: 0104-0201-S

(Specifications subject to change)

DESIGNATION	PRODUCT CODE.
BLOCK CYLINDER Hydraulic (Double Acting)	**0105**



DESCRIPTION :

Double Acting Block Cylinder
Stroke : 10 / 16 / 25 / 50 / 75 / 100
Male & Female threaded piston ends
Cylinders are provided with universal mounting
Chromium plated plunger
Alloy Steel Body
Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa

APPLICATION :

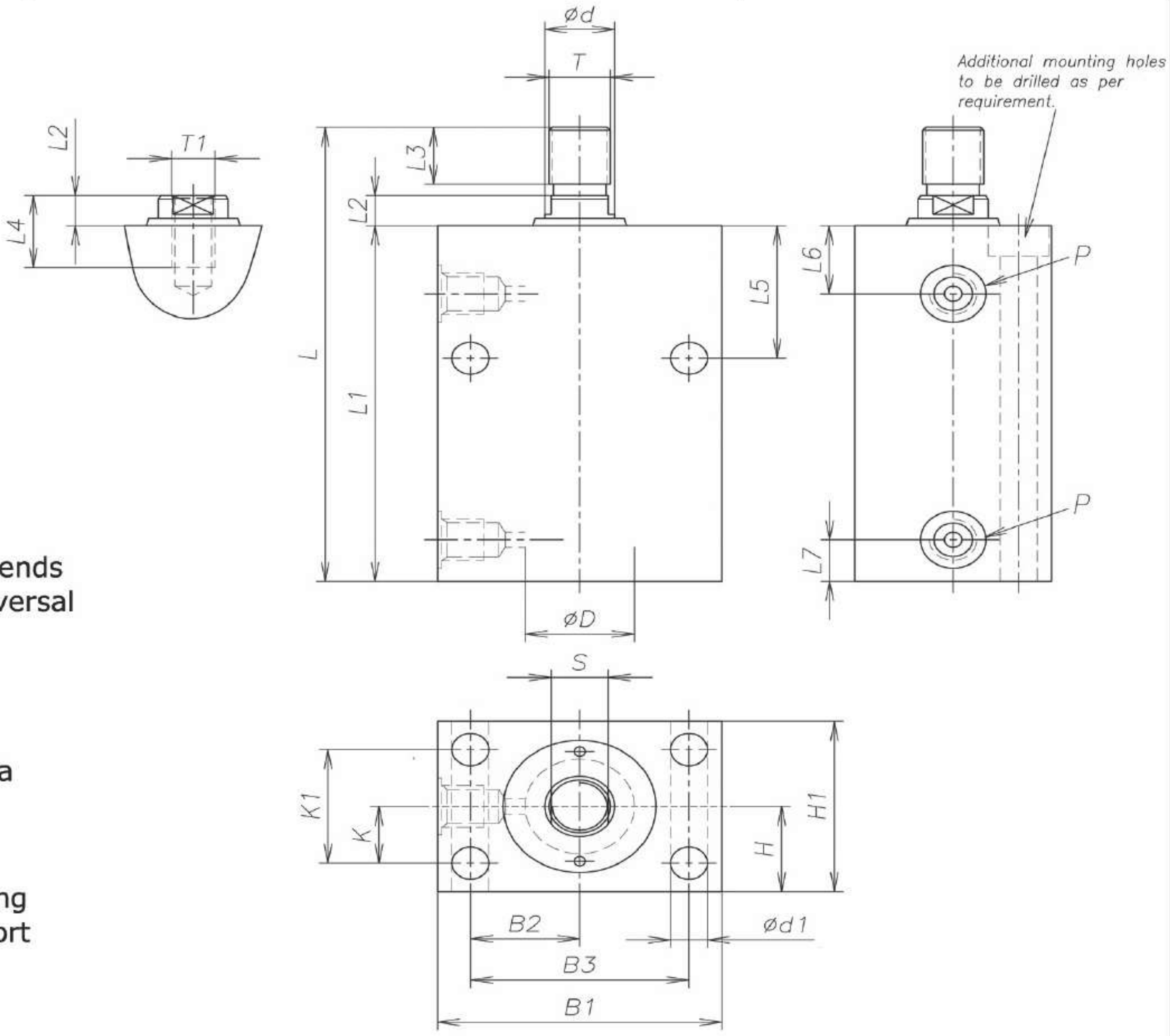
* Can be used for direct clamping as well as positioning & support

Model No.	MALE THREAD.	0101	0103	0105	0201	0203	0205	0301	0303	0305	0401	0403	0405	0501	0503	0505	0507
	FEMALE THREAD.	0102	0104	0106	0202	0204	0206	0302	0304	0306	0402	0404	0406	0502	0504	0506	0508
Piston ØD	mm	20			25			32			40			50			
Rod Ø d	mm	12			16			20			25			32			
Ød1	mm	9			9			11			11			13			
Stroke-S	mm	16	25	50	16	25	50	25	50	75	25	50	75	25	50	75	100
L1	mm	66	75	100	66	75	100	80	105	130	80	105	130	95	120	145	170
L2	mm	8			8			12			12			14			
L3	mm	16			18			22			28			36			
L4	mm	16			19			21			25			25			
L5	mm	35			35			40			40			50			
L6	mm	19			19			22.5			22.5			30.5			
L7	mm	16.5			16.5			17			17			17			
B1	mm	60			65			75			85			100			
B2	mm	22.5			25			27.5			31.5			38			
B3	mm	45			50			55			63			76			
H	mm	20			22.5			27.5			31.5			38			
H1	mm	40			45			55			63			76			
K	mm	12.5			15			17.5			31.5			22.5			
K1	mm	25			30			35			43			45			
P Hyd. Port.		G1/8"			G1/8"			G1/8"			G1/4"			G1/4"			
A/F	mm	10			13			17			23			26			
T	mm	M10x1.5			M14x1.5			M16x1.5			M20x1.5			M24x1.5			
T1	mm	M6			M10			M12			M16			M20			
Pushing force. at 70 bar.	kN.	2.20			3.43			5.63			8.79			13.74			
Pulling force. at 70 bar.	kN.	1.41			2.03			3.43			5.36			8.12			

ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0105-0101.

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE.
CLASYS	**BLOCK CYLINDER** Hydraulic (Double Acting)	**0105**



DESCRIPTION :

Double Acting Block Cylinder
Stroke": 25 / 50 / 75 / 100
Male & Female threaded piston ends
Cylinders are provided with universal mounting
Chromium plated plunger
Alloy Steel Body
Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa

APPLICATION :

* Can be used for direct clamping as well as positioning & support

Model No.	MALE THREAD.	0601	0603	0605	0607	0701	0703	0705	0707	0801	0803	0805	0807	0901	0903	0905	0907
	FEMALE THREAD.	0602	0604	0606	0608	0702	0704	0706	0708	0802	0804	0806	0808	0902	0904	0906	0908
Piston ØD	mm	63				72				80				100			
Rod Ø d	mm	40				45				50				60			
Ød1	mm	13				17				22				22			
Stroke-S	mm	25	50	75	100	25	50	75	100	25	50	75	100	25	50	75	100
L1	mm	100	125	150	175	100	125	150	175	105	130	155	180	105	130	155	180
L2	mm	15				15				15				15			
L3	mm	36				36				40				40			
L4	mm	28				28				40				42			
L5	mm	50				50				60				65			
L6	mm	31.5				30				37				37			
L7	mm	20				20				23				23			
B1	mm	125				145				140				160			
B2	mm	50				55				55				65			
B3	mm	100				110				110				130			
H	mm	44				54				60				70			
H1	mm	88				108				120				140			
K	mm	30				30				40				50			
K1	mm	60				60				80				100			
P Hyd. Port.		G1/4"				G 3/8"				G1/2"				G1/2"			
A/F	mm	36				41				45				55			
T	mm	M30x1.5				M36x1.5				M40x1.5				M45x1.5			
T1	mm	M24				M30x1.5				M36x1.5				M40x1.5			
Pushing force. at 70 bar.	kN.	21.48				28.50				35.19				54.98			
Pulling force. at 70 bar.	kN.	12.68				17.37				21.44				35.19			

ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0105-0101.

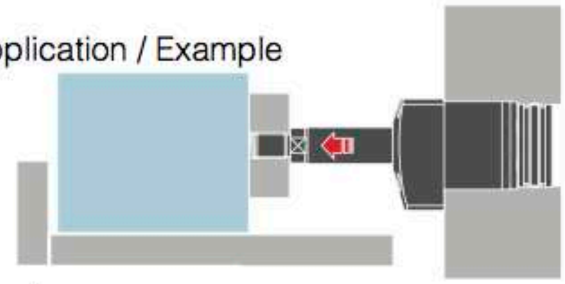
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**LINEAR CYLINDER** DOUBLE ACTING	**0106**

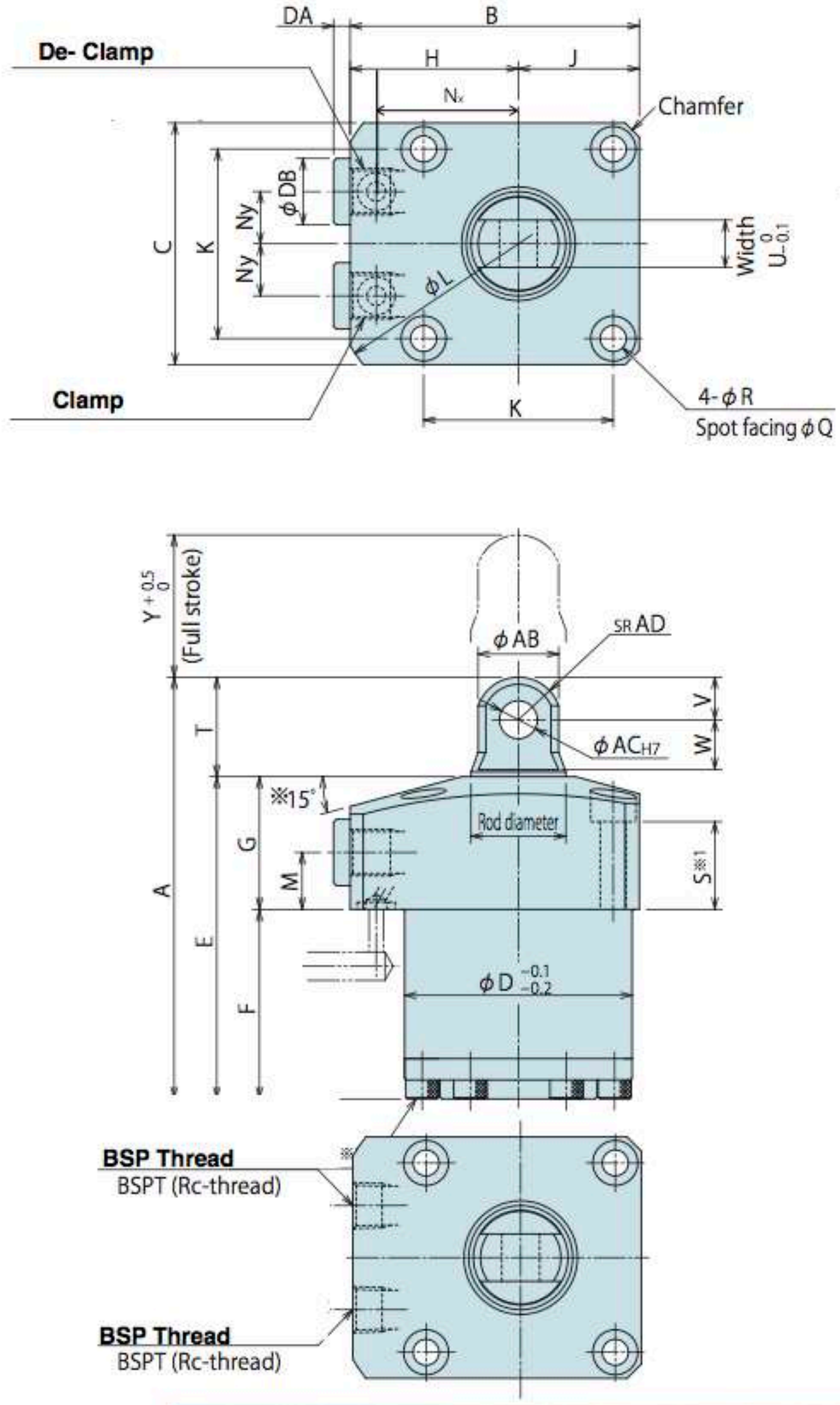
DESCRIPTION:
1. DOUBLE ACTING
2. FLANGE MOUNTING
3. MAX PRESSURE : 40MPa
4. MIN PRESSURE : 1 MPa
5. HARD CHROME PLATED PISTON ROD
6. ALLOY STEEL BODY COATED WITH ANTI RUST COATING

APPLICATION :
*PUSHING / PULLING OF COMPONENT
*LIFTING OF COMPONENT / BLOCK
*POSITIONING OF PINS
*ALTERNATE TO LINK CLAMP WITH EXTERNAL LINK MECHANISM

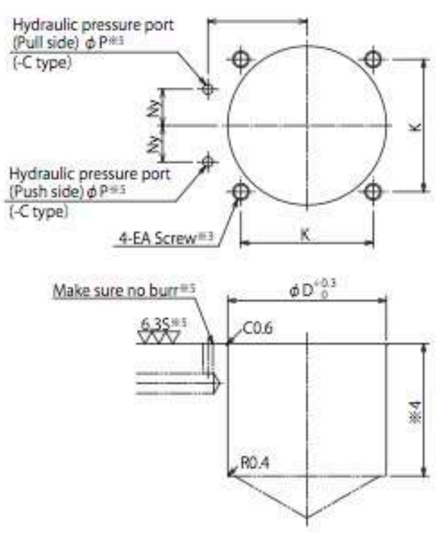
Application / Example



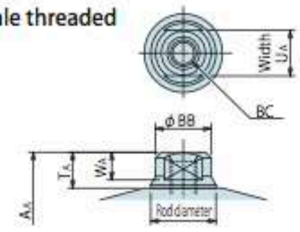
Schematic Diagram



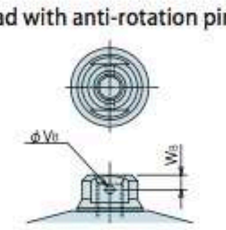
Mounting Dimensions



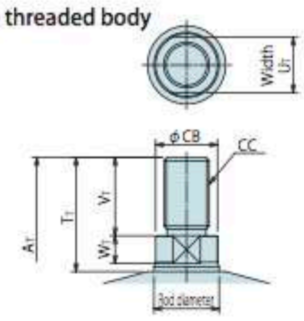
A : Female threaded



B : Female thread with anti-rotation pinhole



T : Male threaded body



Notes
※1. Mounting bolts are not provided. Customer should prepare based on dimension "S".
※2. The number and size of AF bolts may vary as per different type.
※3. EA tapping depth should be calculated so that mounting bolts engage fixture by at least 1.5 x bolt diameter.
※4. The ϕD depth of the body mounting hole should be decided from dimension F.
※5. This process indicates -C: gasket type.

Description		0106 0361-P	0106 0401-P	0106 0481-P	0106 0551-P	0106 0651-P	0106 0751-P	0106 0901-P	0106 1051-P
Full stroke Y mm		Y : 1~50		Y : 1~75					
Cylinder area cm²	Push side	4.5	5.3	8.0	9.6	15.9	23.8	36.3	50.3
	Retract (pull) side	2.5	2.8	4.9	5.8	11.0	16.7	26.4	34.4
Cylinder force (Calculation formula) kN	Push side	P×0.45	P×0.53	P×0.80	P×0.96	P×1.59	P×2.38	P×3.63	P×5.03
	Retract (pull) side	P×0.25	P×0.28	P×0.49	P×0.58	P×1.10	P×1.67	P×2.64	P×3.44
Cylinder capacity (Calculation formula) cm³	Push side	Y×0.45	Y×0.53	Y×0.80	Y×0.96	Y×1.59	Y×2.38	Y×3.63	Y×5.03
	Retract (pull) side	Y×0.25	Y×0.28	Y×0.49	Y×0.58	Y×1.10	Y×1.67	Y×2.64	Y×3.44
Cylinder inside diameter mm		ϕ24	ϕ26	ϕ32	ϕ35	ϕ45	ϕ55	ϕ68	ϕ80
Rod diameter mm		ϕ16	ϕ18	ϕ20	ϕ22	ϕ25	ϕ30	ϕ35.5	ϕ45
Max. operating pressure MPa		7.0							
Min. operating pressure MPa		0.5							
Withstanding pressure MPa		10.5							
Operating temperature ℃		0~70							
Mass kg		0.6~0.8	0.7~0.9	1.0~1.6	1.3~2.1	1.9~3.1	2.8~4.1	4.3~6.1	5.9~8.0

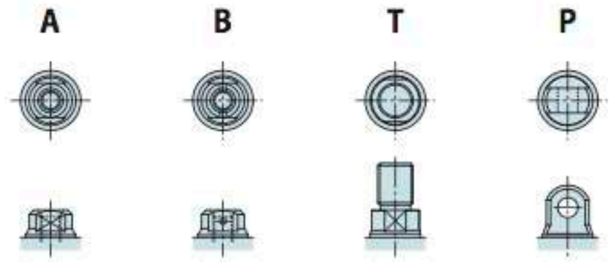
P: Hydraulic supply pressure (MPa), Y: Full stroke (mm)

ORDERING METHOD.
Product Code-Model code- Stroke - Piston Type
Eg : 0106-0361-25-A

(Specifications subject to change)

DESIGNATION	PRODUCT CODE
LINEAR CYLINDER DOUBLE ACTING	**0106**

- **A** : Female threaded
- **B** : Female threaded (With anti-rotation pinhole)
- **T** : Male threaded
- **P** : Pin-hole option



Mounting Dimensions

[P] : Pin-hole option

(mm)

Description	0106 0361-P		0106 0401-P		0106 0481-P		0106 0551-P		0106 0651-P		0106 0751-P		0106 0901-P		0106 1051-P	
Full stroke Y	1~14	15~50	1~14	15~50	1~14	15~75	1~14	15~75	1~14	15~75	1~14	15~75	1~14	15~75	1~14	15~75
A	63	Y+48	70	Y+55	74	Y+59	80	Y+65	90	Y+75	101	Y+86	114	Y+99	127	Y+112
B	49		54		61		69		81		92		107		122	
C	40		45		51		60		70		80		95		110	
D	36		40		48		55		65		75		90		105	
E	48	Y+33	51	Y+36	53	Y+38	56	Y+41	62	Y+47	68	Y+53	77	Y+62	81	Y+66
F	23	Y+8	26	Y+11	25	Y+10	28	Y+13	32	Y+17	31	Y+16	37	Y+22	36	Y+21
G	25		25		28		28		30		37		40		45	
H	29		31.5		35.5		39		46		52		59.5		67	
J	20		22.5		25.5		30		35		40		47.5		55	
K	31.4		34		40		47		55		63		75		88	
L	66		73		83		88		106		116		136		152	
M	11		11		12		12		13		16		16		17	
Nx	23.5		26		30		33.5		39.5		45		52.5		60	
Ny	8		9		11		12		15		16		18.5		22.5	
P	3		3		3		3		5		5		5		5	
Q	7.5		9.5		9.5		11		11		14		17.5		20	
R	4.5		5.5		5.5		6.8		6.8		9		11		14	
S	16		14		15.5		13		15.5		17.5		16.5		17.5	
T	15		19		21		24		28		33		37		46	
U	6		8		10		11		13		16		19		22	
V	6		8		9		10		12		14		16		21	
W	7.5		9.5		10.5		12		14		17		19		23	
Chamfer	C2		C3		C3		C3		C4		C5		C6		C6	
AB	12		15		17		19		22		27		32		42	
AC	$6^{+0.012}_{0}$		$8^{+0.015}_{0}$		$8^{+0.015}_{0}$		$10^{+0.015}_{0}$		$12^{+0.018}_{0}$		$14^{+0.018}_{0}$		$16^{+0.018}_{0}$		$20^{+0.021}_{0}$	
AD	6		8		9		10		12		14		16		21	
AE	5		4		6		4		6		6		8		10	
AF	M3×0.5		M4×0.7		M4×0.7		M5×0.8		M5×0.8		M6		M6		M6	
DA	3.5		3.5		3.5		3.5		4.5		4.5		4.5		4.5	
DB	14		14		14		14		19		19		22		22	
EA	M4×0.7		M5×0.8		M5×0.8		M6		M6		M8		M10		M12	
CLAMP PORT	G1/8		G1/8		G1/8		G1/8		G1/4		G1/4		G3/8		G3/8	
DE-CLAMP PORT	G1/8		G1/8		G1/8		G1/8		G1/4		G1/4		G3/8		G3/8	
O-ring	1BP5		1BP5		1BP5		1BP5		1BP7		1BP7		1BP7		1BP7	

[A] : Female threaded

Refer P pinhole option dimension for not mentioned size below. (mm)

Description	0106 0361-A		0106 0401-A		0106 0481-A		0106 0551-A		0106 0651-A		0106 0751-A		0106 0901-A		0106 1051-A	
A_A	57	Y+42	61	Y+46	64	Y+49	68	Y+53	75	Y+60	83	Y+68	93	Y+78	99	Y+84
T_A	9		10		11		12		13		15		16		18	
U_A	12		13		14		17		19		24		30		36	
W_A	7.5		7.5		8.5		9		10		12		13		15	
BB	14		15		17		19		22		27		33		42	
BC (Nominal × Depth)	M6×12		M8×16		M8×16		M10×20		M12×24		M16×32		M20×40		M24×48	

[B] : Female thread with anti-rotation pinhole

Refer P pinhole option / A female thread option, dimensions not mentioned size in the chart below. (mm)

Description	0106 0361-A	0106 0401-A	0106 0481-A	0106 0551-A	0106 0651-A	0106 0751-A	0106 0901-A	0106 1051-A
V_B	2	2.5	2.5	2.5	3	4	5	6
W_B	5.5	5	6	6.5	7	8.5	9	10.5

[T] : Male threaded body

Refer P pinhole option dimension for not mentioned size below. (mm)

Description	0106 0361-A		0106 0401-A		0106 0481-A		0106 0551-A		0106 0651-A		0106 0751-A		0106 0901-A		0106 1051-A	
A_T	73	Y+58	81	Y+66	88	Y+73	96	Y+81	107	Y+92	118	Y+103	139	Y+124	153	Y+138
T_T	25		30		35		40		45		50		62		72	
U_T	12		14		17		17		19		24		30		36	
V_T	16		20		24		28		32		35		46		54	
W_T	7.5		7.5		8.5		9		10		12		13		15	
CB	14		17		19		21		24		29		34.5		42	
CC (Nominal × Pitch)	M10×1.25		M12×1.25		M14×1.5		M16×1.5		M20×1.5		M24×1.5		M30×1.5		M36×1.5	

ORDERING METHOD.

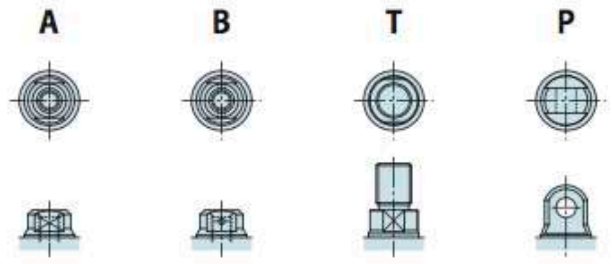
Product Code-Model code- Stroke - Piston Type

Eg : 0106-0361-25-A

(Specifications subject to change)

CLASYS	DESIGNATION **LINEAR CYLINDER** DOUBLE ACTING	PRODUCT CODE **0106**

A : Female threaded
B : Female threaded (With anti-rotation pinhole)
T : Male threaded
P : Pin-hole option



FROM 51mm TO 100mm STROKE

P : Pin-hole option

(mm)

Description	0106 0361-P	0106 0401-P	0106 0481-P	0106 0551-P	0106 0651-P	0106 0751-P	0106 0901-P	1016 1051-P
Full stroke Y	51~100	51~100	76~200	76~200	76~200	76~200	76~200	76~200
A	Y+63	Y+70	Y+76	Y+81	Y+91	Y+107	Y+121	Y+138
B	49	54	61	69	81	92	107	122
C	40	45	51	60	70	80	95	110
D	36	40	48	55	65	75	90	105
E	Y+48	Y+51	Y+55	Y+57	Y+63	Y+74	Y+84	Y+92
F	Y+23	Y+26	Y+27	Y+29	Y+33	Y+37	Y+44	Y+47
G	25	25	28	28	30	37	40	45
H	29	31.5	35.5	39	46	52	59.5	67
J	20	22.5	25.5	30	35	40	47.5	55
K	31.4	34	40	47	55	63	75	88
L	66	73	83	88	106	116	136	152
M	11	11	12	12	13	16	16	17
Nx	23.5	26	30	33.5	39.5	45	52.5	60
Ny	8	9	11	12	15	16	18.5	22.5
P	3	3	3	3	5	5	5	5
Q	7.5	9.5	9.5	11	11	14	17.5	20
R	4.5	5.5	5.5	6.8	6.8	9	11	14
S	16	14	15.5	13	15.5	17.5	16.5	17.5
T	15	19	21	24	28	33	37	46
U	6	8	10	11	13	16	19	22
V	6	8	9	10	12	14	16	21
W	7.5	9.5	10.5	12	14	17	19	23
Chamfer	C2	C3	C3	C3	C4	C5	C6	C6
AB	12	15	17	19	22	27	32	42
AC	$6^{+0.012}_{0}$	$8^{+0.015}_{0}$	$8^{+0.015}_{0}$	$10^{+0.015}_{0}$	$12^{+0.018}_{0}$	$14^{+0.018}_{0}$	$16^{+0.018}_{0}$	$20^{+0.021}_{0}$
AD	6	8	9	10	12	14	16	21
AE	5	4	6	4	6	6	8	10
AF	M3×0.5	M4×0.7	M4×0.7	M5×0.8	M5×0.8	M6	M6	M6
DA	3.5	3.5	3.5	3.5	4.5	4.5	4.5	4.5
DB	14	14	14	14	19	19	22	22
EA	M4×0.7	M5×0.8	M5×0.8	M6	M6	M8	M10	M12
CLAMP PORT	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
DE-CLAMP PORT	G1/8	G1/8	G1/8	G1/8	G1/4	G1/4	G3/8	G3/8
O-ring	1BP5	1BP5	1BP5	1BP5	1BP7	1BP7	1BP7	1BP7

A : Female threaded

Refer P pinhole option dimension for not mentioned size below. (mm)

Description	0106 0361-A	0106 0401-A	0106 0481-A	0106 0551-A	0106 0651-A	0106 0751-A	0106 0901-A	0106 1051-A
A_A	Y+57	Y+61	Y+66	Y+69	Y+76	Y+89	Y+100	Y+110
T_A	9	10	11	12	13	15	16	18
U_A	12	13	14	17	19	24	30	36
W_A	7.5	7.5	8.5	9	10	12	13	15
BB	14	15	17	19	22	27	33	42
BC (size×depth)	M6×12	M8×16	M8×16	M10×20	M12×24	M16×32	M20×40	M24×48

B : Female thread with anti-rotation pinhole

Refer P pinhole option / A female thread option, dimensions not mentioned size in the chart below. (mm)

Description	0106 0361-A	0106 0401-A	0106 0481-A	0106 0551-A	0106 0651-A	0106 0751-A	0106 0901-A	0106 1051-A
V_B	2	2.5	2.5	2.5	3	4	5	6
W_B	5.5	5	6	6.5	7	8.5	9	10.5

T : Male threaded body

Refer P pinhole option dimension for not mentioned size below. (mm)

Description	0106 0361-A	0106 0401-A	0106 0481-A	0106 0551-A	0106 0651-A	0106 0751-A	0106 0901-A	0106 1051-A
A_T	Y+73	Y+81	Y+90	Y+97	Y+108	Y+124	Y+146	Y+164
T_T	25	30	35	40	45	50	62	72
U_T	12	14	17	17	19	24	30	36
V_T	16	20	24	28	32	35	46	54
W_T	7.5	7.5	8.5	9	10	12	13	15
CB	14	17	19	21	24	29	34.5	42
CC (size×depth)	M10×1.25	M12×1.25	M14×1.5	M16×1.5	M20×1.5	M24×1.5	M30×1.5	M36×1.5

ORDERING METHOD.

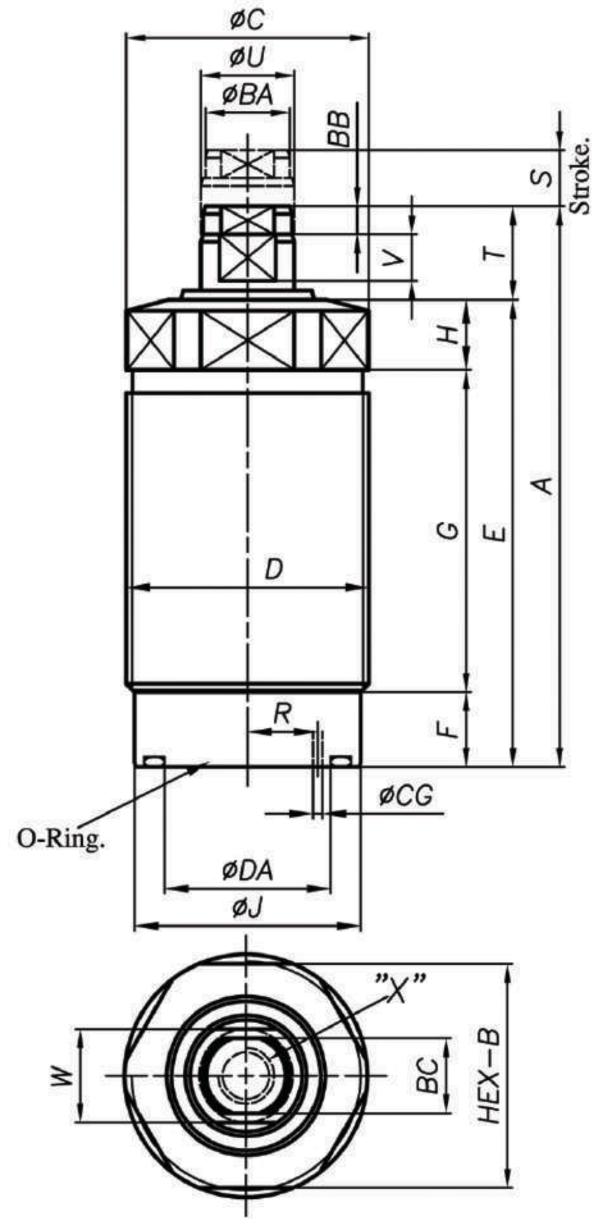
Product Code-Model code- Stroke - Piston Type
Eg : 0106-0361-25-A

(Specifications subject to change)

CLASYS	DESIGNATION **WORK SUPPORT** Hydraulic (Threaded Body)	PRODUCT CODE **0201**

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

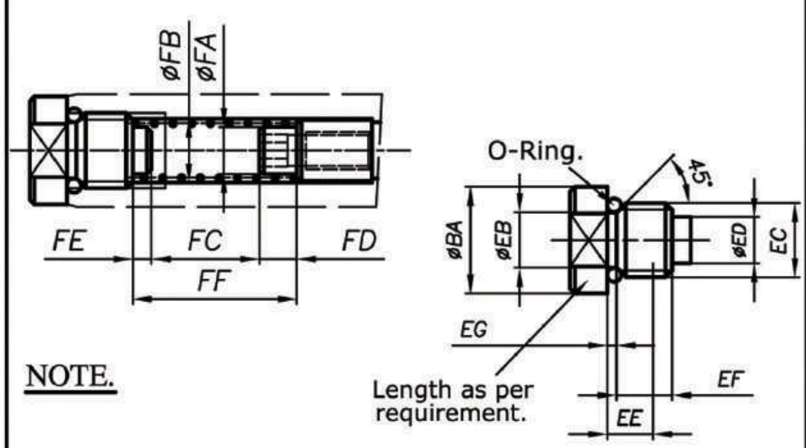
DESCRIPTION :
Compact design
Manifold Mounted
Wide Operating Pressure Range
Hydraulic Advance
Single Acting



SPECIFICATIONS				
Model No.	0201 0101	0201 0201	0201 0301	0201 0401
Support Force at 7Mpa (kN)	3.00	3.8	4.5	9.5
Support Force Formula for Operating pressure (Mpa)	0.53xP-0.68	0.67xP-0.91	0.825xP-1.25	1.7xP-2.28
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	2.0 Mpa			
Max Operating Pressure	7.0 Mpa			
Weight kg	0.20	0.25	0.35	0.75
A	65	73	80	80
B	24	27	32	41
ØC	26	30	36	45
D	M26x1.5	M30X1.5	M36X1.5	M45X1.5
E	55	63.5	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)	31.5	50	63	80

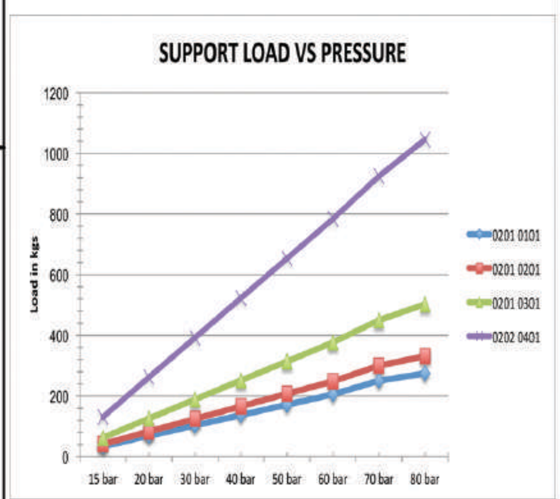
NOTE.
The drawing shows plunger in retracted position
Refer to recommendations for making new contact bolt
Refer to recommendations for mounting torque
Do not exceed recommended torque
Do not exceed recommended working pressure

Plunger Spring & Contact Bolt Dimensions

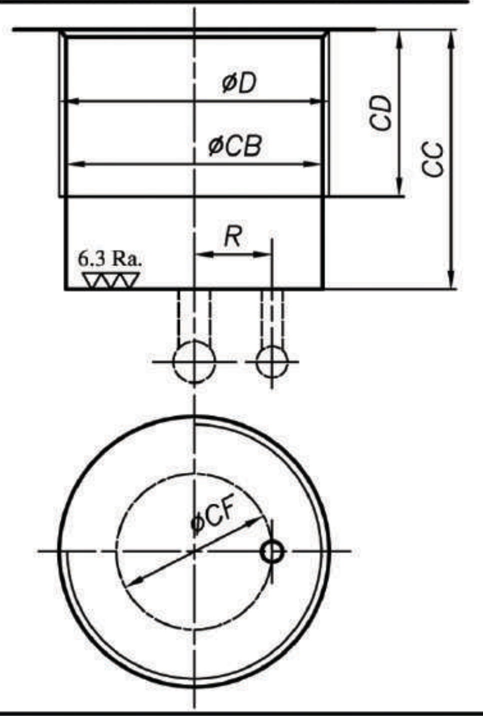


NOTE.

LOAD GRAPHS



MOUNTING DIMENSIONS.



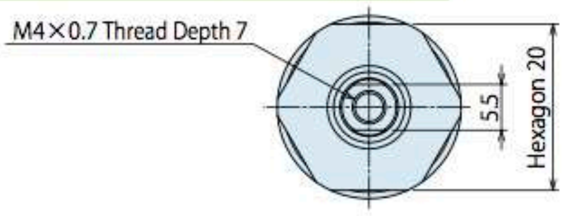
(Specifications subject to change)

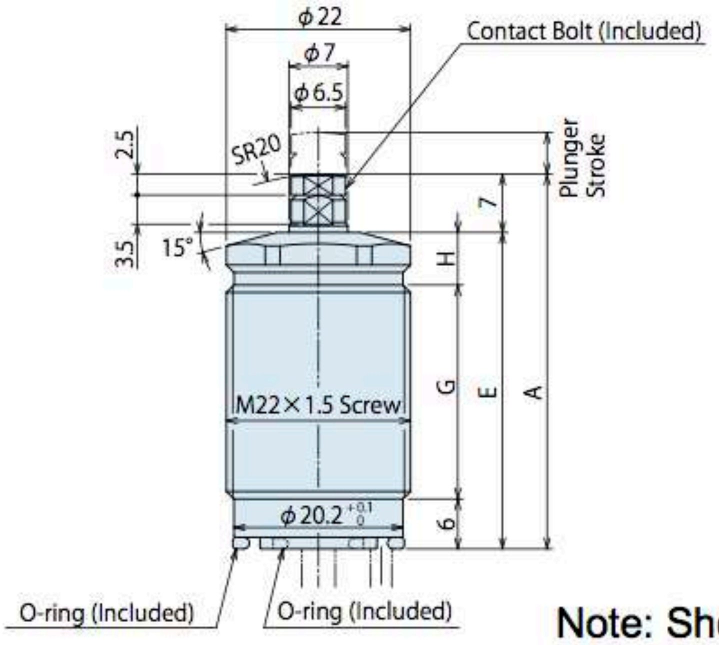
DESIGNATION	PRODUCT CODE
THREADED BODY WORK SUPPORT SINGLE ACTING	**0201**

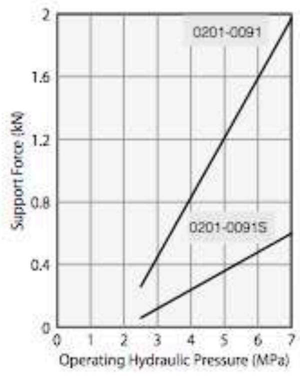
DESCRIPTION

Threaded body mounting
Ball & Collet Locking
Alloy steel body
Hydraulic Advance
Max Pressure : 8.5Mpa
Min Pressure: 1.5Mpa

MODEL CODE			0201 0091	0201 0091S
Support Force at 7MPa		kN	2.0	0.6
Support Force (Calculation Formula)		kN	0.38×P−0.69	0.12×P−0.24
Plunger Stroke		mm	6.5	5
Cylinder Capacity		cm^3	0.4	0.2
Plunger Spring Force	L: Low Spring Force	N	2.1 ~ 3.1	1.8 ~ 3.1
	H: High Spring Force	N	3.0 ~ 4.4	2.1 ~ 4.3
Maximum Operating Pressure		MPa	7.0	
Minimum Operating Pressure		MPa	2.5	
Withstanding Pressure		MPa	10.5	
Operating Temperature		℃	0 ~ 70	
Mass		kg	0.1	0.1





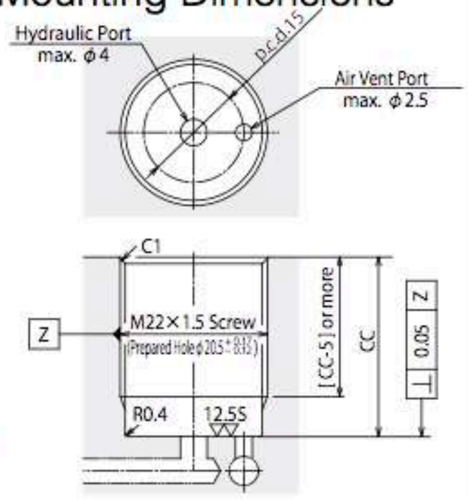


Dimensional Specification

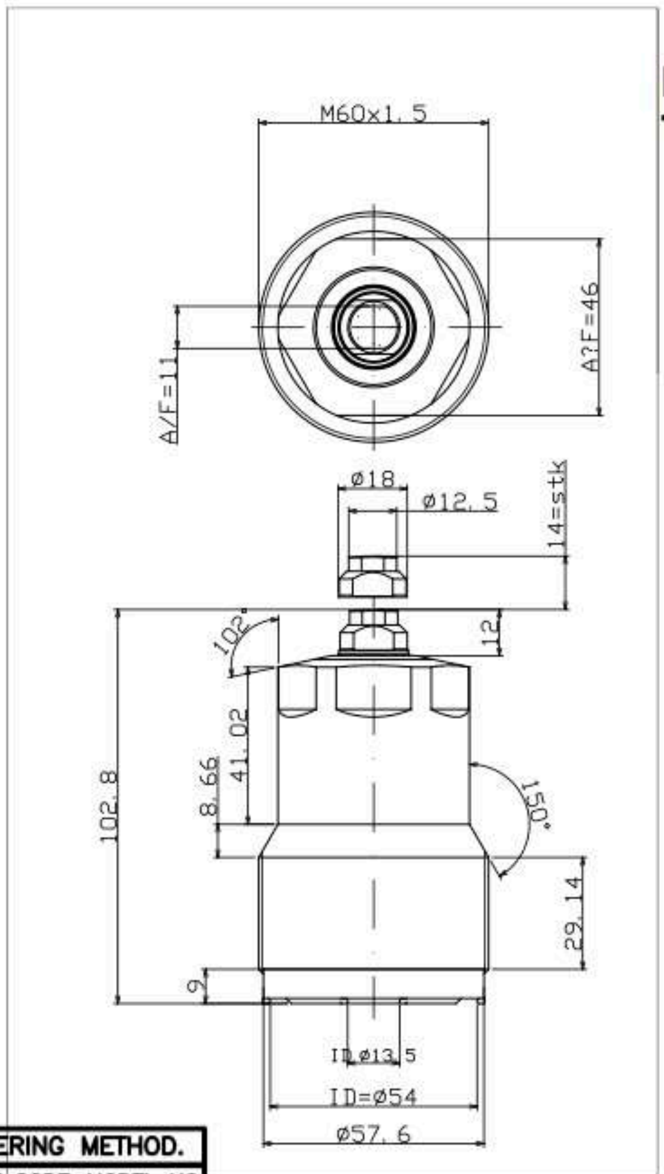
(mm)

MODEL CODE	0201 0091	0201 0091S
Plunger Stroke	6.5	5
A	59.5	45
E	52.5	38
G	37.7	25.7
H	8.8	6.3
CC	14~43	14~31

Mounting Dimensions



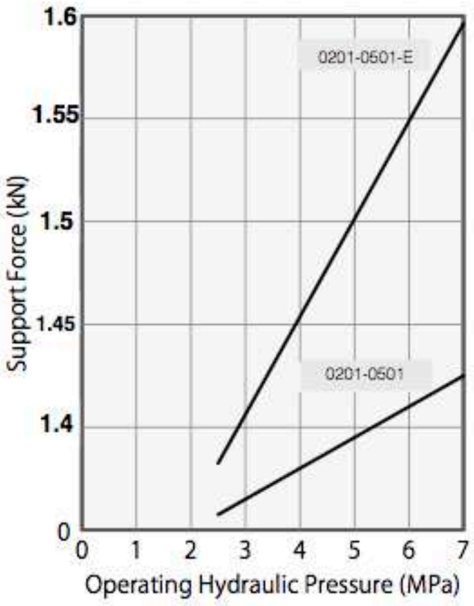
Note: Short Model available also in M26 & M30 Sizes

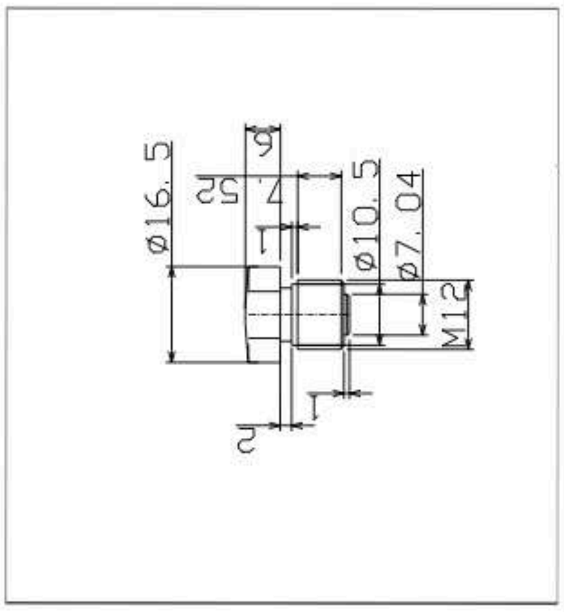


M60x1.5
THREADED BODY WORK SUPPORT

MODEL CODE
0201 0501
0201 0501-E

Ball & Collet Locking
Hydraulic Advance model
Spring Advance Model





ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0201-0501

(Specifications subject to change)

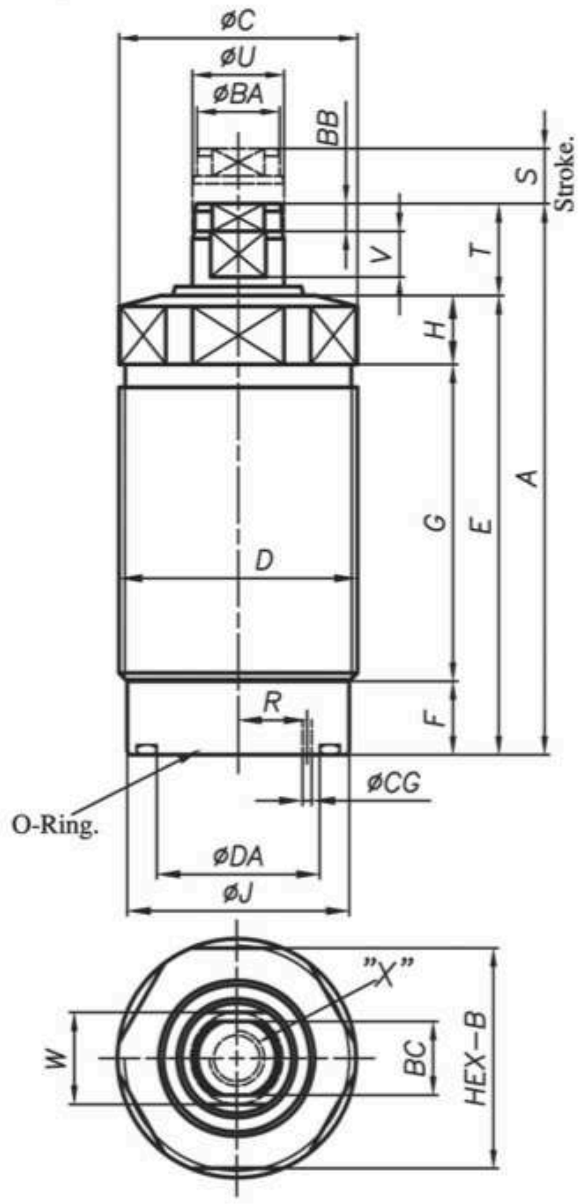
LASYS	DESIGNATION **THREADED BODY WORK SUPPORT** SINGLE ACTING, SPRING ADVANCE	PRODUCT CODE **0201-E**

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

SPECIFICATIONS				
Model No.	0201 0101	0201 0201	0201 0301	0201 0401
Support Force at 7Mpa (kN)	3.00	3.8	4.5	9.5
Support Force Formula for Operating pressure (Mpa)	0.53xP-0.68	0.67xP-0.91	0.825xP-1.25	1.7xP-2.28
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	2.0 Mpa			
Max Operating Pressure	7.0 Mpa			
Weight kg	0.20	0.25	0.35	0.75
A	71	80	88	90
B	24	27	32	41
ØC	26	30	36	45
D	M26x1.5	M30X1.5	M36X1.5	M45X1.5
E	55	63.5	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)	31.5	50	63	80

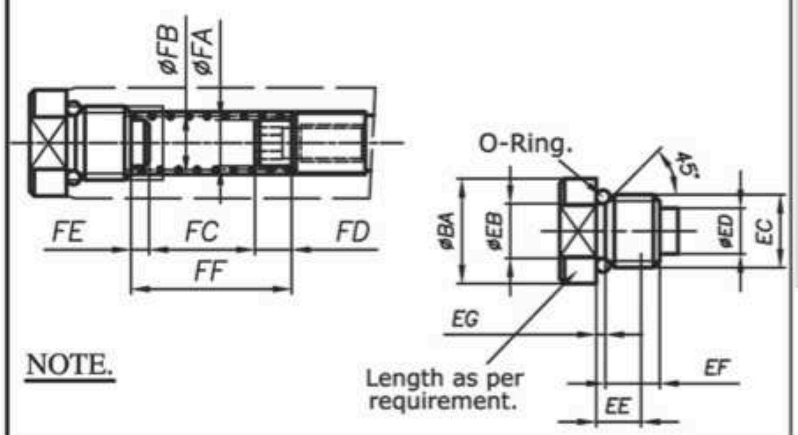
DESCRIPTION :

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



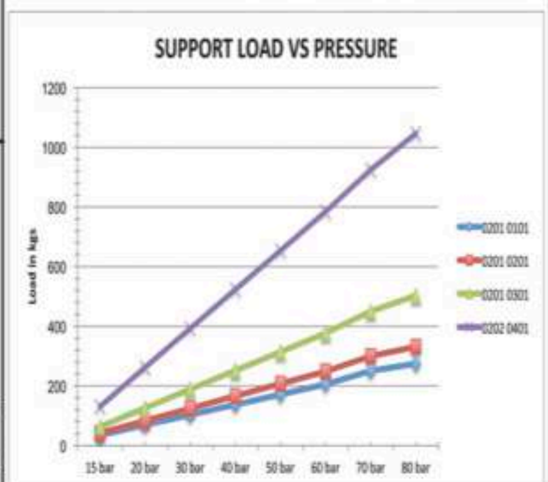
NOTE.
The drawing shows plunger in retracted position
Refer to recommendations for making new contact bolt
Refer to recommendations for mounting torque
Do not exceed recommended torque
Do not exceed recommended working pressure

Plunger Spring & Contact Bolt Dimensions

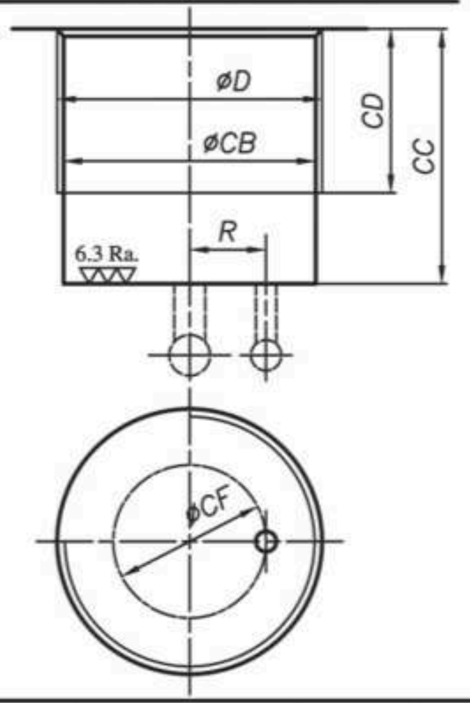


NOTE.

LOAD GRAPHS



MOUNTING DIMENSIONS.



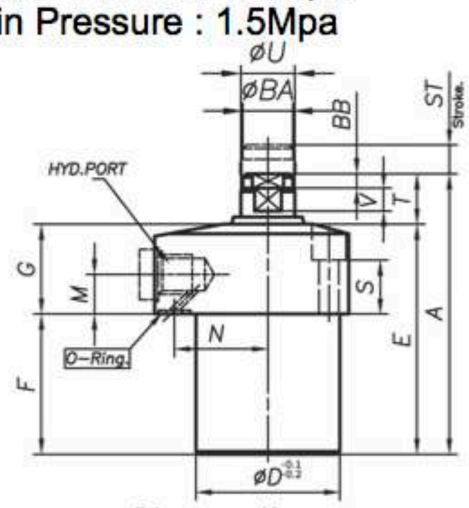
(Specifications subject to change)

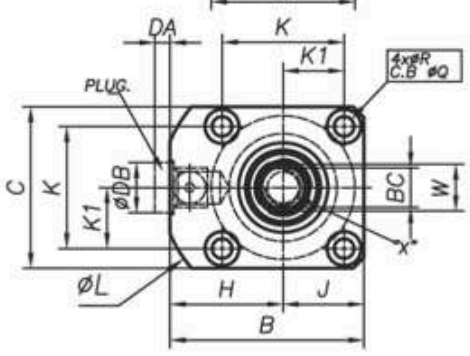
	DESIGNATION	PRODUCT CODE
CLASYS	**WORK SUPPORT, FLANGE MOUNT** SINGLE ACTING	**0203**

DESCRIPTION :

Flange Body
Hydraulic Advance
Low Operating Pressure
Flange Mounting
Single Acting
Ball & Collet Locking
Max Pressure : 8.5Mpa
Min Pressure : 1.5Mpa

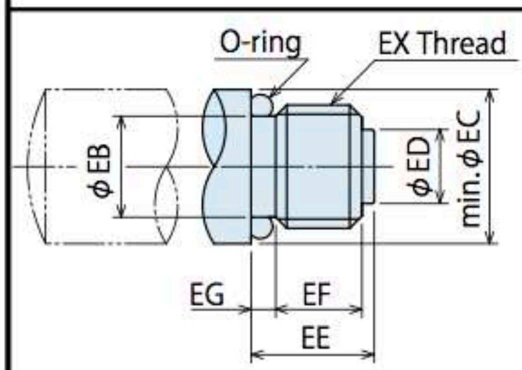
MODEL CODE			0203 0071	0203 0081	0203 0091
Support Force at 7MPa		kN	2	3	4
Support Force (Calculation Formula)		kN	0.38×P-0.69	0.53×P-0.68	0.70×P-0.91
Plunger Stroke		mm	6.5	6.5	8
Cylinder Capacity		cm^3	0.4	0.6	0.8
Plunger Spring Force N	L: Low Spring Force		2.2～3.0	2.8～3.8	3.6～5.6
	H: High Spring Force		3.0～4.4	3.7～5.5	4.7～7.8
Maximum Operating Pressure		MPa	7.0		
Minimum Operating Pressure		MPa	2.5		
Withstanding Pressure		MPa	10.5		
Operating Temperature		℃	0～70		
Mass		kg	0.3	0.4	0.5



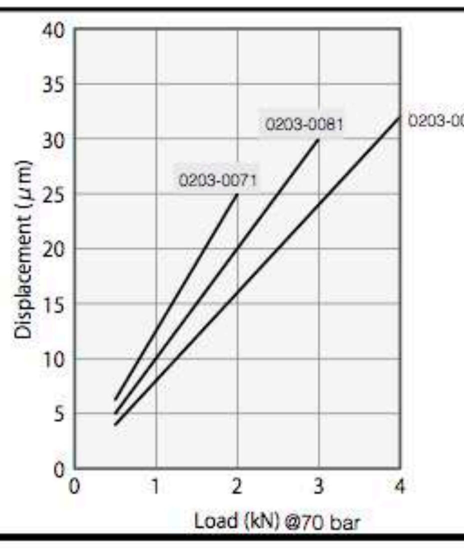


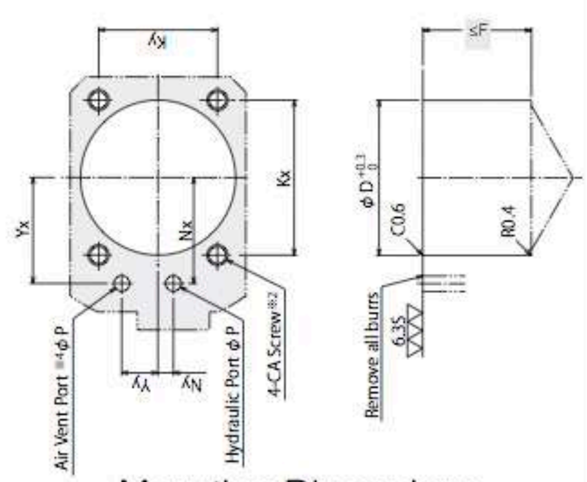
Dimensional Specification

MODEL CODE	0203 0071	0203 0081	0203 0091
Plunger Stroke	6.5	6.5	8
A	56.5	58.5	64
B	40.5	45.5	49
C	29	34	40
D	26	30	36
E	49	49	52.5
F	21	21	27.5
G	28	28	25
H	24	26	29
J	16.5	19.5	20
Kx	25	30	31.4
Ky	21	23	31.4
L	53	57	63
M	11	11	11
Nx	18.5	20.5	23.5
Ny	3	3	5
P	3	3	3
Q	6	7.5	7.5
R	3.4	4.5	4.5
S	21	19	16
T	7.5	9.5	11.5
U	7	10	12
V	3.5	5	6
W	5.5	8	10
X (Nominal×Pitch×Depth)	M4×0.7×7	M6×1×9	M8×1.25×12
Yx	18.5	20.5	23.5
Yy	7	7	8
Z (Chamfer)	C2	C3	C2
BA	6.5	9	11.5
BB	2.5	3	4
BC	5.5	8	10
CA	M3×0.5	M4×0.7	M4×0.7
EY	SR20	SR30	SR30
JA	3.5	3.5	3.5
JB	14	14	14
Hydraulic Port G Thread	G1/8	G1/8	G1/8



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0203 0071





Mounting Dimensions

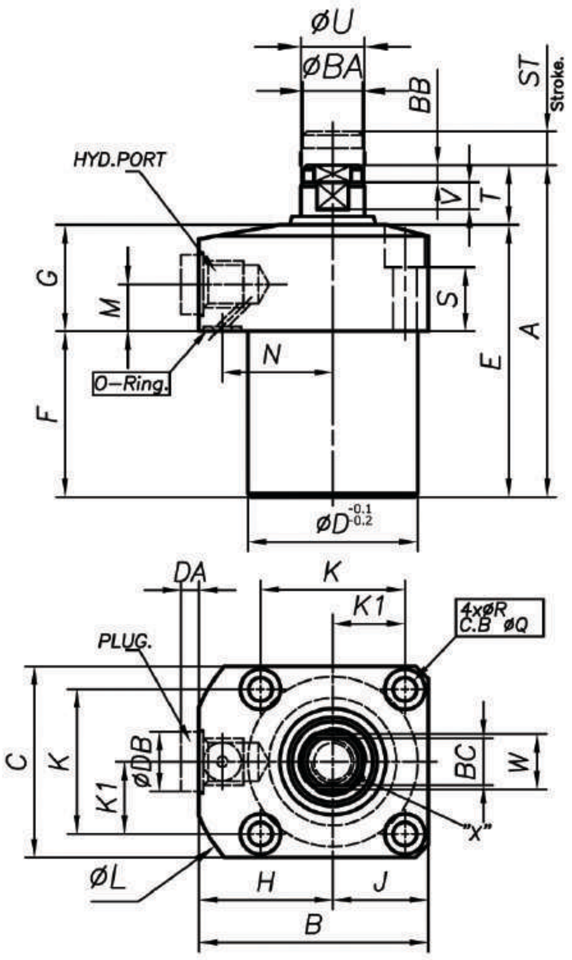
(Specifications subject to change)

DESIGNATION	PRODUCT CODE.
WORK SUPPORT FLANGE MOUNTED	0203

DESCRIPTION :

Flange Body
Hydraulic Advance
Low Operating Pressure
Flange Mounting
Single Acting

ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0203-0101.

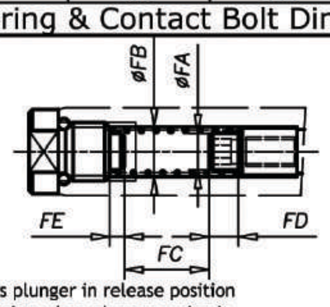


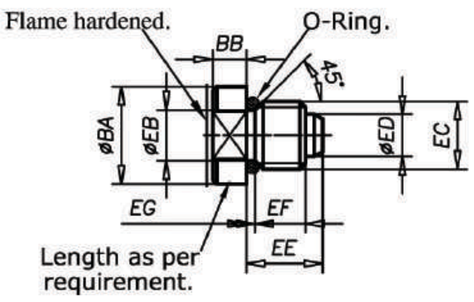
NOTE.
The Drawing shows plunger in release position
Refer recommendations for making new contact bolt
Refer to recommendations for mounting torque
Do not exceed Recommended torque
Do not exceed Recommended Working Pressure

SPECIFICATIONS.

Model.No.		0203-0101	0203-0201	0203-0301	0203-0401	0203-0501	0203-0601
Support force at 7MPa.	kN	4.5	9.5	14	21	33	45
Support force (formula), for operating pr.:P (MPa).	kN	0.825xP -1.25	1.55xP -1.25	2.36xP -2.28.	3.83xP - 5.7	5.60xP - 6.13	7.5xP - 6.87
Plunger Stroke - ST.	mm	8	10	12	14	16	20
Cyl. volume.	cm^3	1.2	2.0	3.3	4.8	8.9	13.1
Plunger spring force. L	N	2.8 ~ 4.1	3.6 ~ 5.7	4.7 ~ 7.8	9.8 ~ 14.6	12.4~18.8	14.6~21.0
Plunger spring force. H	N	3.8 ~ 5.9	4.9 ~ 8.0	6.2 ~ 11.0	16.8 ~22.0	18.7~31.9	21.4~34.2
Max. operating pressure.	MPa	7.0					
Min. operating pressure.	MPa	2.0					
Design pressure.	MPa	10.5					
Operating temp.	°C	0-70					
Weight.	Kg.	0.6	0.8	1.4	2.2	3.6	6.0
A		78	76	89	101	126	140
B		54	61	69	81	92	107
C		45	51	60	70	80	95
ØD		40	48	55	65	75	90
E		64	64	73	85	107	128
F		39	39	45	56	72	88
G		25	25	28	29	35	40
H		31.5	35.5	39	46	52	59.5
J		22.5	25.5	30	35	40	47.5
K		34	40	47	55	63	75
K1		17	20	23.5	27.5	31.5	37.5
ØL		68	73	83	94	106	126
M		11	11	11	11	13	13
N		26	30	33.5	39.5	45	52.5
Q		9.5	9.5	11	11	14.5	17.5
R		5.5	5.5	6.6	6.6	9	11
S		15	15	17	17	17	18
T		14	12	16	16	19	22
ØU		15	16	20	22	25	32
V		6	6	8	9	9	10
W		13	14	18	19	22	24
X		M10	M10	M12	M12	M16	M16
Hyd. port.		G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/4"
O-Ring.		Ø4x2	Ø4x2	Ø4x2	Ø6X2	Ø6x2	Ø6X2
Contact Bolt.	ØBA	12.5	12.5	16.5	16.5	21.5	30
	BB	4	4	6	6	9	9
	BC	11	11	14	15	20	28
	ØEB	7.5	7.5	10	10	13.5	13.5
	EC	M10	M10	M12	M12	M16	M16
	ØED	5.5	6.5	6.0	6	9	10
	EE	11	10	10	13	16	16
	EF	2	2	2.5	2	3	3
	EG	2	2	2	2	3	3
Mounting dimn.	CA	M5	M5	M6	M6	M8	M10
	ØCB	2	2.5	2.5	3	5	5
With plug.	DA	3.5			3.5	4.5	4.5
	ØDB	14			14	18	18
Plunger spring housing dimn.	ØFA	5.8	5.8	6.0	6.4	10	10
	ØFB	8.5	8.5	10.2	10.2	14	14
	FC	9.5	10	12	21	16	24
	FD	8	6	6	6	12	12
	FE	2	2	2	2	2	2
	FF	19.5	17.5	20	29.5	30	38.5

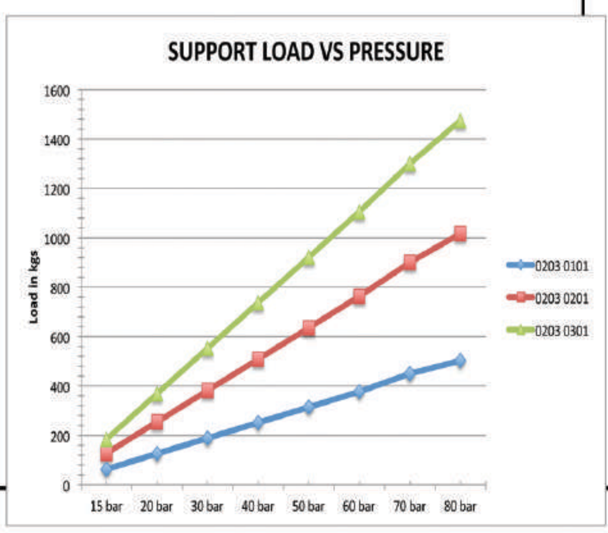
Plunger Spring & Contact Bolt Dimensions





NOTE.
The Drawing shows plunger in release position
The Min. FF dimension when plunger spring is compressed = (FF-stroke)
To be used as reference for designing of springs.
Consider Plunger spring force to decide weight of contact bolt.
Donot change specification of contact bolt.

LOAD GRAPH



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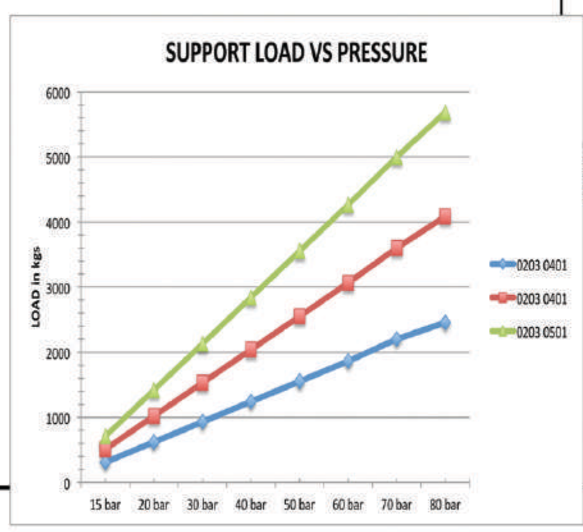
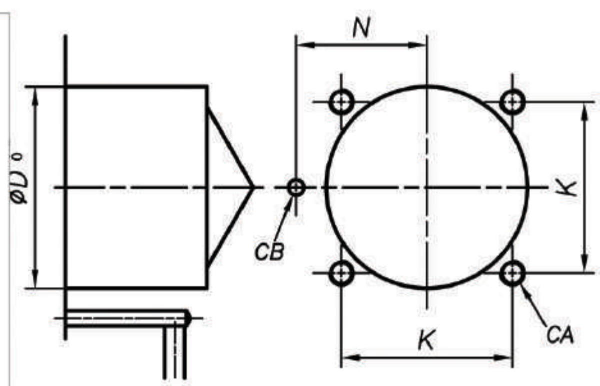


MOUNTING DIMENSIONS.



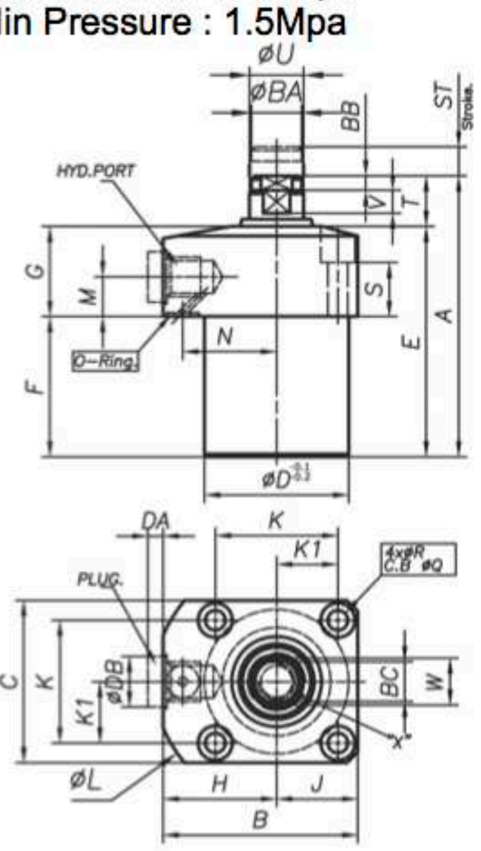
(Specifications subject to change)

CLASYS	DESIGNATION **WORK SUPPORT, FLANGE MOUNT** SINGLE ACTING	PRODUCT CODE **0203-E**

MODEL CODE			0203 0071	0203 0081	0203 0091
Support Force at 7MPa	kN		2	3	4
Support Force (Calculation Formula)	kN		0.38×P-0.69	0.53×P-0.68	0.70×P-0.91
Plunger Stroke	mm		6.5	6.5	8
Cylinder Capacity	cm^3		0.4	0.6	0.8
Plunger Spring Force	N	L: Low Spring Force	2.2 ~ 3.0	2.8 ~ 3.8	3.6 ~ 5.6
		H:High Spring Force	3.0 ~ 4.4	3.7 ~ 5.5	4.7 ~ 7.8
Maximum Operating Pressure	MPa		7.0		
Minimum Operating Pressure	MPa		2.5		
Withstanding Pressure	MPa		10.5		
Operating Temperature	℃		0 ~ 70		
Mass	kg		0.3	0.4	0.5

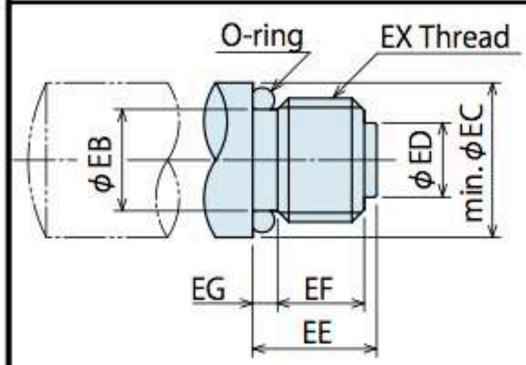
DESCRIPTION :

Flange Body
Hydraulic Advance
Low Operating Pressure
Flange Mounting
Single Acting
Ball & Collet Locking
Max Pressure : 8.5Mpa
Min Pressure : 1.5Mpa

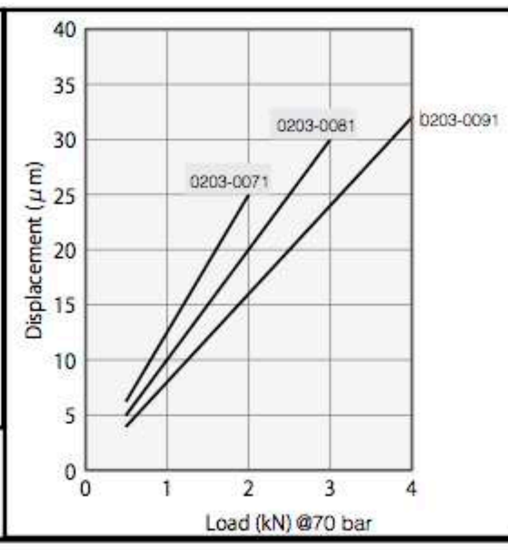


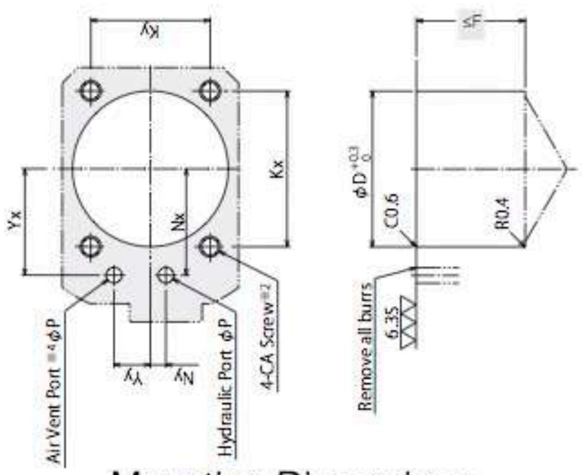
Dimensional Specification

MODEL CODE	0203 0071	0203 0081	0203 0091
Plunger Stroke	6.5	6.5	8
A	61	63	72
B	40.5	45.5	49
C	29	34	40
D	26	30	36
E	49	49	52.5
F	21	21	27.5
G	28	28	25
H	24	26	29
J	16.5	19.5	20
Kx	25	30	31.4
Ky	21	23	31.4
L	53	57	63
M	11	11	11
Nx	18.5	20.5	23.5
Ny	3	3	5
P	3	3	3
Q	6	7.5	7.5
R	3.4	4.5	4.5
S	21	19	16
T	7.5	9.5	11.5
U	7	10	12
V	3.5	5	6
W	5.5	8	10
X (Nominal×Pitch×Depth)	M4×0.7×7	M6×1×9	M8×1.25×12
Yx	18.5	20.5	23.5
Yy	7	7	8
Z (Chamfer)	C2	C3	C2
BA	6.5	9	11.5
BB	2.5	3	4
BC	5.5	8	10
CA	M3×0.5	M4×0.7	M4×0.7
EY	SR20	SR30	SR30
JA	3.5	3.5	3.5
JB	14	14	14
Hydraulic Port G Thread	G1/8	G1/8	G1/8



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0203 0071





Mounting Dimensions

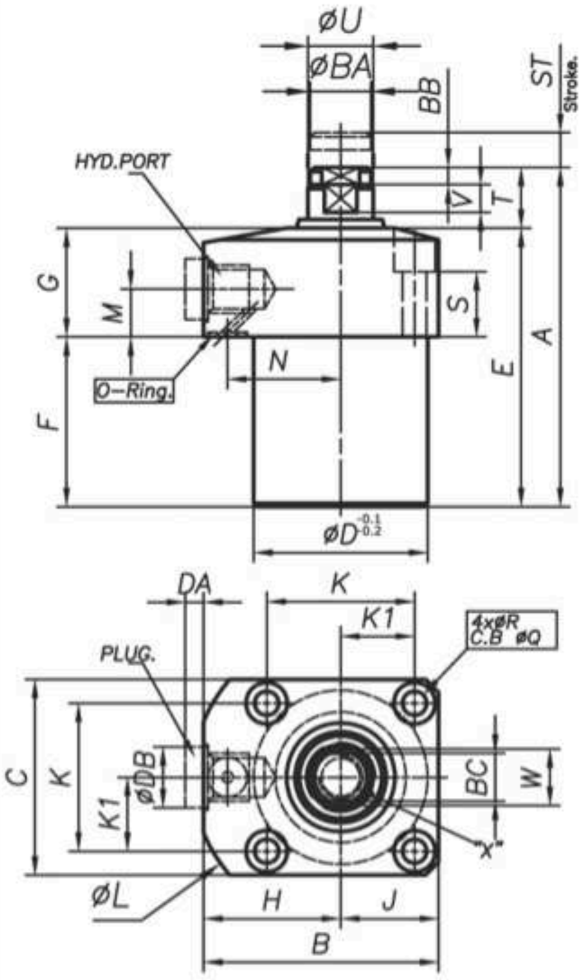
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE.
CLASYS	**WORK SUPPORT, FLANGE MOUNT** SPRING ADVANCE, SINGLE ACTING	**0203-E**

DESCRIPTION :

Flange Body
Hydraulic Advance
Low Operating Pressure
Flange Mounting
Single Acting

ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0203-0101.

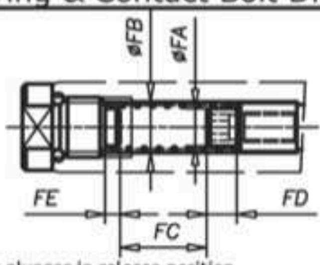


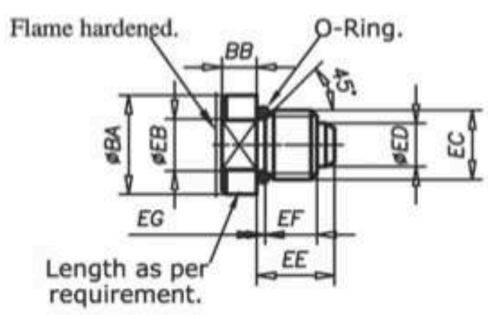
NOTE.
The Drawing shows plunger in release position
Refer recommendations for making new contact bolt
Refer to recommendations for mounting torque
Do not exceed Recommended torque
Do not exceed Recommended Working Pressure

SPECIFICATIONS.

		Model.No.	0203-0101	0203-0201	0203-0301	0203-0401	0203-0501	0203-0601
Support force at 7MPa.		kN	4.5	9.5	14	21	33	45
Support force (formula), for operating pr.:P (MPa).		kN	0.825xP -1.25	1.55xP -1.25	2.36xP -2.28.	3.83xP - 5.7	5.60xP - 6.13	7.5xP - 6.87
Plunger Stroke - ST.		mm	8	10	12	14	16	20
Cyl. volume.		cm^3	1.2	2.0	3.3	4.8	8.9	13.1
Plunger spring force.	L	N	2.8 ~ 4.1	3.6 ~ 5.7	4.7 ~ 7.8	9.8 ~ 14.6	12.4~18.8	14.6~21.0
	H	N	3.8 ~ 5.9	4.9 ~ 8.0	6.2 ~ 11.0	16.8 ~22.0	18.7~31.9	21.4~34.2
Max. operating pressure.		MPa	7.0					
Min. operating pressure.		MPa	2.0					
Design pressure.		MPa	10.5					
Operating temp.		°C	0-70					
Weight.		Kg.	0.6	0.8	1.4	2.2	3.6	6.0
A			71	86	101	115	142	160
B			54	61	69	81	92	107
C			45	51	60	70	80	95
ØD			40	48	55	65	75	90
E			64	64	73	85	107	12[illegible]
F			39	39	45	56	72	88
G			25	25	28	29	35	40
H			31.5	35.5	39	46	52	59.5
J			22.5	25.5	30	35	40	47.5
K			34	40	47	55	63	75
K1			17	20	23.5	27.5	31.5	37.5
ØL			68	73	83	94	106	126
M			11	11	11	11	13	13
N			26	30	33.5	39.5	45	52.5
Q			9.5	9.5	11	11	14.5	17.5
R			5.5	5.5	6.6	6.6	9	11
S			15	15	17	17	17	18
T			14	12	16	16	19	22
ØU			15	16	20	22	25	32
V			6	6	8	9	9	10
W			13	14	18	19	22	24
X			M10	M10	M12	M12	M16	M16
Hyd. port.			G1/8"	G1/8"	G1/8"	G1/8"	G1/4"	G1/4"
O-Ring.			Ø4x2	Ø4x2	Ø4x2	Ø6X2	Ø6x2	Ø6X2
Contact Bolt.	ØBA		12.5	12.5	16.5	16.5	21.5	30
	BB		4	4	6	6	9	9
	BC		11	11	14	15	20	28
	ØEB		7.5	7.5	10	10	13.5	13.5
	EC		M10	M10	M12	M12	M16	M16
	ØED		5.5	6.5	6.0	6	9	10
	EE		11	10	10	13	16	16
	EF		2	2	2.5	2	3	3
	EG		2	2	2	2	3	3
Mounting dimn.	CA		M5	M5	M6	M6	M8	M10
	ØCB		2	2.5	2.5	3	5	5
With plug.	DA		3.5			3.5	4.5	4.5
	ØDB		14			14	18	18
Plunger spring housing dimn.	ØFA		5.8	5.8	6.0	6.4	10	10
	ØFB		8.5	8.5	10.2	10.2	14	14
	FC		9.5	10	12	21	16	24
	FD		8	6	6	6	12	12
	FE		2	2	2	2	2	2
	FF		19.5	17.5	20	29.5	30	38.5

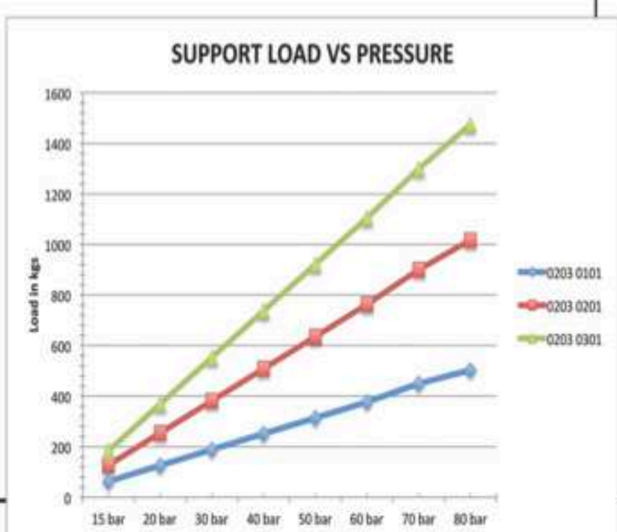
Plunger Spring & Contact Bolt Dimensions



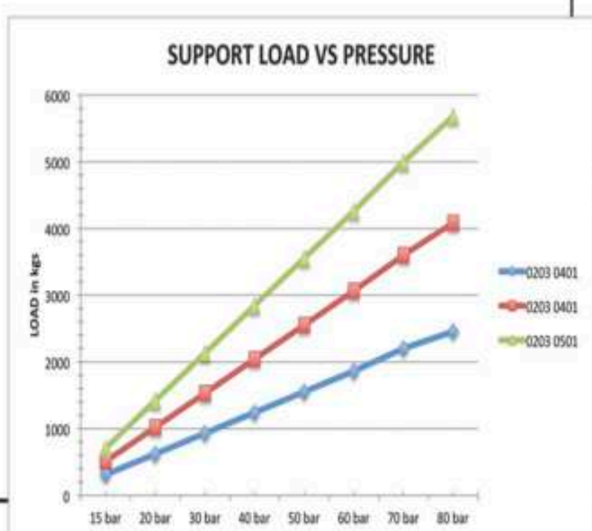


NOTE.
The Drawing shows plunger in release position
The Min. FF dimension when plunger spring is compressed = (FF-stroke)
To be used as reference for designing of springs.
Consider Plunger spring force to decide weight of contact bolt.
Donot change specification of contact bolt.

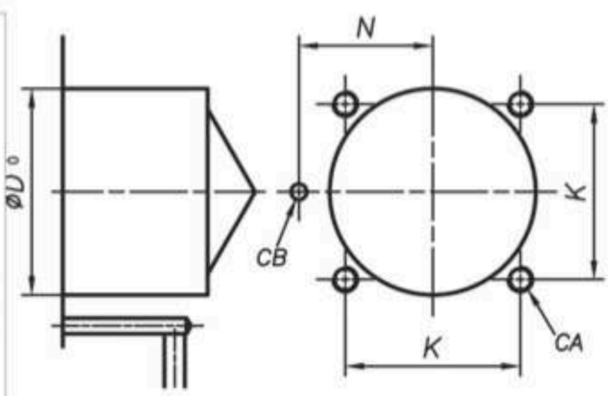
LOAD GRAPH



LOAD GRAPH



MOUNTING DIMENSIONS.



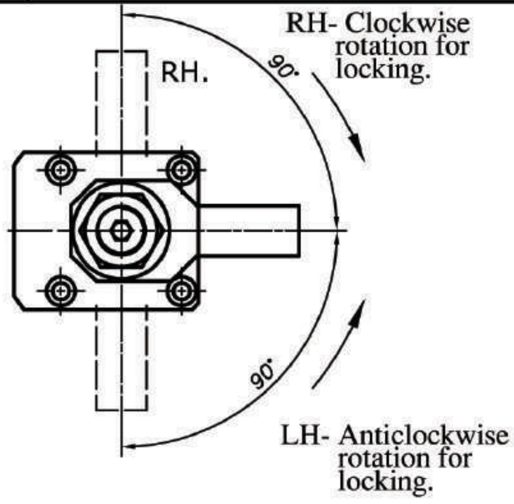
(Specifications subject to change)

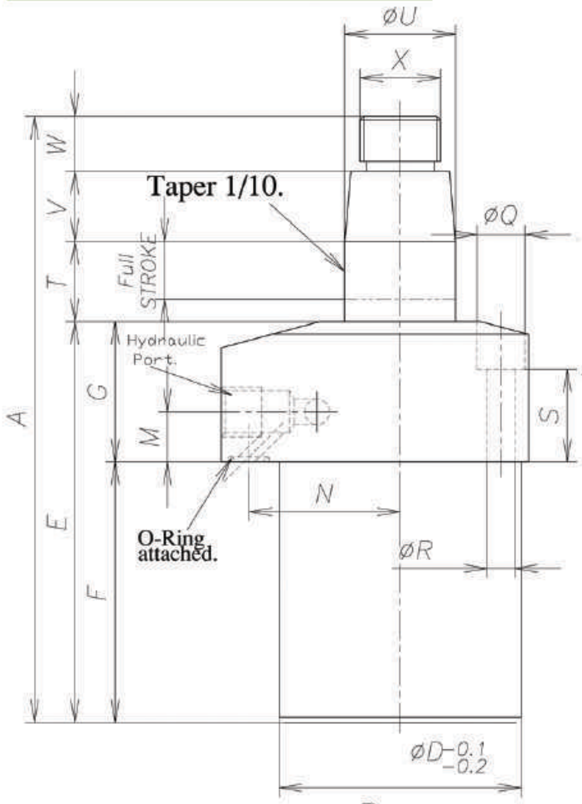
DESIGNATION	PRODUCT CODE
SWING CYLINDER (Top Mount) Hydraulic (Double Acting)	**0301**

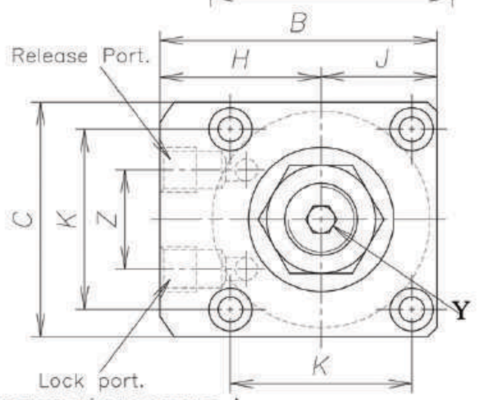
DESCRIPTION :

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
Alloy steel body
Flange Mounting

Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa







ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0301–0101.

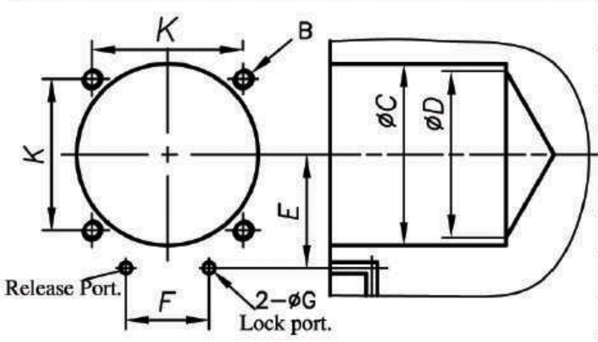
Model			
	90° RH.	0301-0081	0301-0091
	90° LH.	0301-0082	0301-0092
A		95	111
B		49	54
C		40	45
$D^{-0.1}_{-0.2}$		36	40
E		64.5	75
F		39.5	50
G		25	25
H		29	31.5
J		20	22.5
K		31.5	34
øL		66	73
M		11	11
N		23.5	26
P		3	3
Q		7.5	9.5
R		4.5	5.5
S		18	17
T		14.5	15
U		15	18
V		09	12
W		07	09
X		M10x1	M12x1.5
Y (Hex,xDepth)		5x4	6x5
Z		16	18
Hyd. Port.		G1/8	G1/8
TAPER ANGLE °		6	6

SPECIFICATIONS.

Lock cyl. area.		cm2	2.03	2.36
Full stroke.		mm	13	13
Swing stroke. (90° rotation)		mm	5	5
Locking stroke		mm	8	8
Cyl. volume.	At lock.	cm3	2.6	3.07
	At release.	cm3	4.9	6.38
Max. operating pressure.		MPa	7	
Min. operating pressure.		MPa	1.5	
Design pressure.		MPa	10.5	
Operating temp.		°C	0–70	
Weight.		Kg.	0.8	1.0

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

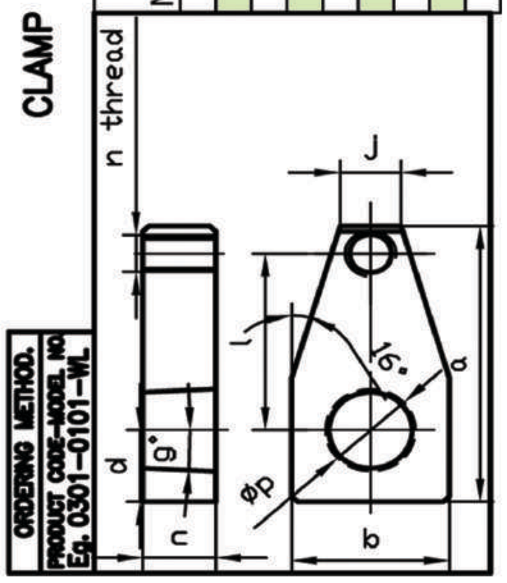
MACHINING FOR MOUNTING CLAMP.



Model			
	90° RH.	0301-0081	0301-0091
	90° LH.	0301-0082	0301-0092
K		31.5	34
B		M4	M5
C+0.2		36	40
D		31	35
E		23.5	26
F		16	18
G		3	3

CLAMP LEVER TABLE (WITHOUT SLEEVE) FOR 0301 & 0302

Model 90° RH.	0081	0091	0101	0201	0301	0401	0501	0601
Model 90° LH.	0082	0092	0102	0202	0302	0402	0502	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
ϕp	15	18	22	25	30	36	45	55



DESIGNATION

SWING CYLINDER (Top Mount)

Hydraulic (Double Acting)

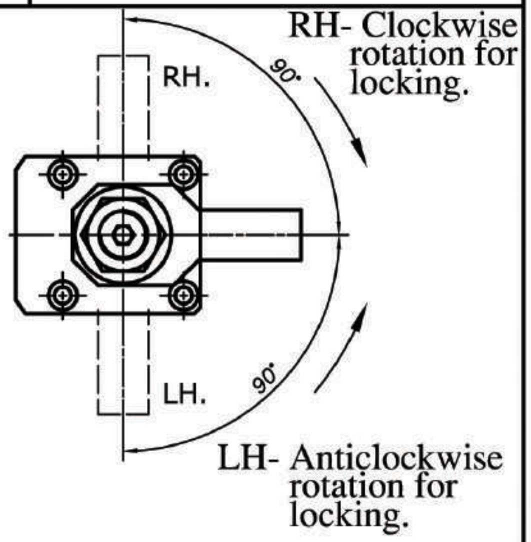
PRODUCT CODE

0301

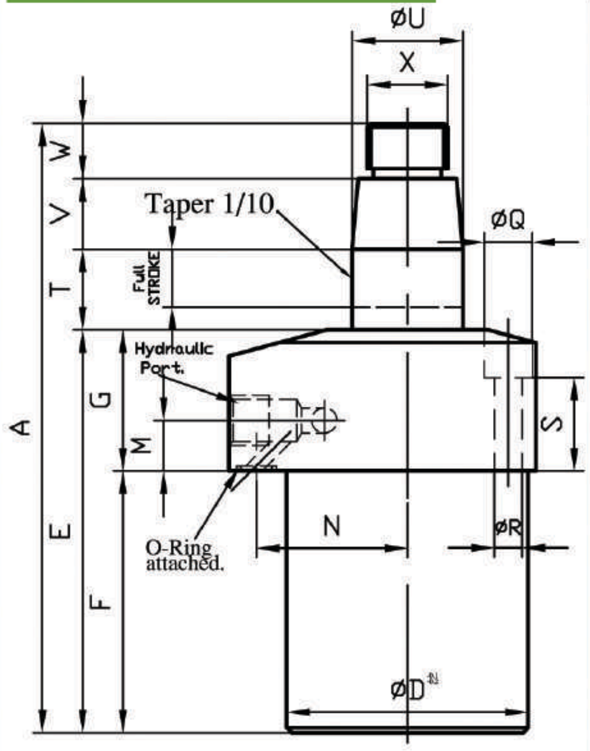
DESCRIPTION :

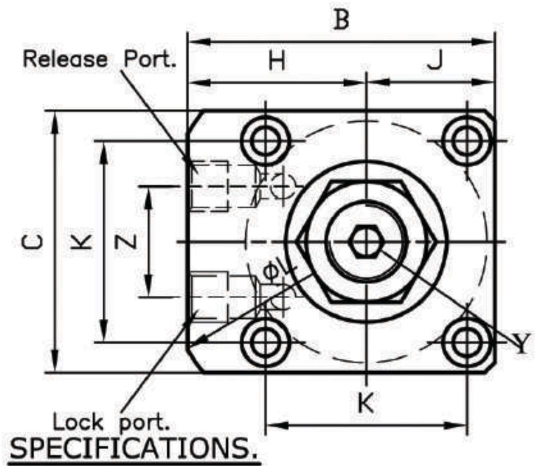
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Alloy steel body
Flange Mounting

Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0301–0101.





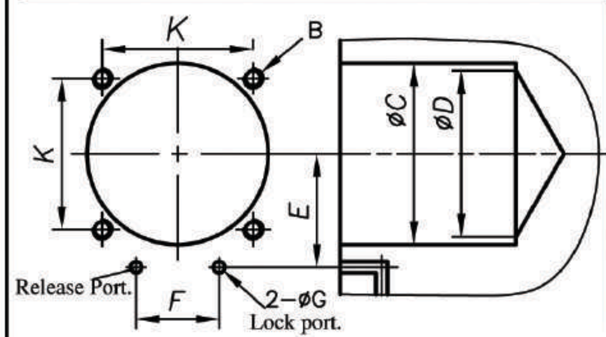
Model						
90° RH.	0301-0101	0301-0201	0301-0301	0301-0401	0301-0501	0301-0601
90° LH.	0301-0102	0301-0202	0301-0302	0301-0402	0301-0502	0301-0602
A	122	137.5	145	171.5	185	243
B	61	69	81	92	107	127
C	52	60	70	80	95	120
D	48	55	65	75	90	105
E	80	87	93	108	114	149
F	52	59	63	71	74	99
G	28	28	30	37	40	50
H	35	39	46	52	59.5	67
J	26	30	35	40	47.5	60
K	40	47	55	63	75	88
ØL	83	88	106	116	136	152
M	11	11	12	12	16	17
N	30	33.5	39.5	45	52.5	60
P	3	3	3	3	3	4
Q	9.5	11	11	14.5	17.5	20
R	5.5	6.6	6.6	9	11	14
S	18.5	17	18	22	22	24.5
T	16	19	20	23.5	25	30.5
U	22	25	30	36	45	55
V	14	20	20	26	32	38
W	12	12	12	14	14	17
X	M16x1.5	M16x1.5	M20x1.5	M30x1.5	M36x1.5	M45x1.5
Y (Hex,xDepth)	6x6	8x6	10x8	10x8	10x10	12x10
Z	22	24	30	32	35	40
Hyd. Port.	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
TAPER ANGLE °	6	6	6	6	11	11

SPECIFICATIONS.

Lock cyl. area.		cm2	5	8	14	19.7	31.2	40.7
Full stroke.		mm	14	17	18	21.5	23	28.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5	11	12.5
Locking stroke		mm	8	9	10	12	12	16
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3	102.6	151
	At release.	cm3	12.5	20.9	37.1	68.7	127.8	199.5
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	1.5					
Design pressure.		MPa	10.5					
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.	0301-0101	0301-0201	0301-0301	0301-0401	0301-0501	0301-0601
90° LH.	0301-0102	0301-0202	0301-0302	0301-0402	0301-0502	0301-0602
K	40	47	55	63	75	88
B	M5	M6	M6	M8	M10	M12
C+0.2	48	55	65	75	90	105
D	45	50	60	70	85	100
E	30	33.5	39.5	45	52.5	60
F	22	24	30	32	37	45
G	3	3	3	3	3	4

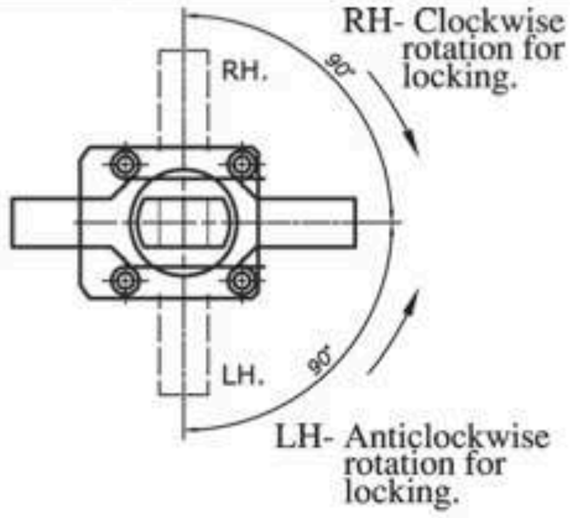
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
	SWING CLAMP CYLINDER P-TYPE	**0301-P**
	DOUBLE ACTING	

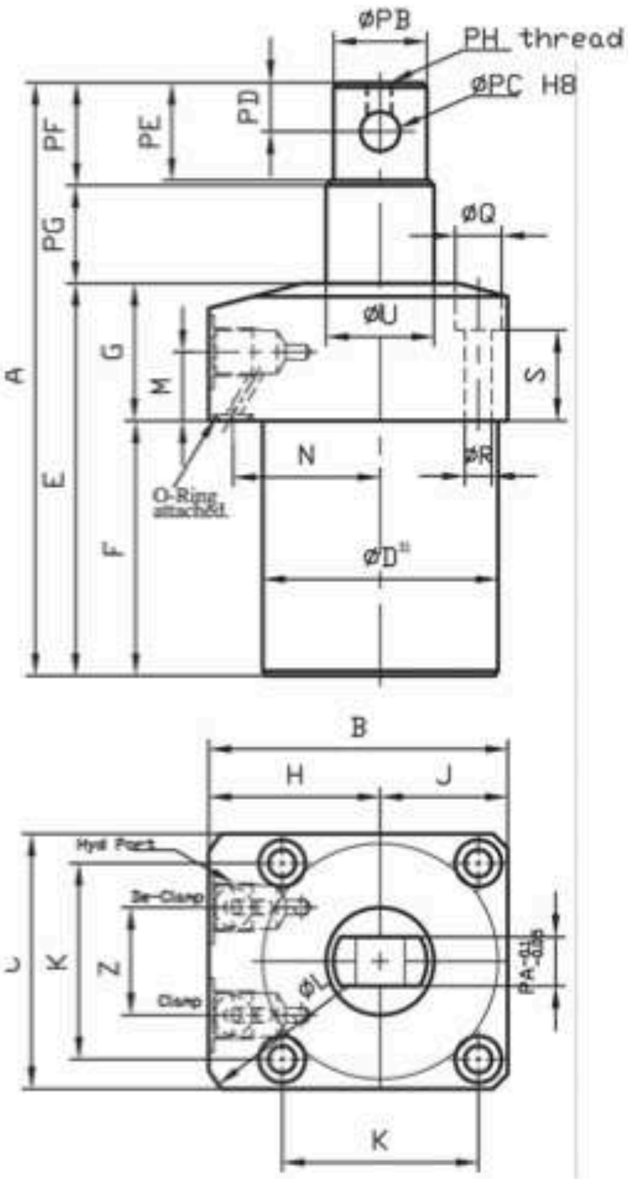
DESCRIPTION :

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
Alloy steel body
Flange Mounting

Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0301–0101–P



Model No	0301 0081	0301 0091
Full Stroke	13.5	14.5
Swing Stroke(90°)	5.5	6.5
Vertical Stroke	8	8
A	102	113
B	49	54
C	40	45
D	36	40
E	64.5	71.5
F	39.5	46.5
Fu	62.5	66.5
G	25	25
H	29	31.5
J	20	22.5
K	31.4	34
L	66	73
M	11	11
Nx	23.5	26
Ny	8	9
P	3	3
Q	7.5	9
R	4.5	5.5
S	16	15
U	15	18
Z (Chamfer)	C2	C3
EA (Nominal × Pitch)	M4×0.7	M5×0.8
PA	7	8
PB	13.5	16
PC	$6^{+0.018}_{0}$	$6^{+0.018}_{0}$
PD	9	11
PE	21	24
PF	22	25
PG	15.5	16.5
PH (Nominal × Pitch)	M3×0.5	M3×0.5
JA	3.5	3.5
JB	14	14
Lock Port/ Release Port STD	G1/8	G1/8
LOCK CYL AREA (sq. cm)	2.6	3.07
O-ring **(PORT)**	**STD**	**STD**
Cylinder Capacity cm^3 Lock	4.8	7.3
Cylinder Capacity cm^3 Release	7.2	10.9
Mass kg	0.7	0.9

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg.

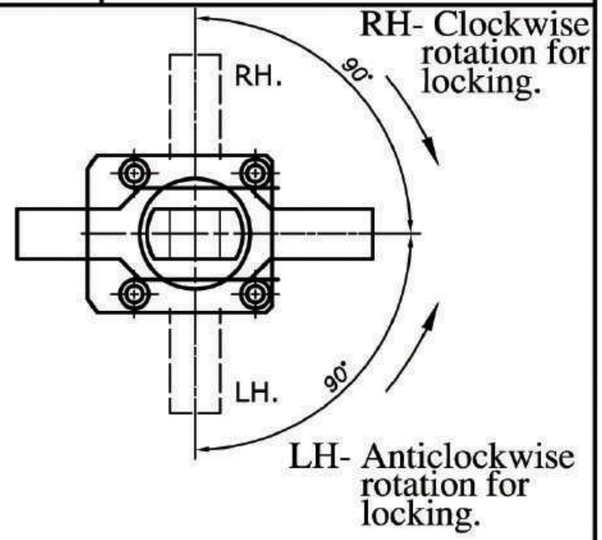
(Specifications subject to change)

CLASYS	DESIGNATION **SWING CYLINDER (Top Mount)** Hydraulic (Double Acting)	PRODUCT CODE **0301- P**

DESCRIPTION :

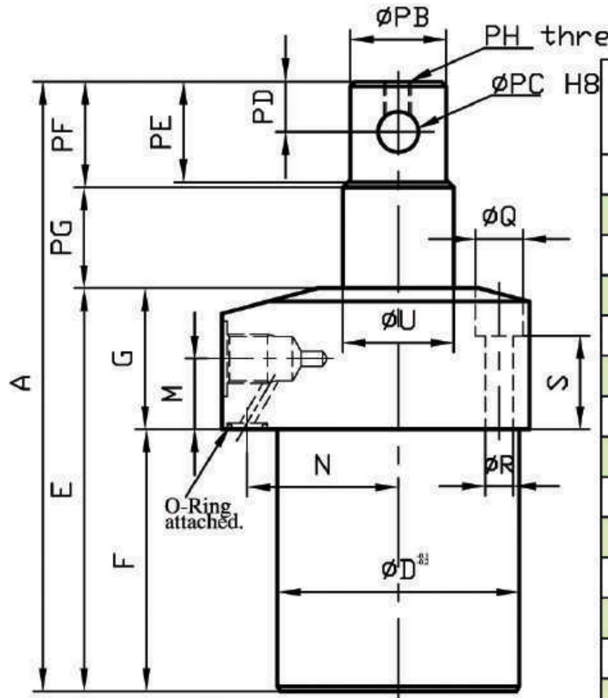
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Alloy steel body
Flange Mounting

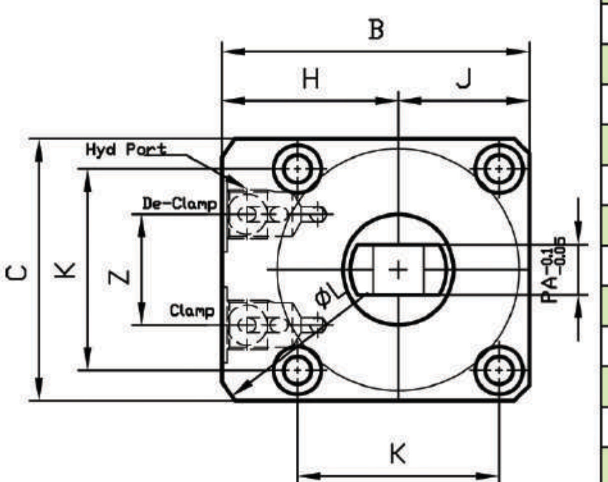
Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



ORDERING METHOD.

PRODUCT CODE–MODEL NO.
Eg. 0301–0101–P



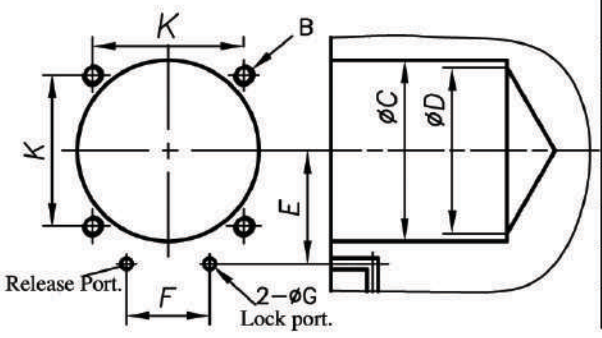


Model						
90° RH.	0301-0101	0301-0201	0301-0301	0301-0401	0301-0501	0301-0601
90° LH.	0301-0102	0301-0202	0301-0302	0301-0402	0301-0502	0301-0602
A	122	137.5	145	171.5	185	243
B	61	69	81	92	107	127
C	52	60	70	80	95	120
D	48	55	65	75	90	105
E	80	87	93	108	114	149
F	52	59	63	71	74	99
G	28	28	30	37	40	50
H	35	39	46	52	59.5	67
J	26	30	35	40	47.5	60
K	40	47	55	63	75	88
ØL	83	88	106	116	136	152
M	11	11	12	12	16	17
N	30	33.5	39.5	45	52.5	60
P	3	3	3	3	3	4
Q	9.5	11	11	14.5	17.5	20
R	5.5	6.6	6.6	9	11	14
S	18.5	17	18	22	22	24.5
U	22	25	30	36	45	55
PG	16	18.5	20	23.5	25	30.5
PF	25	30.5	32	40	46	55
PE	23.5	29	30.5	38.5	44.5	53.5
PH Thread	M4	M5	M6	M6	M8	M8
PD	10	12	15	16.5	20	24
Ø PB	20	23	28	34	43	53
ØPC H8	8	10	12	12	16	20
PA	10	12	14	16	22	26
Z	22	24	30	32	35	40
Hyd. Port.	G1/8	G1/8	G1/4	G1/4	G1/4	G1/4

SPECIFICATIONS.

Lock cyl. area.		cm2	5	8	14	19.7	31.2	40.7
Full stroke.		mm	14	17	18	21.5	23	28.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5	11	12.5
Locking stroke		mm	8	9	10	12	12	16
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3	102.6	151
	At release.	cm3	12.5	20.9	37.1	68.7	127.8	199.5
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	1.5					
Design pressure.		MPa	10.5					
Operating temp.		°C	0–70					
Weight.		Kg.	1.3	1.8	2.7	4.2	5.5	9

MACHINING FOR MOUNTING CLAMP.



Model						
90° RH.	0302-0101	0302-0201	0302-0301	0302-0401	0302-0501	0302-0601
90° LH.	0302-0102	0302-0202	0302-0302	0302-0402	0302-0502	0302-0602
K	40	47	55	63	75	88
B	M5	M6	M6	M8	M10	M12
C+0.2	48	55	65	75	90	105
D	45	50	60	70	85	100
E	30	33.5	39.5	45	52.5	60
F	22	24	30	32	37	45
G	3	3	3	3	3	4

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

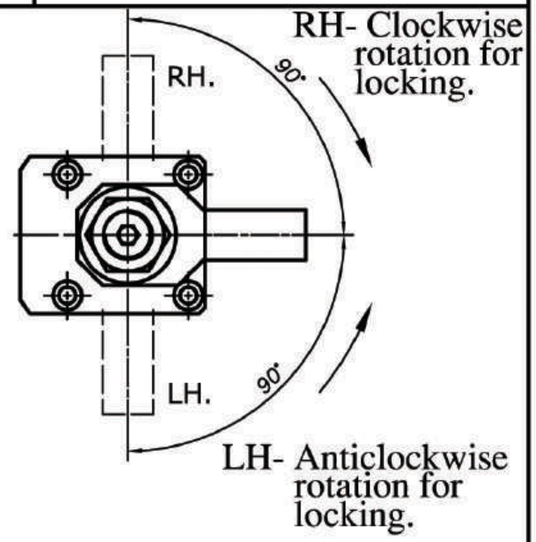
(Specifications subject to change)

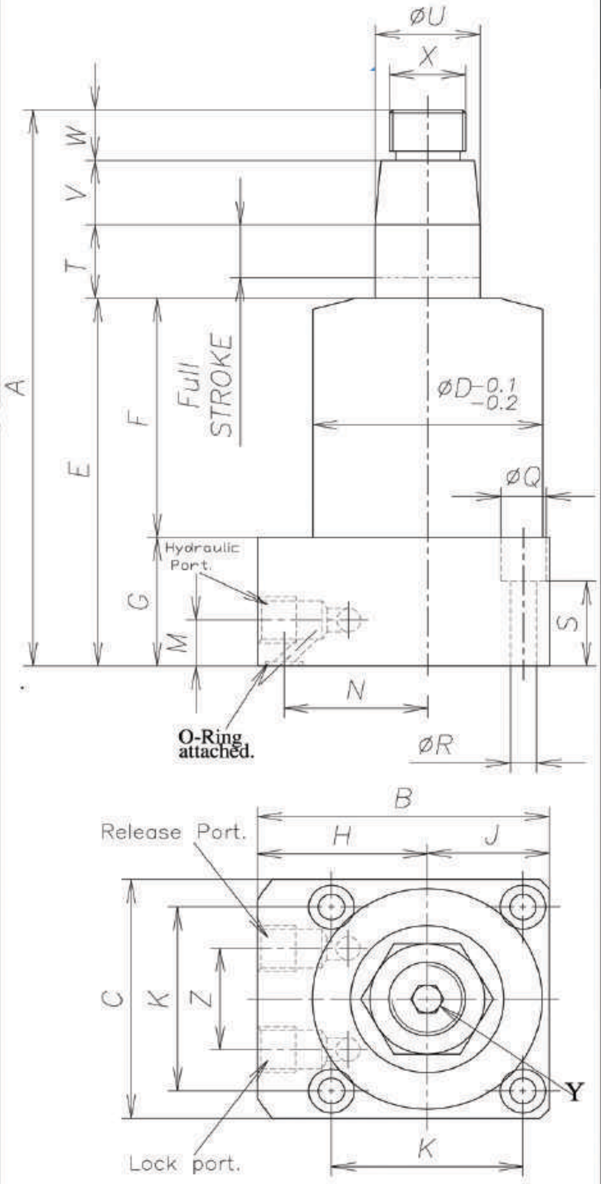
DESIGNATION	PRODUCT CODE
SWING CYLINDER (Bottom Mount) Hydraulic (Double Acting)	**0302**

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
Alloy steel body
Flange Mounting

Min OPerating Pressure : 1Mpa
Max Operating Pressure : 12Mpa





ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0301–0101.

Model			
	90° RH.	0302-0081	0302-0091
	90° LH.	0302-0082	0302-0092
A		95	111
B		49	54
C		40	45
D		36	40
E		64.5	75
F		39.5	50
G		25	25
H		29	31.5
J		20	22.5
K		31.5	34
øL		66	73
M		11	11
N		23.5	26
P		3	3
Q		7.5	9.5
R		4.5	5.5
S		18	17
T		14.5	15
U		15	18
V		09	12
W		07	09
X		M10x1	M12x1.5
Y (Hex,xDepth)		5x4	6x5
Z		16	18
Hyd. Port.		G1/8	G1/8
TAPER ANGLE °		6	6

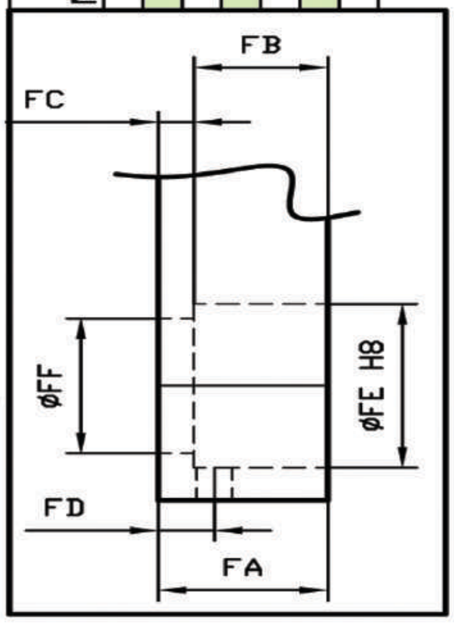
SPECIFICATIONS.

Lock cyl. area.		cm2	2.03	2.36
Full stroke.		mm	13	13
Swing stroke. (90° rotation)		mm	5	5
Locking stroke		mm	8	8
Cyl. volume.	At lock.	cm3	2.6	3.07
	At release.	cm3	4.9	6.38
Max. operating pressure.		MPa	7	
Min. operating pressure.		MPa	1.5	
Design pressure.		MPa	10.5	
Operating temp.		°C	0–70	
Weight.		Kg.	0.8	1.0

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

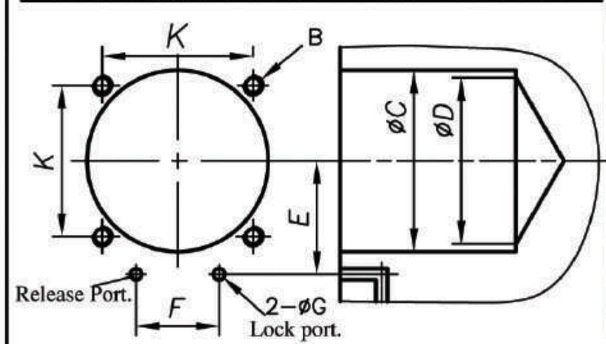
CLAMP LEVER TABLE (WITH SLEEVE) FOR 0301 & 0302

Model								
90° RH.	0081	0091	0101	0201	0301	0401	0501	0601
90° LH.	0082	0092	0102	0202	0302	0402	0502	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



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

MACHINING FOR MOUNTING CLAMP.



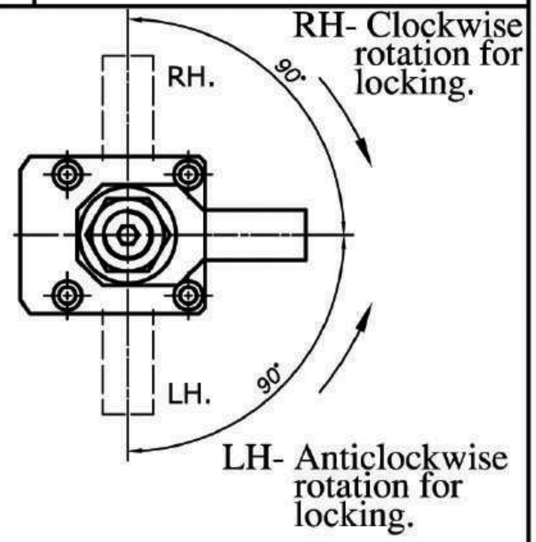
Model			
	90° RH.	0302-0081	0302-0091
	90° LH.	0302-0082	0302-0092
K		31.5	34
B		M4	M5
C+0.2		36	40
D		31	35
E		23.5	26
F		16	18
G		3	3

(Specifications subject to change)

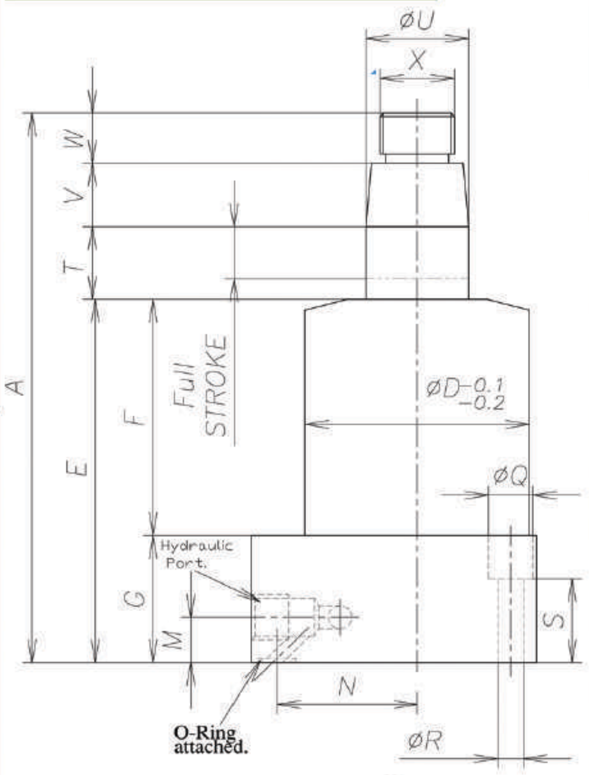
	DESIGNATION	PRODUCT CODE
CLASYS	SWING CYLINDER (Bottom Mount) Hydraulic (Double Acting)	0302

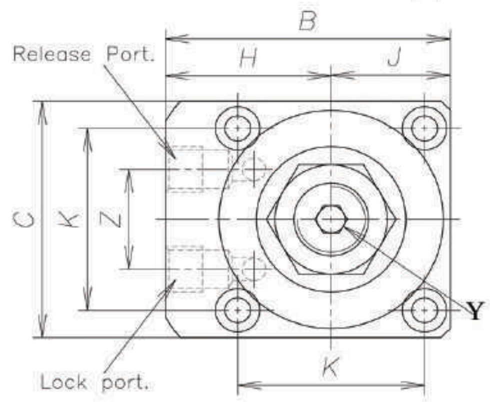
DESCRIPTION :
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Alloy steel body
Flange Mounting

Min OPerating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0301–0101.





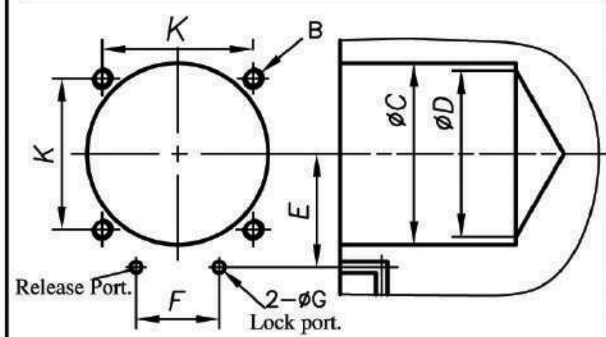
Model	90° RH.	0302-0101	0302-0201	0302-0301	0302-0401	0302-0501	0302-0601
	90° LH.	0302-0102	0302-0202	0302-0302	0302-0402	0302-0502	0302-0602
A		122	137.5	145	171.5	185	243
B		61	69	81	92	107	127
C		52	60	70	80	95	120
D		48	55	65	75	90	105
E		80	87	93	108	114	149
F		52	59	63	71	74	99
G		28	28	30	37	40	50
H		35	39	46	52	59.5	67
J		26	30	35	40	47.5	60
K		40	47	55	63	75	88
ØL		83	88	106	116	136	152
M		11	11	12	12	16	17
N		30	33.5	39.5	45	52.5	60
P		3	3	3	3	3	4
Q		9.5	11	11	14.5	17.5	20
R		5.5	6.6	6.6	9	11	14
S		18.5	17	18	22	22	24.5
T		16	19	20	23.5	25	30.5
U		22	25	30	36	45	55
V		14	20	20	26	32	38
W		12	12	12	14	14	17
X		M16x1.5	M16x1.5	M20x1.5	M30x1.5	M36x1.5	M45x1.5
Y (Hex,xDepth)		6x6	8x6	10x8	10x8	10x10	12x10
Z		22	24	30	32	35	40
Hyd. Port.		G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
TAPER ANGLE °		6	6	6	6	11	11

SPECIFICATIONS.

Lock cyl. area.		cm2	5	8	14	19.7	31.2	40.7
Full stroke.		mm	14	17	18	21.5	23	28.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5	11	12.5
Locking stroke		mm	8	9	10	12	12	16
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3	102.6	151
	At release.	cm3	12.5	20.9	37.1	68.7	127.8	199.5
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	1.5					
Design pressure.		MPa	10.5					
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.



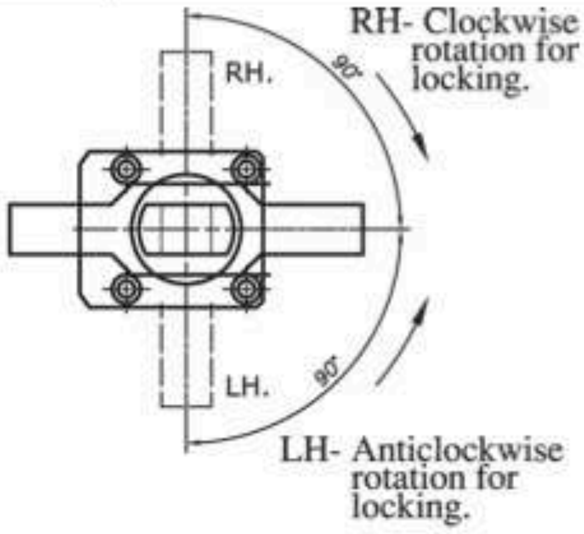
Model	90° RH.	0302-0101	0302-0201	0302-0301	0302-0401	0302-0501	0302-0601
	90° LH.	0302-0102	0302-0202	0302-0302	0302-0402	0302-0502	0302-0602
K		40	47	55	63	75	88
B		M5	M6	M6	M8	M10	M12
C+0.2		48	55	65	75	90	105
D		45	50	60	70	85	100
E		30	33.5	39.5	45	52.5	60
F		22	24	30	32	37	45
G		3	3	3	3	3	4

(Specifications subject to change)

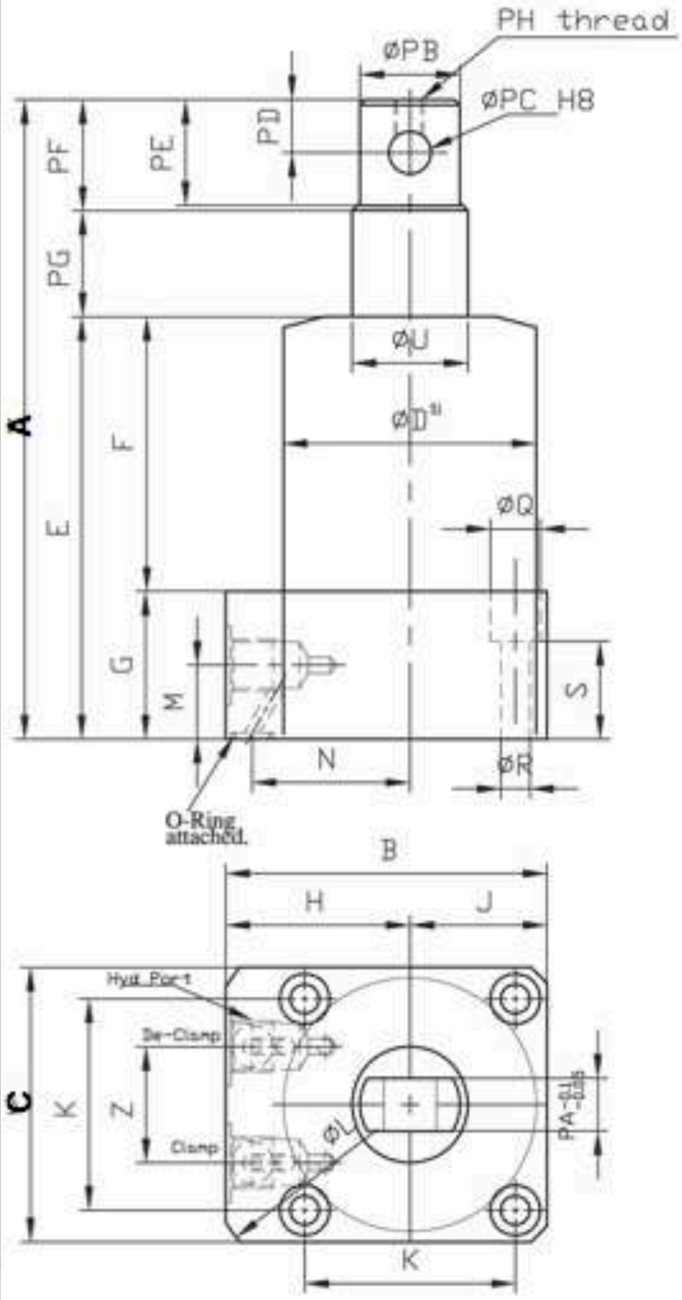
	DESIGNATION	PRODUCT CODE
CLASYS	**SWING CLAMP CYLINDER P-TYPE** DOUBLE ACTING	**0302-P**

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
Alloy steel body
Flange Mounting

Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



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



Model No	0301 0081	0301 0091
Full Stroke	13.5	14.5
Swing Stroke(90°)	5.5	6.5
Vertical Stroke	8	8
A	102	113
B	49	54
C	40	45
D	36	40
E	64.5	71.5
F	39.5	46.5
Fu	62.5	66.5
G	25	25
H	29	31.5
J	20	22.5
K	31.4	34
L	66	73
M	11	11
Nx	23.5	26
Ny	8	9
P	3	3
Q	7.5	9
R	4.5	5.5
S	16	15
U	15	18
Z (Chamfer)	C2	C3
EA (Nominal × Pitch)	M4×0.7	M5×0.8
PA	7	8
PB	13.5	16
PC	$6^{+0.018}_{0}$	$6^{+0.018}_{0}$
PD	9	11
PE	21	24
PF	22	25
PG	15.5	16.5
PH (Nominal × Pitch)	M3×0.5	M3×0.5
JA	3.5	3.5
JB	14	14
Lock Port/ Release Port — **STD**	G1/8	G1/8
LOCK CYL AREA (sq. cm)	2.6	3.07
O-ring **(PORT)**	**STD**	**STD**
Cylinder Capacity cm³ — Lock	4.8	7.3
Cylinder Capacity cm³ — Release	7.2	10.9
Mass kg	0.7	0.9

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg.

(Specifications subject to change)

DESIGNATION

SWING CYLINDER (Bottom Mount)

Hydraulic (Double Acting)

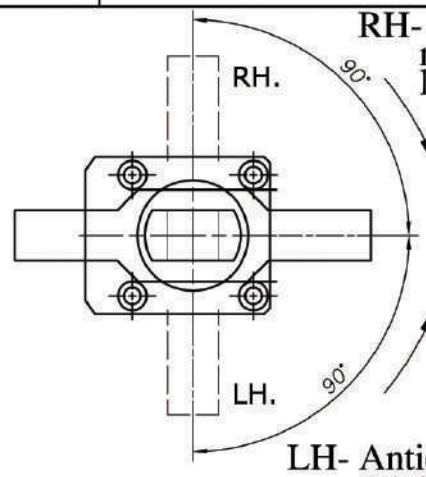
PRODUCT CODE

0302- P

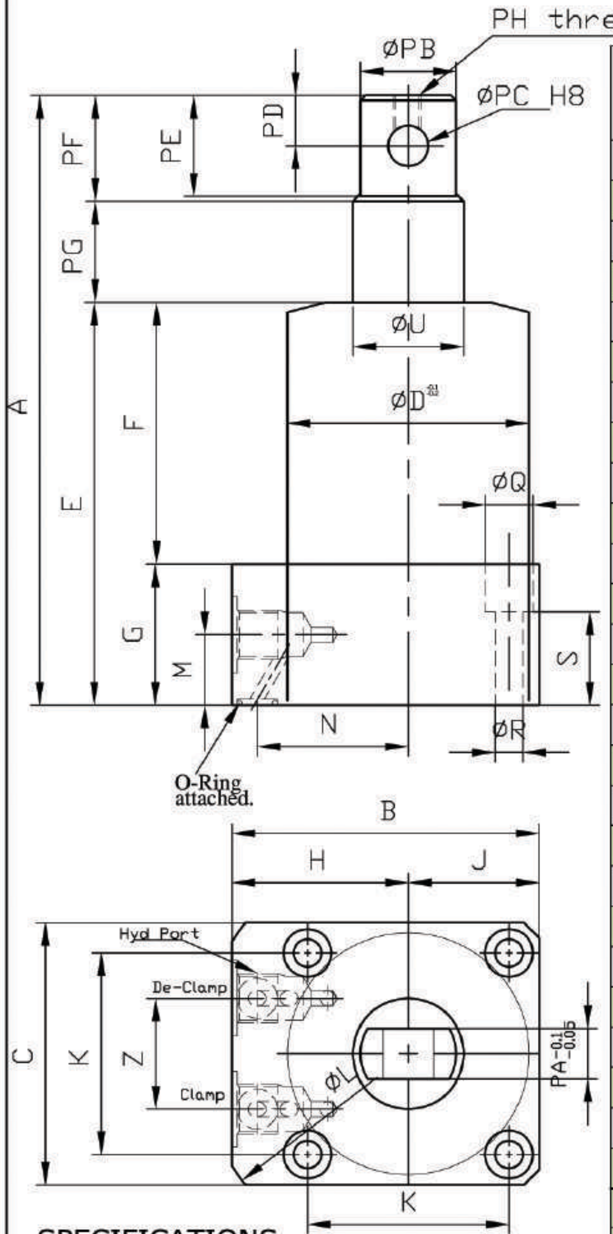
DESCRIPTION :

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
Alloy steel body
Flange Mounting

Min Operating Pressure : 1Mpa
Max Operating Pressure : 12Mpa



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0302–0101–P

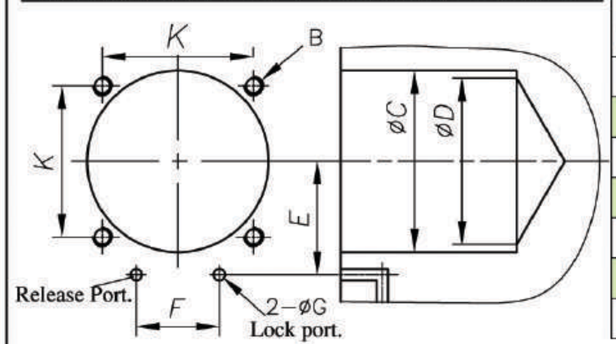


Model	90° RH.	0302-0101	0302-0201	0302-0301	0302-0401	0302-0501	0302-0601
	90° LH.	0302-0102	0302-0202	0302-0302	0302-0402	0302-0502	0302-0602
A		122	137.5	145	171.5	185	243
B		61	69	81	92	107	127
C		52	60	70	80	95	120
D		48	55	65	75	90	105
E		80	87	93	108	114	149
F		52	59	63	71	74	99
G		28	28	30	37	40	50
H		35	39	46	52	59.5	67
J		26	30	35	40	47.5	60
K		40	47	55	63	75	88
øL		83	88	106	116	136	152
M		11	11	12	12	16	17
N		30	33.5	39.5	45	52.5	60
P		3	3	3	3	3	4
Q		9.5	11	11	14.5	17.5	20
R		5.5	6.6	6.6	9	11	14
S		18.5	17	18	22	22	24.5
U		22	25	30	36	45	55
PG		16	18.5	20	23.5	25	30.5
PF		25	30.5	32	40	46	55
PE		23.5	29	30.5	38.5	44.5	53.5
PH Thread		M4	M5	M6	M6	M8	M8
PD		10	12	15	16.5	20	24
ø PB		20	23	28	34	43	53
øPC H8		8	10	12	12	16	20
PA		10	12	14	16	22	26
Z		22	24	30	32	35	40
Hyd. Port.		G1/8	G1/8	G1/4	G1/4	G1/4	G1/4

SPECIFICATIONS.

Specification		Unit	0302-0101/0102	0302-0201/0202	0302-0301/0302	0302-0401/0402	0302-0501/0502	0302-0601/0602
Lock cyl. area.		cm2	5	8	14	19.7	31.2	40.7
Full stroke.		mm	14	17	18	21.5	23	28.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5	11	12.5
Locking stroke		mm	8	9	10	12	12	16
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3	102.6	151
	At release.	cm3	12.5	20.9	37.1	68.7	127.8	199.5
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	1.5					
Design pressure.		MPa	10.5					
Operating temp.		°C	0–70					
Weight.		Kg.	1.3	1.8	2.7	4.2	5.5	9

MACHINING FOR MOUNTING CLAMP.



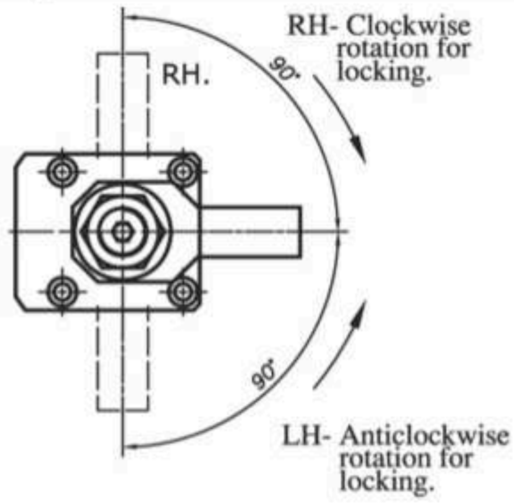
Model	90° RH.	0302-0101	0302-0201	0302-0301	0302-0401	0302-0501	0302-0601
	90° LH.	0302-0102	0302-0202	0302-0302	0302-0402	0302-0502	0302-0602
K		40	47	55	63	75	88
B		M5	M6	M6	M8	M10	M12
C+0.2		48	55	65	75	90	105
D		45	50	60	70	85	100
E		30	33.5	39.5	45	52.5	60
F		22	24	30	32	37	45
G		3	3	3	3	3	4

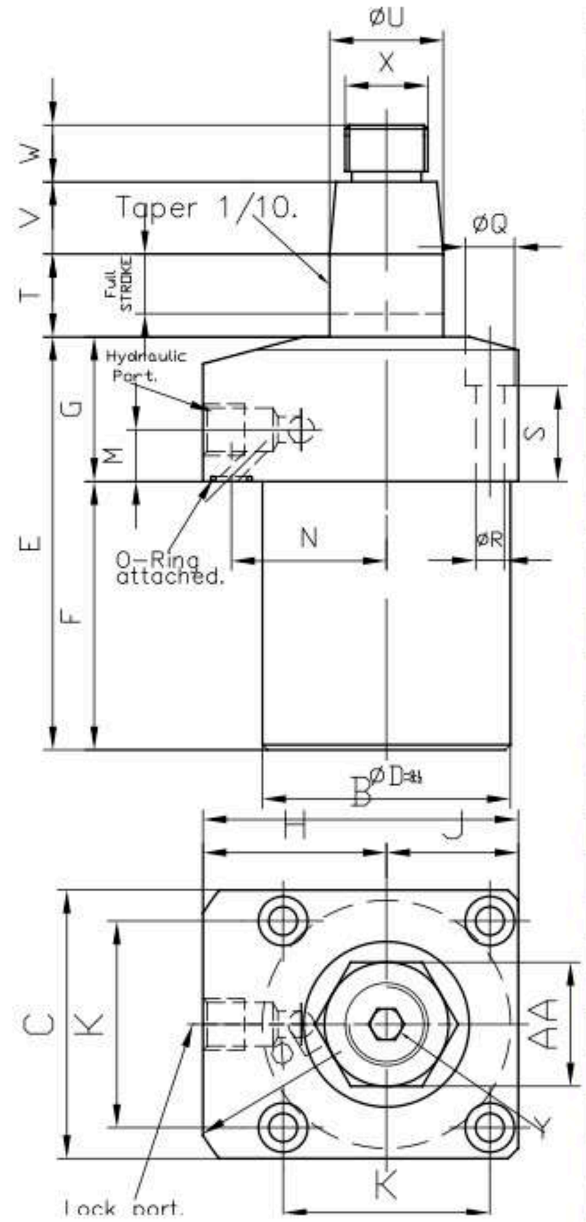
(Single Acting Cylinders available on request. Please contact nearest Dealer)

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**SWING CYLINDER** SINGLE ACTING	**0303**

DESCRIPTION:
1. **SINGLE ACTING**
2. **ALLOY STEEL BODY WITH ANTI RUST COATING**
3. **FLANGE MOUNTING**
4. **MAX PRESSURE : 12MPa**
5. **MIN PRESSURE : 1 MPa**





ORDERING METHOD.

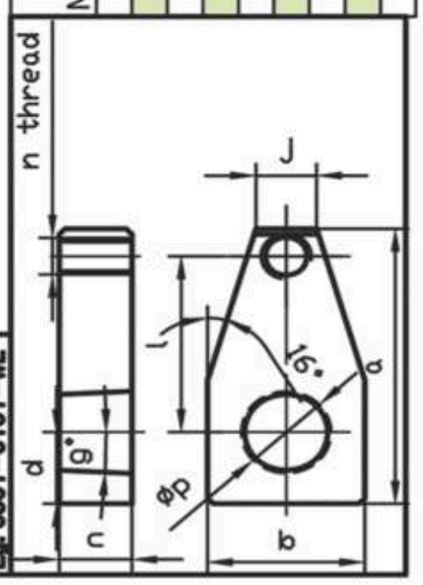
PRODUCT CODE-MODEL CODE
EG: 0303-0481

Model			
	90° RH.	0303 0361	0303 0401
	90° LH.	0303 0362	0303 0402
A		95	111
B		49	54
C		40	45
D (-0.1 / -0.2)		36	40
E		64.5	75
F		39.5	50
G		25	25
H		29	31.5
J		20	22.5
K		31.5	34
ØL		66	73
M		11	11
N		23.5	26
P		3	3
Q		7.5	9.5
R		4.5	5.5
S		18	17
T		14.5	15
U		15	18
V		09	12
W		07	09
X		M10x1	M12x1.5
Y (Hex,xDepth)		5x4	6x5
Hyd. Port.		G1/8	G1/8
TAPER ANGLE °		6	6

Lock cyl. area.		cm2	2.03	2.36
Full stroke.		mm	13	13
Swing stroke. (90° rotation)		mm	5	5
Locking stroke		mm	8	8
Cyl. volume.	At lock.	cm3	2.6	3.07
	At release.	cm3	4.9	6.38
Max. operating pressure.		MPa	7	
Min. operating pressure.		MPa	1.5	
Design pressure.		MPa	10.5	
Operating temp.		°C	0–70	
Weight.		Kg.	0.8	1.0

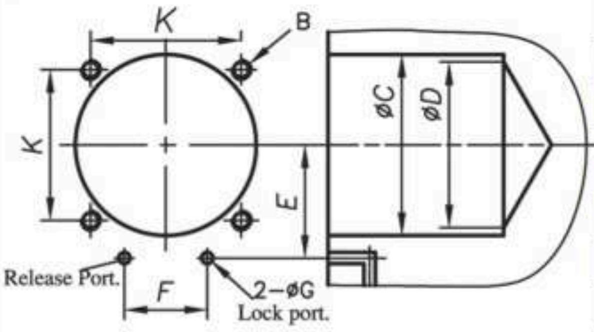
CLAMP LEVER TABLE (WITHOUT SLEEVE) FOR 0301,0302 & 0303

Model 90° RH.	0081	0091	0101	0201	0301	0401	0501	0601
Model 90° LH.	0082	0092	0102	0202	0302	0402	0502	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-WL.

MACHINING FOR MOUNTING CLAMP.



Model			
	90° RH.	0301-0081	0301-0091
	90° LH.	0301-0082	0301-0092
K		31.5	34
B		M4	M5
C+0.2		36	40
D		31	35
E		23.5	26
F		16	18
G		3	3

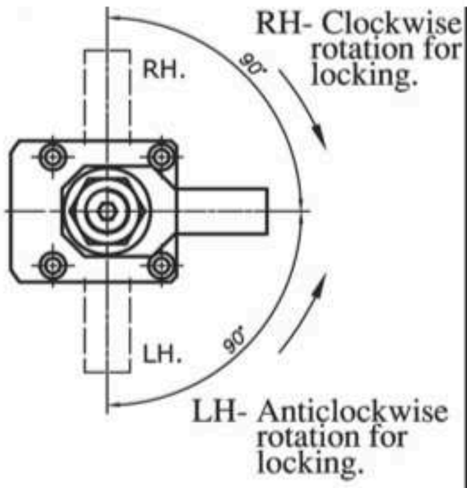
(Specifications subject to change)

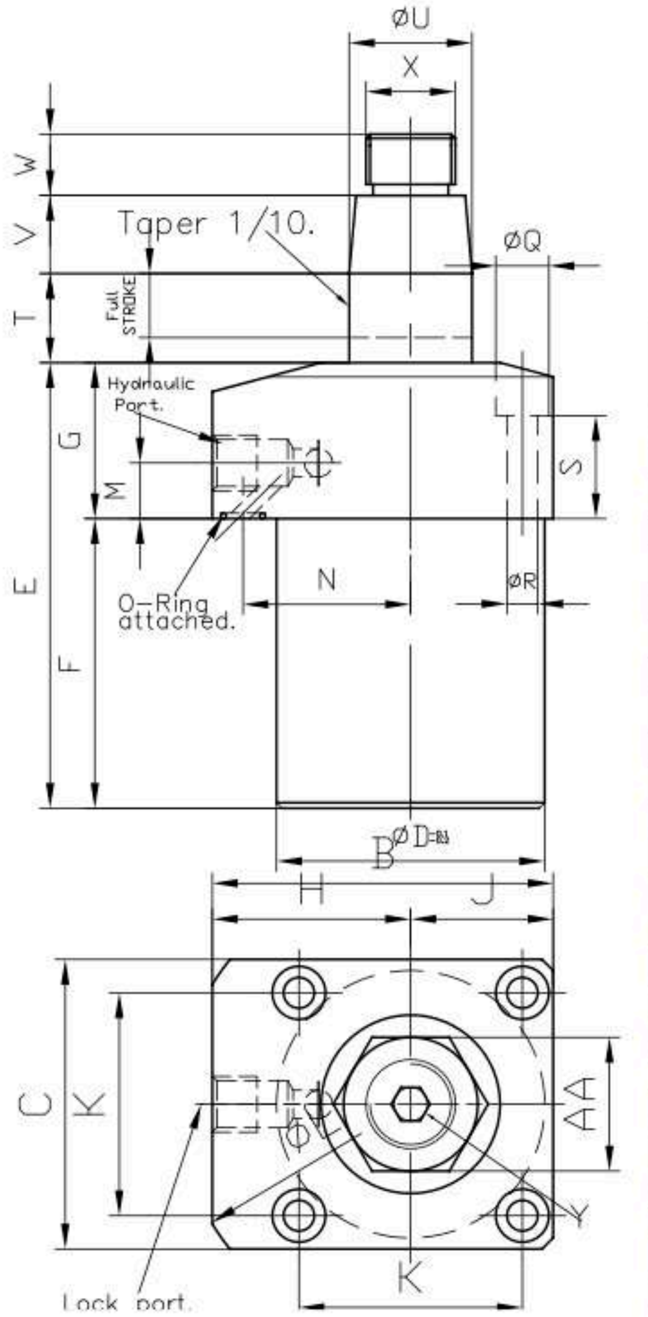
CLASYS

DESIGNATION
SWING CYLINDER
SINGLE ACTING

PRODUCT CODE
0303

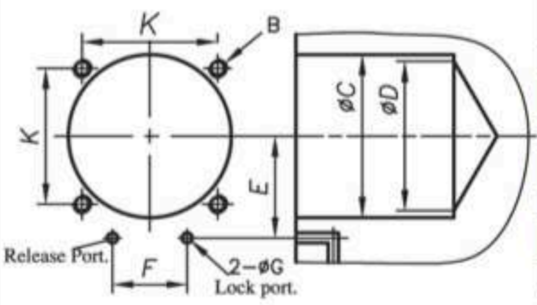
DESCRIPTION:
1. SINGLE ACTING
2. ALLOY STEEL BODY
   WITH ANTI RUST COATING
3. FLANGE MOUNTING
4. MAX PRESSURE : 12MPa
5. MIN PRESSURE : 1 MPa





Model		90° RH.	0303 0481	0303 0551	0303 0651	0303 0751	0303 0901	0303 1051
		90° LH.	0303 0483	0303 0552	0303 0652	0303 0752	0303 0902	0303 1052
A			122	137.5	145	171.5	185	243
B			61	69	81	92	107	127
C			52	60	70	80	95	120
D			48	55	65	75	90	105
E			80	87	93	108	114	149
F			52	59	63	71	74	99
G			28	28	30	37	40	50
H			35	39	46	52	59.5	67
J			26	30	35	40	47.5	60
K			40	47	55	63	75	88
øL			83	88	106	116	136	152
M			11	11	12	12	16	17
N			30	33.5	39.5	45	52.5	60
P			3	3	3	3	3	4
Q			9.5	11	11	14.5	17.5	20
R			5.5	6.6	6.6	9	11	14
S			18.5	17	18	22	22	24.5
T			16	19	20	23.5	25	30.5
U			22	25	30	36	45	55
V			14	20	20	26	32	38
W			12	12	12	14	14	17
X			M16x1.5	M16x1.5	M20x1.5	M30x1.5	M36x1.5	M45x1.5
Y (Hex,xDepth)			6x6	8x6	10x8	10x8	10x10	12x10
Hyd. Port.			G1/8	G1/8	G1/4	G1/4	G1/4	G1/4
TAPER ANGLE °			6	6	6	6	11	11
Lock cyl. area.		cm2	5	8	14	19.7	31.2	40.7
Full stroke.		mm	14	17	18	21.5	23	28.5
Swing stroke. (90° rotation)		mm	6	8	8	9.5	11	12.5
Locking stroke		mm	8	9	10	12	12	16
Cyl. volume.	At lock.	cm3	7	13.2	25.2	42.3	102.6	151
	At release.	cm3	12.5	20.9	37.1	68.7	127.8	199.5
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	1.5					
Design pressure.		MPa	10.5					
Operating temp.		°C	0–70					
Weight.		Kg.	1.3	1.8	2.7	4.2	5.5	9

MACHINING FOR MOUNTING CLAMP.



Model	90° RH.	0301-0101	0301-0201	0301-0301	0301-0401	0301-0501	0301-0601
	90° LH.	0301-0102	0301-0202	0301-0302	0301-0402	0301-0502	0301-0602
K		40	47	55	63	75	88
B		M5	M6	M6	M8	M10	M12
C+0.2		48	55	65	75	90	105
D		45	50	60	70	85	100
E		30	33.5	39.5	45	52.5	60
F		22	24	30	32	37	45
G		3	3	3	3	3	4

Ordering Method
PRODUCT CODE-MODEL CODE
EG: 0303-0481

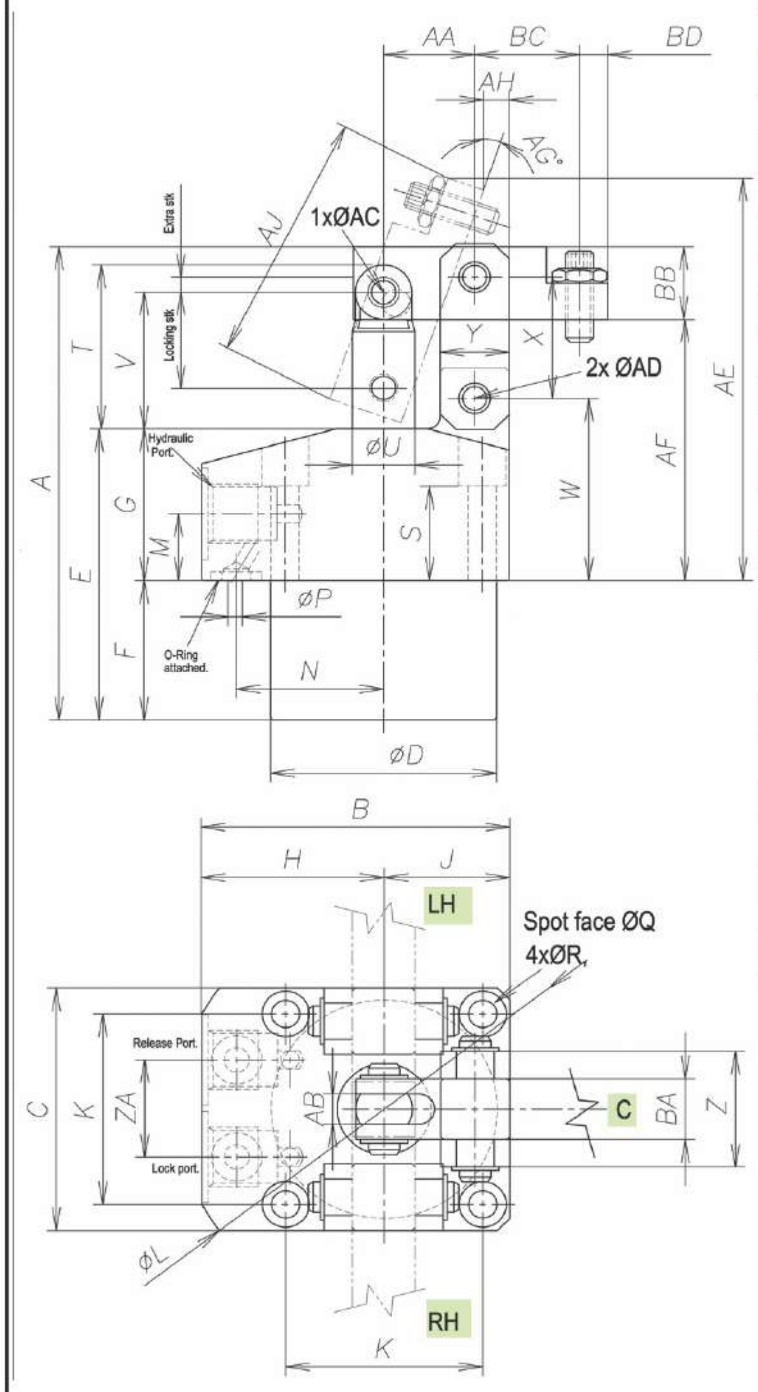
(Specifications subject to change)

DESIGNATION	PRODUCT CODE.
LINK CLAMP CYLINDER Hydraulic (Double Acting)	**0402**

DESCRIPTION :

Double Acting
LH,RH & Centre Port Configurations
Chromium Plated Piston Rod
Alloy steel body

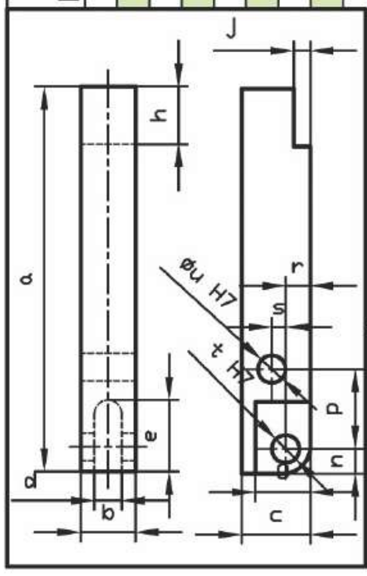
Flange Mounting
Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa



Model.		0402 0361	0402 0401
	C	0402 0361	0402 0401
	RH	0402 0362	0402 0402
	LH	0402 0363	0402 0403
A		79	87.5
B		50	54
C		41	45
D		36	40
E		54	56
F		29	31
G		25	25
H		29.5	31.5
J		20.5	22.5
K		31.5	34
L		68	73
M		11	11
N		23.5	26
P		3	3
Q		7.5	9.5
R		4.5	5.5
S		18	15
T		27	30.5
U		10	12
V		22.5	25
W		30	30.5
X		20	22
Y		10	12
Z		19	21
ZA		16	18
Hyd. Port.		G 1/8"	G 1/8"
Link Lever.	AA	14.5	16
	AB	5	5
	AC	5	5
	AD	6	6
	AE	AE	AE
	AF	43	44.5
	AG°	19.6°	20.2°
	AH	5	6
	AJ	AJ	AJ
	BA	10	12
	BB	12.5	14
	BC	BC	BC
	BD	BD	BD

CLAMP LEVER TABLE (Standard) FOR 0401 & 0402

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

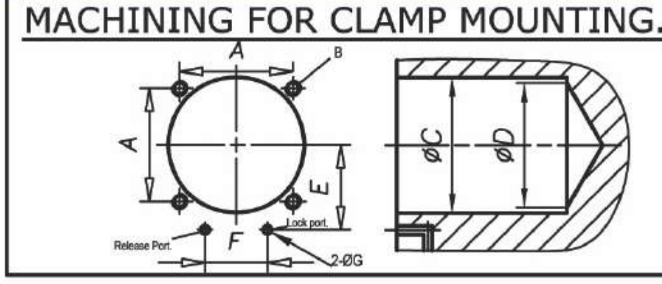


ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0401-0101-SC

SPECPFICATIONS.

			0402 0361	0402 0401
Lock cyl. area.		cm²	3.8	4.9
Full stroke.		mm	18.5	20
Locking stroke.		mm	15.5	17
Extra stroke.		mm	3	3
Cyl. volume.	At lock.	cm³	5.9	8.33
	At release.	cm³	4.7	6.4
Max. operating pressure.		MPa	7	
Min. operating pressure.		MPa	0.5	
Design pressure.		MPa	10.5	
Operating temp.		°C	0-70	
Weight.		Kg.	0.72	1.15

MACHINING FOR CLAMP MOUNTING.



	0402 0361	0402 0401
A	31.4	34
B	M4	M5
C +0.2	36	40
D	30	35
E	23.5	26
F	16	18
G	2.5	2.5

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

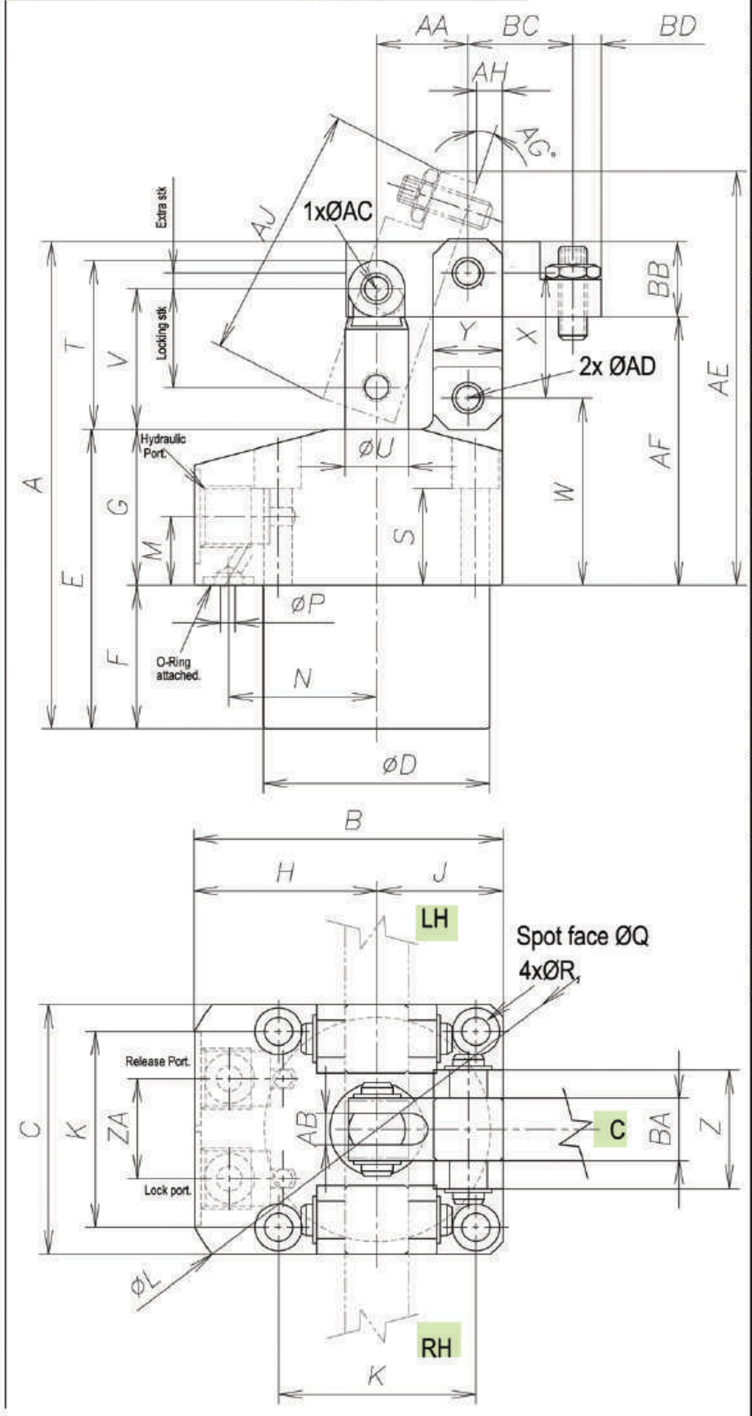
(Specifications subject to change)

DESIGNATION	PRODUCT CODE.
COMPACT LINK CLAMP CYLINDER Hydraulic (Double Acting)	**0402**

DESCRIPTION :

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

Flange Mounting
Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa
Light weight

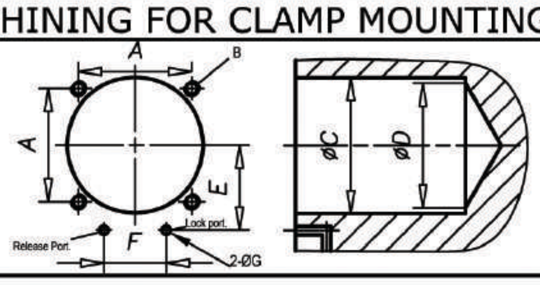


Model.						
C	0402-0481	0402-0551	0402-0651	0402-0751	0402-0901	0402-1051
RH	0402-0482	0402-0552	0402-0652	0402-0752	0402-0902	0402-1052
LH	0402-0483	0402-0553	0402-0653	0402-0753	0402-0903	0402-1053
A	101	112.5	129.5	153	182	211
B	61	69	81	94.5	111	127
C	51	60	70	85	100	120
D	48	55	65	75	90	105
E	62	67	75.5	86	103	117
F	34	39	45.5	49	63	67
G	28	28	30	37	40	50
H	35.5	39	46	52	61	67
J	25.5	30	35	42.5	50	60
K	40	47	55	63	75	88
L	83	88	106	116	136	152
M	11	11	12	12	12	15
N	30	33.5	39.5	45	52.5	60
P	3	3	3	3	3	4
Q	9.5	11	11	14	17.5	20
R	5.5	6.8	6.8	9	11	14
S	17.5	15	15.5	19.5	19	24.5
T	35	37.5	45	55	65.5	77
U	14	16	18	22	28	35.5
V	29	31.5	37	45	52	62
W	34.5	35.5	39	48	52.5	64
X	26	30	35.5	43.5	52.5	64
Y	13	16	19	25	28	32
Z	21	28	37	40	49	64
ZA	22	24	30	32	37	45
Hyd. Port.	G1/8	G1/8	G1/4	G1/4	G1/4	G3/8
Link Lever. AA	18.5	21	24.5	30	36	44
AB	6	8	10	11	13	16
AC	6	6	8	10	12	15
AD	6	8	10	12	15	18
AE	92.4	101.9	111.4	130.8	146.5	173.6
AF	51	53.5	59	72	81	98
AG°	18.9	19.9	20.5	21.4	22.4	23.1
AH	4.3	4.7	4.3	4.5	5	4.1
AJ	61.2	71.7	78.7	90.8	104.6	122.5
BA	12	16	19	22	25	32
BB	16	20	25	32	38	45
BC	23.5	29	32	37.5	41.5	51
BD	6	8	10	11	14	17

SPECIFICATIONS.

Lock cyl. area.		cm²	7.07	9.62	15.9	23.7	33.2	44.2
Full stroke.		mm	23.5	26	29.5	35	41	49
Locking stroke.		mm	20.5	23	26.5	32	38	46
Extra stroke.		mm	3	3	3	3	3	3
Cyl. volume.	At lock.	cm³	14.5	22.13	42.14	75.85	126.2	203.35
	At release.	cm³	11.33	17.5	35.4	63.8	102.6	157.7
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	0.5					
Design pressure.		MPa	10.5					
Operating temp.		°C	0-70					
Weight.		Kg.	1.5	1.8	2.5	4.2	6.5	10.2

MACHINING FOR CLAMP MOUNTING.



A	40	47	55	63	75	88
B	M5	M6	M6	M8	M10	M12
C+0.2	48	55	65	75	90	105
D	45	50	60	70	85	100
E	30	33.5	39.5	45	52.5	60
F	22	24	30	32	37	45
G	3	3	3	3	3	4

(Specifications subject to change)

DESIGNATION

LINK CLAMP CYLINDER

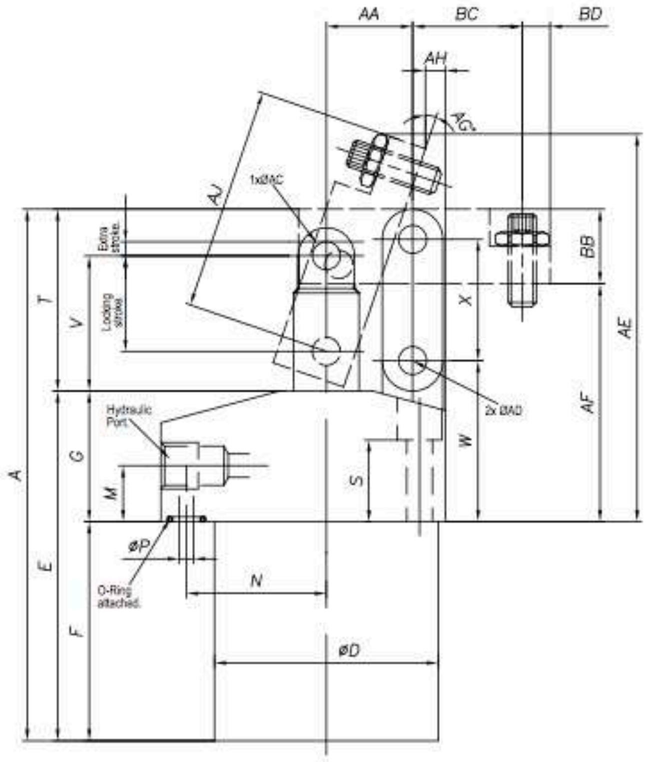
SINGLE ACTING

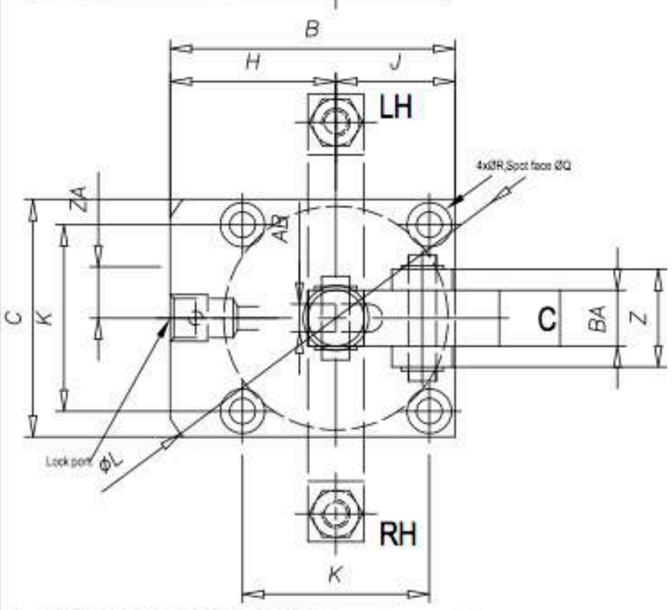
PRODUCT CODE

0403

DESCRIPTION
SINGLE ACTING
ALLOY STEEL BODY WITH ANTI RUST COATING
FLANGE MOUNTING

LH, RH & CENTRE PORT CONFIG
CHROME PLATED PISTON ROD
MAX PRESSURE : 15MPa
MIN PRESSURE : 1 MPa

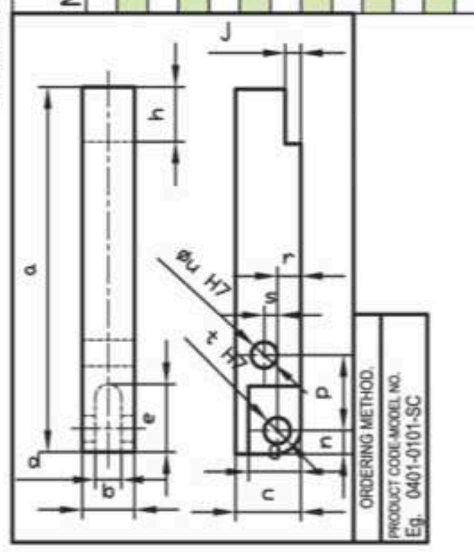




Model.		0403 0361	0403 0401
	RH	0403 0362	0403 0402
	LH	0403 0363	0403 0403
A		94.5	103.5
B		50	54
C		41	45
D		36	40
E		64	70
F		39	45
G		25	25
H		29.5	31.5
J		20.5	22.5
K		31.5	34
L		68	73
M		11	11
N_x		23.5	26
P		3	3
Q		7.5	9.5
R		4.5	5.5
S		18	15
T		27	30.5
U		10	12
V		22.5	25
W		30	30.5
X		20	22
Y		10	12
Z		19	21
Hyd. Port.		G 1/8"	G 1/8"
Link Lever.	AA	14.5	16
	AB	5	5
	AC	5	5
	AD	6	6
	AE	AE	AE
	AF	43	44.5
	AG°	19.6°	20.2°
	AH	5	6
	AJ	AJ	AJ
	BA	10	12
	BB	12.5	14
	BC	BC	BC
	BD	BD	BD

CLAMP LEVER TABLE (Standard) FOR 0401 & 0402

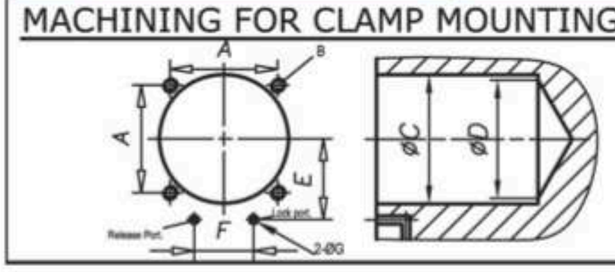
Model 0403 / 0402	036x	040x	048x	055x	065x	075x	090x	105x
a	70	75	85	90	105	110	150	200
$b^{-0.1}$	10	12	12	16	19	22	25	32
c	13	14	16	20	25	32	38	45
d	5	6	6	8	10	11	13	16
e	13	14.5	16	17	22	26	31	36
g	10	12	13	17	18	22	26	31
h	10.5	13	13.	17	22	25	31	38
j	3	3	3	4	5	5	6	6
n	4.5	5.5	6	6	8	10	11	13
p	14.5	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



SPECPFICATIONS.

Lock cyl. area.		cm²	3.14	3.8
Full stroke.		mm	18.5	20
Locking stroke.		mm	15.5	17
Extra stroke.		mm	3	3
Cyl. volume.	At lock.	cm³	4.9	6.4
	At release.	cm³	3.65	4.5
Max. operating pressure.		MPa	7	
Min. operating pressure.		MPa	0.5	
Design pressure.		MPa	10.5	
Operating temp.		°C	0-70	
Weight.		Kg.	0.72	1.15

MACHINING FOR CLAMP MOUNTING.



A	31.4	34
B	M4	M5
C +0.2	36	40
D	30	35
E	23.5	26
F	16	18
G	2.5	2.5

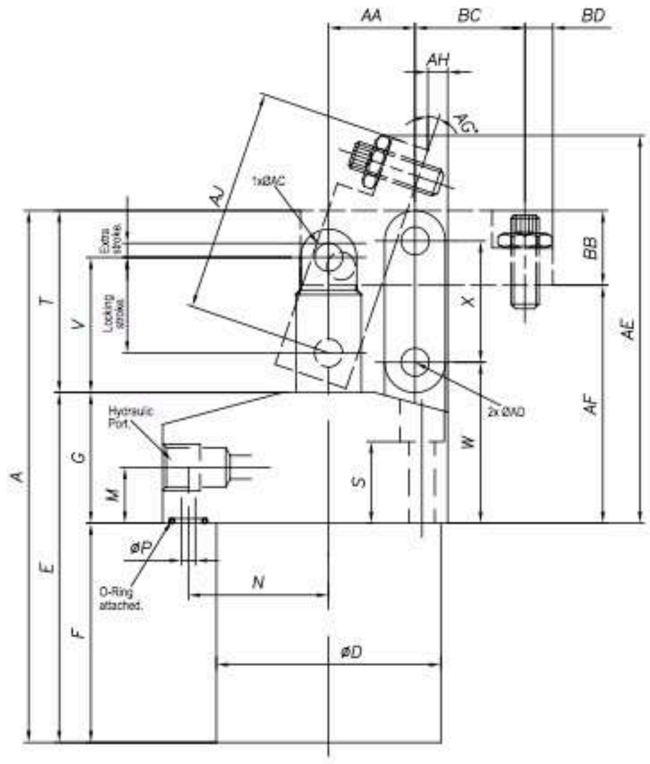
ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg.

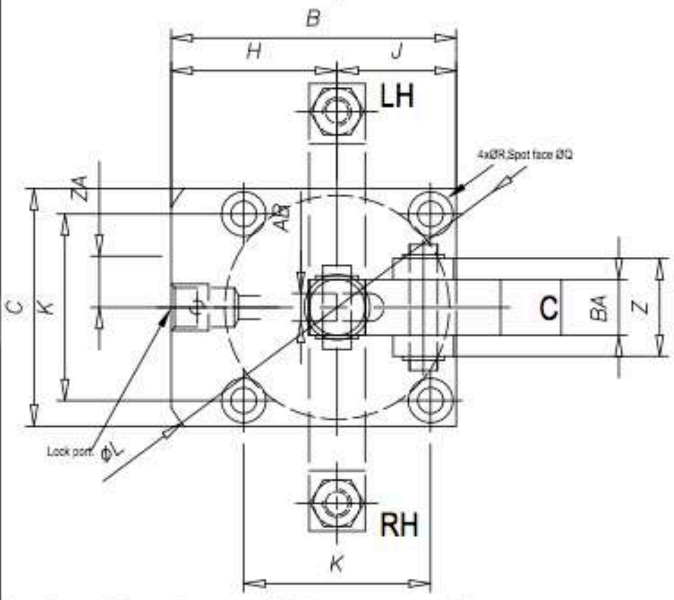
(Specifications subject to change)

CLASYS	DESIGNATION **LINK CLAMP CYLINDER** SINGLE ACTING	PRODUCT CODE **0403**

DESCRIPTION
SINGLE ACTING
ALLOY STEEL BODY WITH ANTI RUST COATING
FLANGE MOUNTING

LH, RH & CENTRE PORT CONFIG
CHROME PLATED PISTON ROD
MAX PRESSURE : 15MPa
MIN PRESSURE : 1 MPa



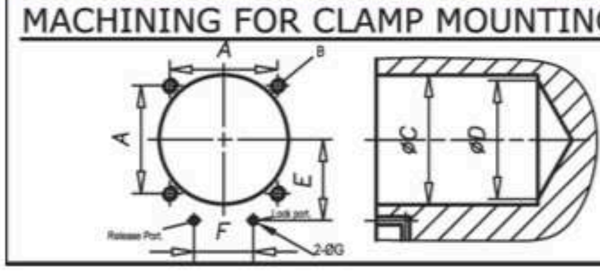


Model.	C	0403 0481	0403 0551	0403 0651	0403 0751	0403 0901	0403 1051
	RH	0403 0483	0403 0552	0403 0652	0403 0752	0403 0902	0403 1052
	LH	0403 0483	0403 0553	0403 0653	0403 0753	0403 0903	0403 1053
A		114	132.5	147	175	207	243
B		61	69	81	94.5	111	127
C		51	60	70	85	100	120
D		48	55	65	75	90	105
E		75	87	93	108	127	149
F		47	59	63	71	88	99
G		28	28	30	37	40	50
H		35.5	39	46	52	61	67
J		25.5	30	35	42.5	50	60
K		40	47	55	63	75	88
L		83	88	106	116	136	152
M		11	11	12	12	12	15
N_x		30	33.5	39.5	45	52.5	60
P		3	3	3	3	3	4
Q		9.5	11	11	14	17.5	20
R		5.5	6.8	6.8	9	11	14
S		17.5	15	15.5	19.5	19	24.5
T		35	37.5	45	55	65.5	77
U		14	16	18	22	28	35.5
V		29	31.5	37	45	52	62
W		34.5	35.5	39	48	52.5	64
X		26	30	35.5	43.5	52.5	64
Y		13	16	19	25	28	32
Z		21	28	37	40	49	64
Hyd. Port.		G1/8	G1/8	G1/4	G1/4	G1/4	G3/8
Link Lever.	AA	18.5	21	24.5	30	36	44
	AB	6	8	10	11	13	16
	AC	6	6	8	10	12	15
	AD	6	8	10	12	15	18
	AE	92.4	101.9	111.4	130.8	146.5	173.6
	AF	51	53.5	59	72	81	98
	AG°	18.9	19.9	20.5	21.4	22.4	23.1
	AH	4.3	4.7	4.3	4.5	5	4.1
	AJ	61.2	71.7	78.7	90.8	104.6	122.5
	BA	12	16	19	22	25	32
	BB	16	20	25	32	38	45
	BC	23.5	29	32	37.5	41.5	51
	BD	6	8	10	11	14	17

SPECIFICATIONS.

Lock cyl. area.		cm²	5.3	8.0	12.6	19.6	31.2	40.7
Full stroke.		mm	23.5	26	29.5	35	41	49
Locking stroke.		mm	20.5	23	26.5	32	38	46
Extra stroke.		mm	3	3	3	3	3	3
Cyl. volume.	At lock.	cm³	12.5	20.9	37.1	68.7	118.6	199.5
	At release.	cm³	8.9	15.7	29.6	55.4	93.2	151
Max. operating pressure.		MPa	7					
Min. operating pressure.		MPa	0.5					
Design pressure.		MPa	10.5					
Operating temp.		°C	0-70					
Weight.		Kg.	1.5	1.8	2.5	4.2	6.5	10.2

MACHINING FOR CLAMP MOUNTING.



A	40	47	55	63	75	88
B	M5	M6	M6	M8	M10	M12
C+0.2	48	55	65	75	90	105
D	45	50	60	70	85	100
E	30	33.5	39.5	45	52.5	60
F	22	24	30	32	37	45
G	3	3	3	3	3	4

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg.

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**LINK CLAMP CYLINDER HIGH FORCE** DOUBLE ACTING	**0407**

APPLICATION

LINK CLAMP 2.3 times higer froce for same pressure, hence allowing smaller sizes to be used. Space saving

NOTES

SAFTEY :

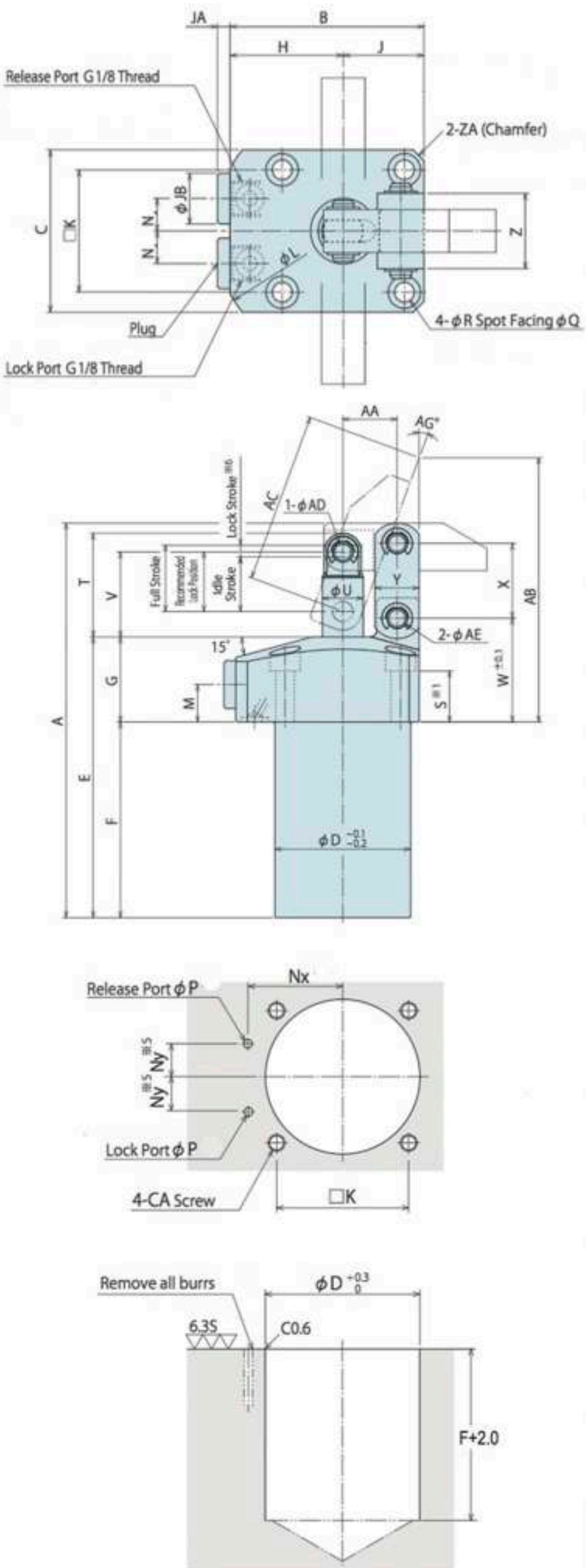
Operating Pressure :

Min Working pressure: 10bar

Max Working pressure: 80 bar

Model No.		0407 036x	0407 040x	0407 048x	0407 055x
Cylinder Force (at 7 MPa)	kN	3.5	4.8	7.6	11.6
Clamping Force (Calculation Formula)	kN	F=(5.5P)/(L-12)	F=(13.4P)/(L-15)	F=(25.1P)/(L-16)	F=(43P)/(L-19)
Holding Force (Calculation Formula)	kN	$F_h = 0.89 \times F_{act}$	$F_h = 0.92 \times F_{act}$	$F_h = 0.93 \times F_{act}$	$F_h = 0.95 \times F_{act}$
Full Stroke	mm	17.5	19.5	22.5	25
Idle Stroke	mm	15.5	17.5	20.5	23
Reserve Stk	mm	2	2	2	2
Cylinder Capacity cm^3 Lock		7.3	11.5	21.0	33.6
Cylinder Capacity cm^3 Release		5.9	9.3	17.5	28.6
Max. Operating Pressure	MPa	6			
Min. Operating Pressure	MPa	0.5			
Withstanding Pressure	MPa	9.0			
Operating Temperature	℃	0 ～ 70			
Usable Fluid		General Hydraulic Oil Equivalent to ISO-68			
Mass	kg	0.7	0.9	1.4	1.9

LAYOUT DRAWING



(mm)

Model No.	0407 036x	0407 040x	0407 048x	0407 055x
Full Stroke	17.5	19.5	22.5	25
Idle Stroke	15.5	17.5	20.5	23
Reserve Stroke	2	2	2	2
Recommended Lock Position	16	17.5	20.5	23
A	105	117.5	133	145.5
B	49	54	61	69
C	40	45	51	60
D	36	40	48	55
E	74.5	82.5	92	98.5
F	49.5	57.5	64	70.5
G	25	25	28	28
H	29	31.5	35.5	39
J	20	22.5	25.5	30
K	31.4	34	40	47
L	66	72	81	88
M	11	11	12	12
Nx	23.5	26	30	33.5
Ny	8	9	11	12
P	max.3	max.3	max.3	max.3
Q	7.5	9	9	11
R	4.5	5.5	5.5	6.8
S	15.5	15	16	13.5
T	27	30.5	35	38
U	10	12	14	16
V	22.5	25	29	31.5
W	30	30.5	34.5	35.5
X	20	22	26	30
Y	11	13	14	18
Z	19	21	26	31
AA	14.5	16	18.5	21
AB	74.3	77.7	92.4	101.9
AC	47.3	50.2	61.2	71.7
AD	5	6	6	7
AE	5	6	7	8
AG	19.6	20.2	18.9	19.9
CA (Nominal×Pitch)	M4×0.7	M5×0.8	M5×0.8	M6×1
JA	3.5	3.5	3.5	3.5
JB	14	14	14	14
ZA (Chamfer)	C2	C3	C3	C3
Mass kg	0.7	0.9	1.4	1.9

ORDERING METHOD.

PRODUCT CODE-MODEL NO.

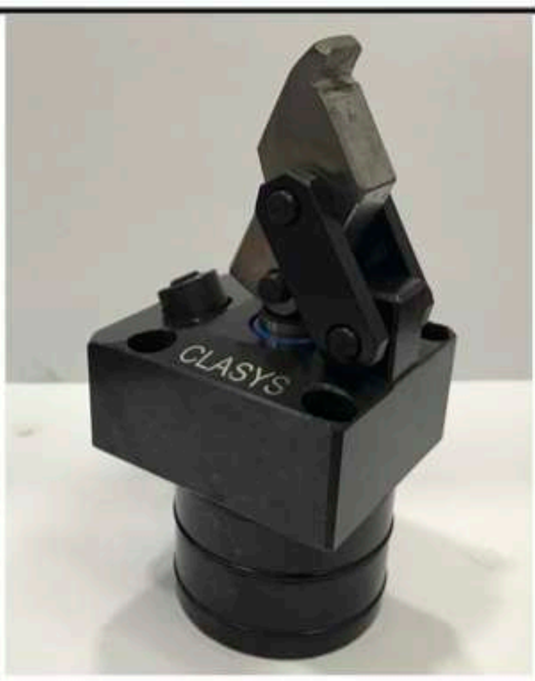
Eg. 0407 0361

PORT CODE

CENTRE : 0XX1
RIGHT : 0XX2
LEFT : 0XX3

(Specifications subject to change)

DESIGNATION	PRODUCT CODE
LINK CLAMP WITH CLAMP SENSING DOUBLE ACTING	**0408**



APPLICATION
LINK CLAMP CYLINDER WITH CLAMP CONFIRMATION b
AIR SEAT sensor operation

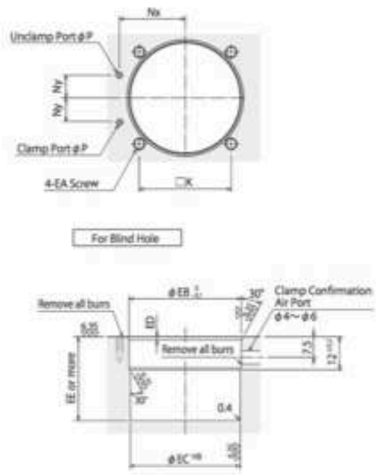
OPERATION
Connect the LINK CLAMP as normal. INPUT AIR at 2 bar
in alternating positions (clamp & de-clamp)
Supply input oil @ higher pressure into INLET PORT- CLAM
Air is "ON" at de-clamp side thus giving signal at CLAMP pos

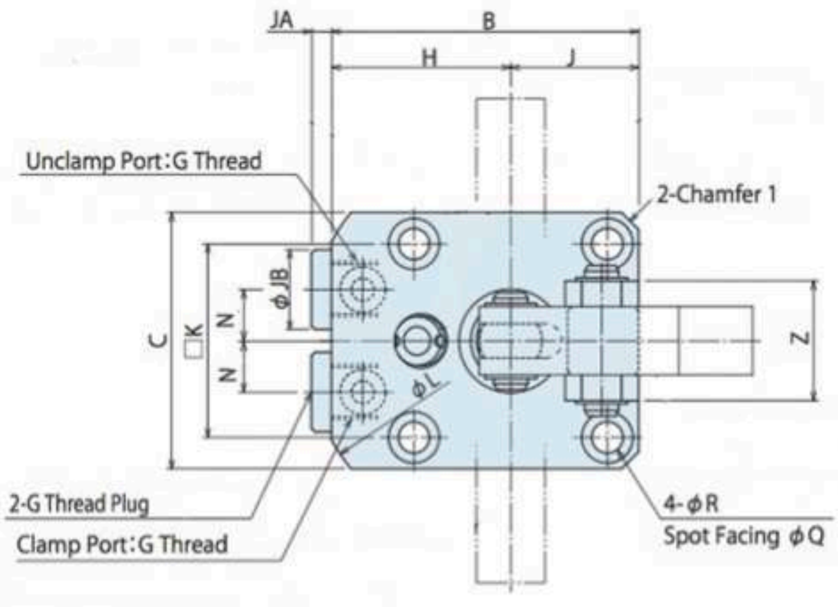
Supply OIL to de-clamp side with AIR INPUT on clamp side
AIR Sensor indicates PISTON in DE-CLAMP pos.

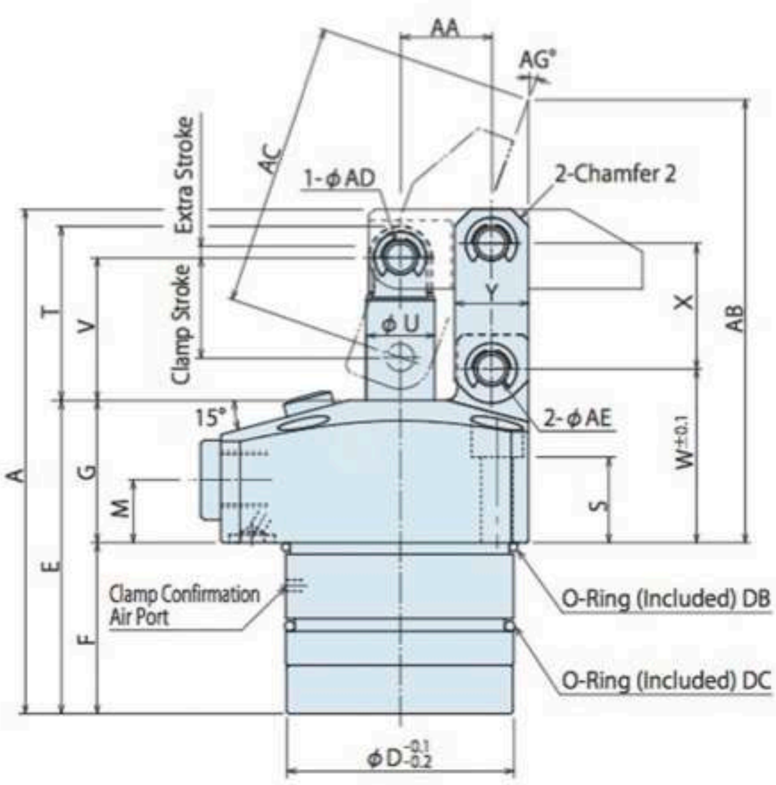
NOTES:
Operating Pressure :
Min Working Pressure: 5bar
Max input pressure: 150 bar
Air Input Pressure : 2-4 bar
Please provide air only in port at a time..

PORT CODE
CENTRE : 0XX1
RIGHT : 0XX2
LEFT : 0XX3

MODEL CODE		0408 040x	0408 048x	0408 055x	0408 065x
Cylinder Area for Clamping	cm^2	5.31	7.07	9.62	15.9
Clamping Force (Calculation Formula) ※1	kN	$F=\frac{7.64 \times P}{L-16}$	$F=\frac{11.76 \times P}{L-18.5}$	$F=\frac{18.18 \times P}{L-21}$	$F=\frac{35.06 \times P}{L-24.5}$
Cylinder Capacity cm^3	Clamp	10.9	16.6	25.0	46.9
	Unclamp	8.6	13.0	19.8	37.7
Full Stroke	mm	20.5	23.5	26	29.5
Clamp Stroke	mm	17.5	20.5	23	26.5
Extra Stroke	mm	3	3	3	3
Maximum Operating Pressure	MPa	7.0			
Minimum Operating Pressure ※2	MPa	1.5			
Withstanding Pressure	MPa	10.5			







MODEL CODE	0408 040x	0408 048x	0408 055x	0408 065x
Full Stroke	20.5	23.5	26	29.5
Clamp Stroke	17.5	20.5	23	26.5
Extra Stroke	3	3	3	3
A	92.5	103.5	110.5	124.5
B	54	61	69	81
C	45	51	60	70
D	40	48	55	65
E	59	64.5	65	70.5
F	34	36.5	37	40.5
G	25	28	28	30
H	31.5	35.5	39	46
J	22.5	25.5	30	35
K	34	40	47	55
L	72	81	88	106
M	11	12	12	13
Nx	26	30	33.5	39.5
Ny	9	11	12	15
P	3	3	3	5
Q	9	9	11	11
R	5.5	5.5	6.8	6.8
S	15	16	13.5	16
T	30.5	35	37.5	45
U	12	14	16	20
V	25	29	31.5	37
W	30.5	34.5	35.5	39
X	22	26	30	35.5
Y	13	13	16	19
Z	21	24	28	37
Chamfer 1	C3	C3	C3	C4
Chamfer 2	C3	C3	C3	C5
AA	16	18.5	21	24.5
AB	77.7	92.4	101.9	111.4
AC	50.2	61.2	71.7	78.7
AD	6	6	6	8
AE	6	6	8	10
AG	20.2	18.9	19.9	20.5
EA (Nominal×Pitch)	M5×0.8	M5×0.8	M6×1	M6×1
FA	40.8	49	56	66
FB	$40^{+0.039}_{0}$	$48^{+0.039}_{0}$	$55^{+0.046}_{0}$	$65^{+0.046}_{0}$
FC	1.2	1.2	1.5	1.5
FD	40.6	48.6	55.6	65.6
FE	30	32	30	30
FF	34.5	37	37.5	41
JA	3.5	3.5	3.5	4.5
JB	14	14	14	19
Clamp Port : G Thread Unclamp Port : G Thread	G1/8	G1/8	G1/8	G1/4

ORDE...
PRODUCT CODE-MODEL NO.
Eg. 0408 0481

(Specifications subject to change)

DESIGNATION

SEQUENCE VALVE

Hydraulic (External Port)

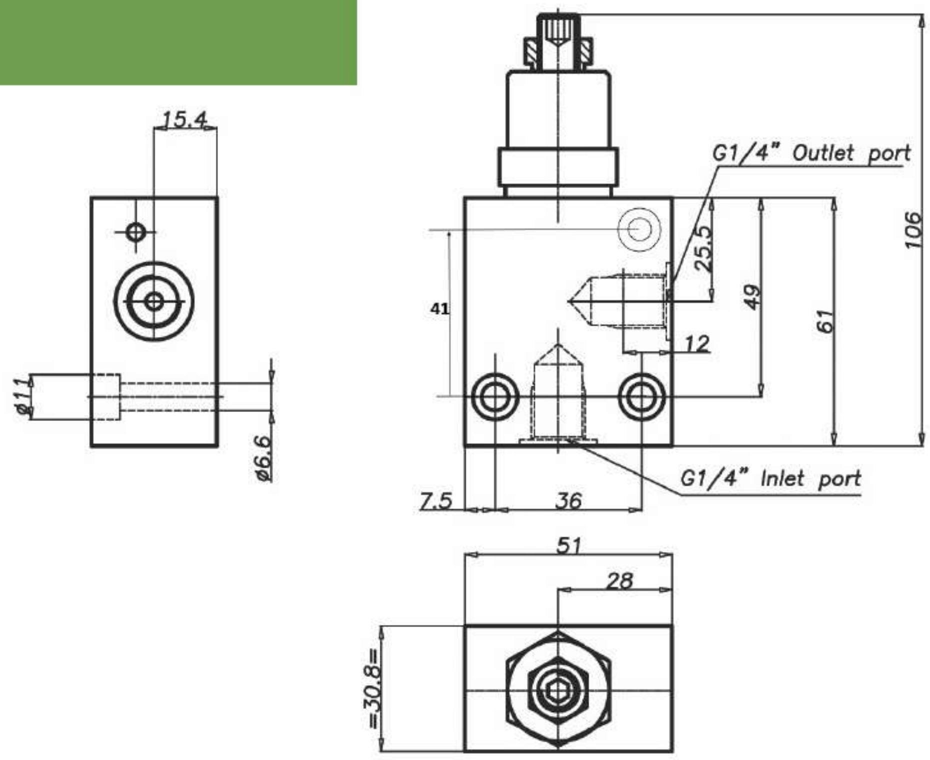
PRODUCT CODE

0501 0101

DESCRIPTION :

Compact design
Cartridge type Insert
Space saving mounting
G¼ Port available on manifold
Alloy steel body
External Piping Option

Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa



APPLICATION

Used in circuits to operate multiple actuators in a particular Pressure dependant sequence.

Used for positioning and creating delays in actuation.

Compact design allows for direct mounting on the fixture.

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0501–0101.

DESIGNATION

SEQUENCE VALVE

Hydraulic (Internal Port)

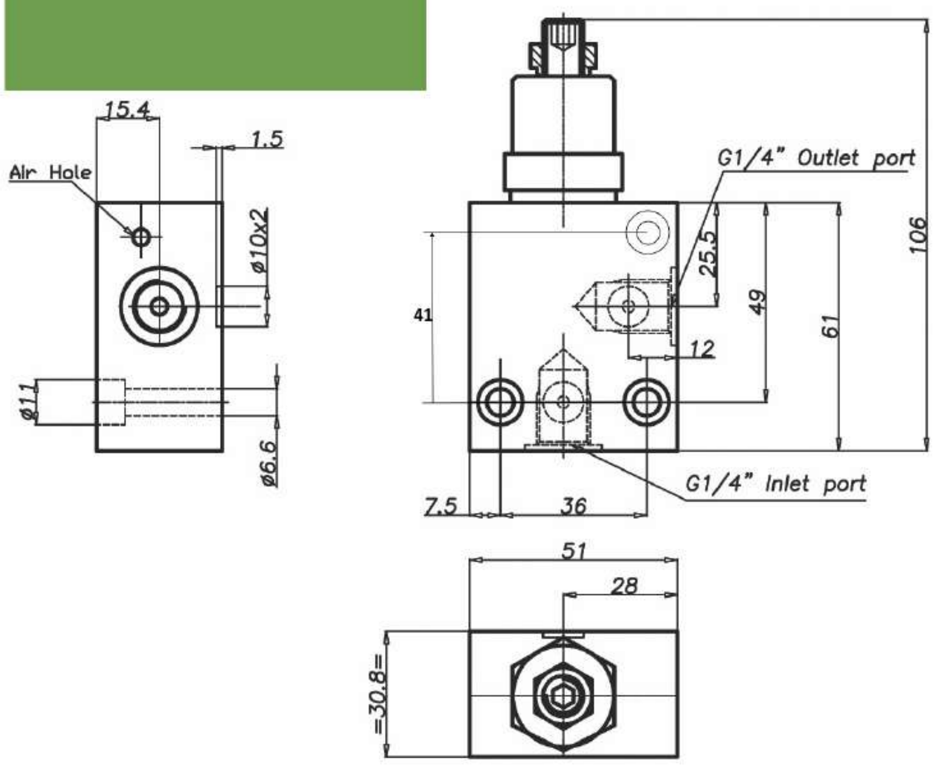
PRODUCT CODE

0501 0201

DESCRIPTION :

Compact design
Cartridge type Insert
Space saving mounting
G¼ Port available on manifold
Alloy steel body
Internal Piping Option

Min Operating Pressure : 1Mpa
Max Operating Pressure : 15Mpa



APPLICATION

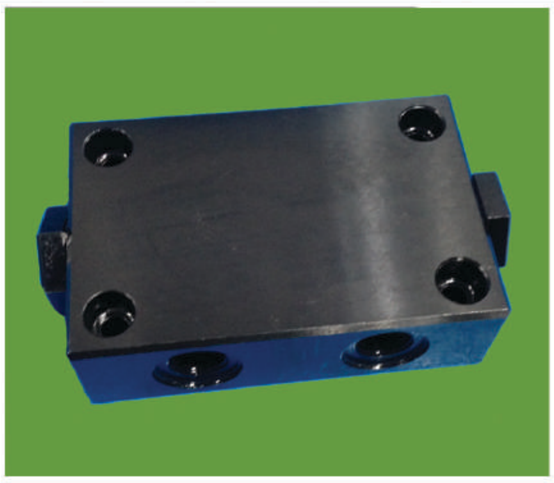
Used in circuits to operate multiple actuators in a particular Pressure dependant sequence.

Used for positioning and creating delays in actuation.

Compact design allows for direct mounting on the fixture.

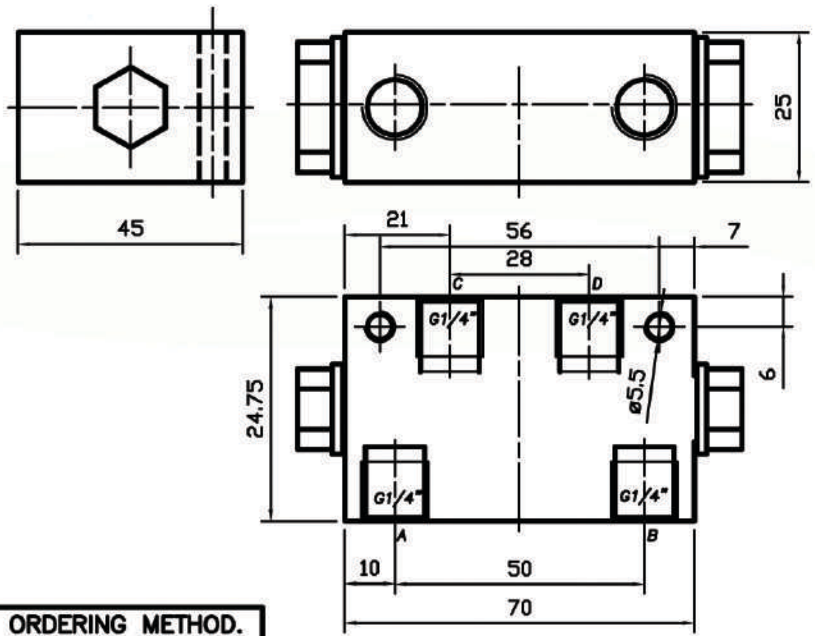
ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0501–0201.

	DESIGNATION	PRODUCT CODE
CLASYS	DOUBLE PILOT CHECK VALVE (Manifold connection included)	0601 0101



DESCRIPTION :
Compact design
Space saving mounting
G¼ Port connectors available on manifold
QRC connection possible on manifold
Alloy steel body

Min Operating Pressure : 1Mpa
Max Operaing Pressure : 15Mpa



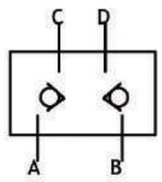
ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 0601–0101.

APPLICATION

Used in circuits to retain oil under pressure inside the circuit once the Power source is cut

Provision for direct connection of Inlet & Oulet lines

Compact design allows for direct mounting on the fixture base

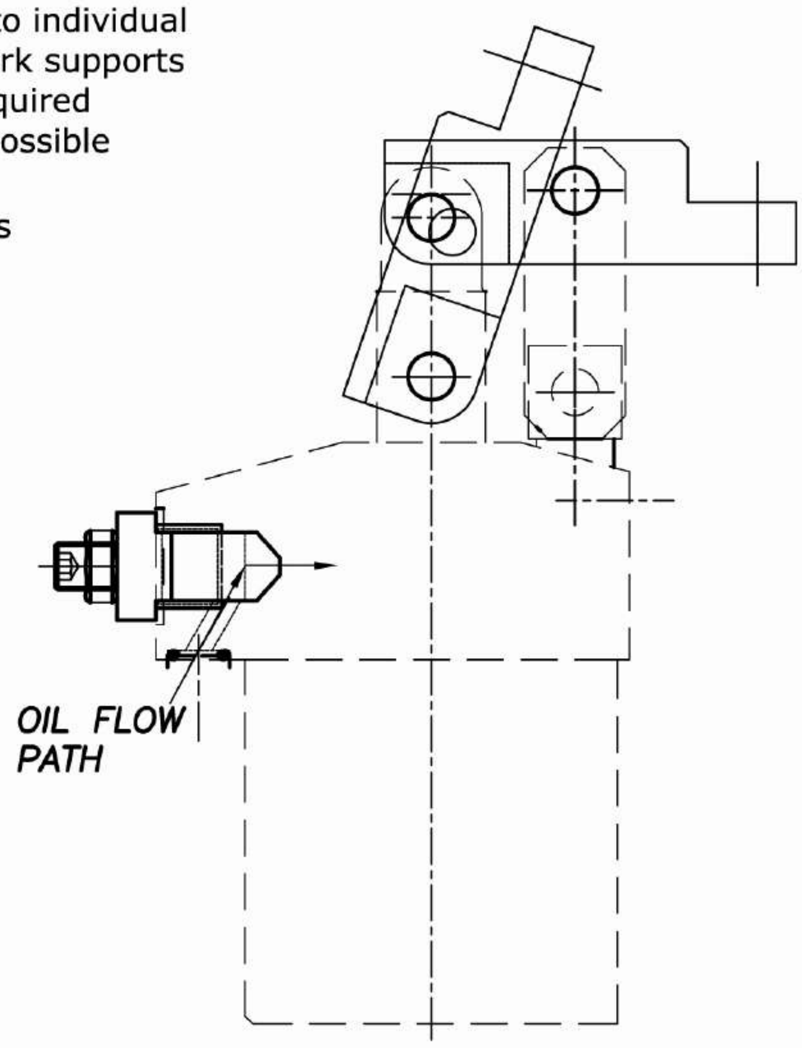


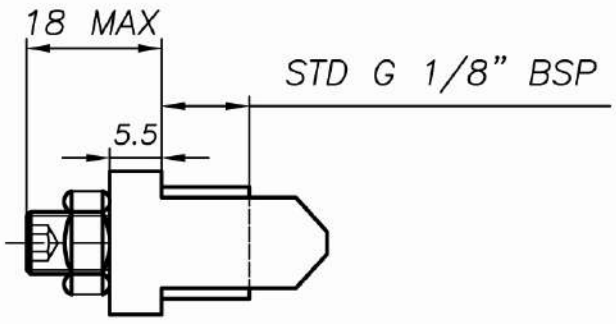
	DESIGNATION	PRODUCT CODE
CLASYS	FLOW CONTROL VALVE Hydraulic (Internal Mounting)	0701

DESCRIPTION :
Compact design
Can be directly mounted on to individual elements like cylinders or work supports
No External speed control required
Easy Individual adjustment possible
Alloy steel body
Available in G⅛, G¼, G⅜ sizes

Max Flow allowed : 10lpm

APPLICATION





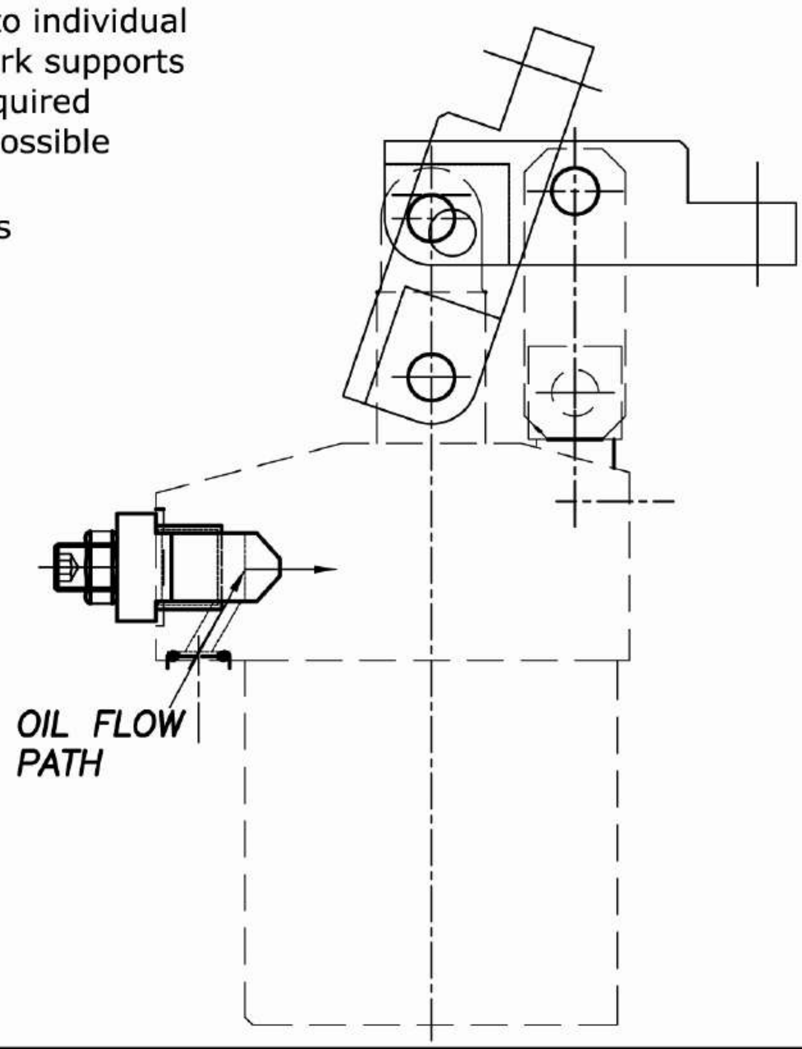
ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 0701–0101.

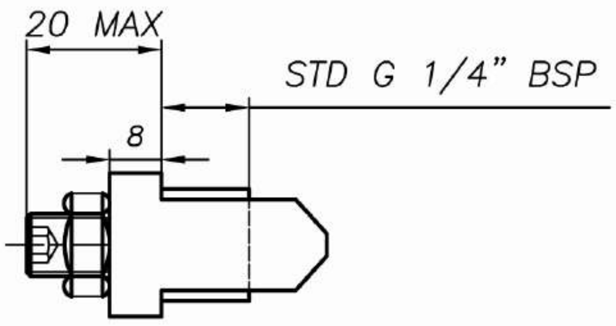
	DESIGNATION	PRODUCT CODE
CLASYS	FLOW CONTROL VALVE Hydraulic (Internal Mounting)	0701

DESCRIPTION :
Compact design
Can be directly mounted on to individual elements like cylinders or work supports
No External speed control required
Easy Individual adjustment possible
Alloy steel body
Available in G⅛, G¼, G⅜ sizes

Max Flow allowed : 10lpm

APPLICATION





ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 0701–0102.

	DESIGNATION	PRODUCT CODE
CLASYS	**ROTARY JOINT** HYDRAULIC OIL MEDIUM	**0801**

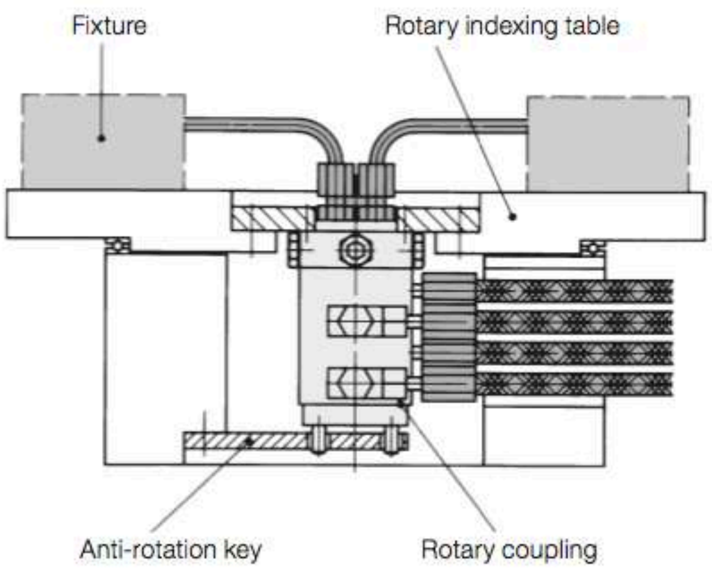
DESCRIPTION:

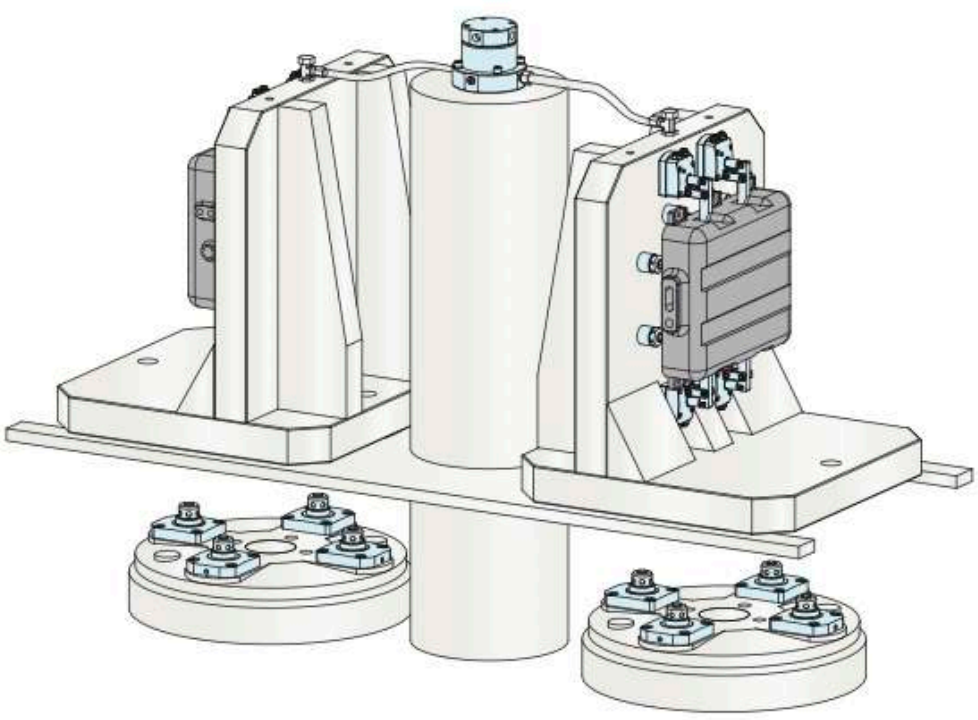
1. COMPACT DESIGN
2. SINGLE SCREW MOUNTING AS STANDARD
3. MAX PRESSURE : 15 MPa
4. MIN PRESSURE : 1 MPa
5. FLOW RATE UPTO 22.5LPM
6. MULTIPLE INPUT PORT OPTIONS
7. FLANGE MOUNTING OPTIONS AVAILABLE
8. MAX RPM : 500 (OPTIONAL UPTO 6000 RPM)
9. SPECIAL COATING FOR JOINTS USING COOLANT
10. WORKING TEMPERATURE UPTO 100˚C

APPLICATION :

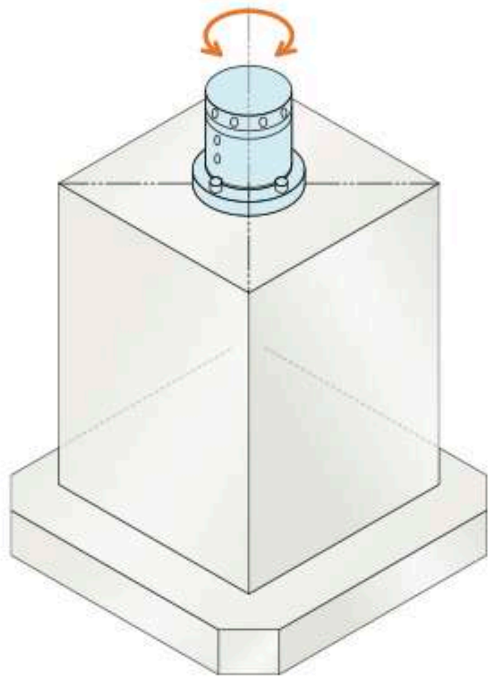
***CONTINUOUS CONNECTION FOR OIL / AIR / COOLANT * IN ROTARY AXIS LINE**
***CONNECTION FROM EXTERNAL POWER PACK TO BOTH PALLETS ON AN HMC OR VMC WITH ROTARY PALLET CHANGER**
***CONNECTION TO MULTIPLE SIDES OF A STRUCTURE FOR OIL**

APPLICATION EXAMPLES :





On Rotary Table



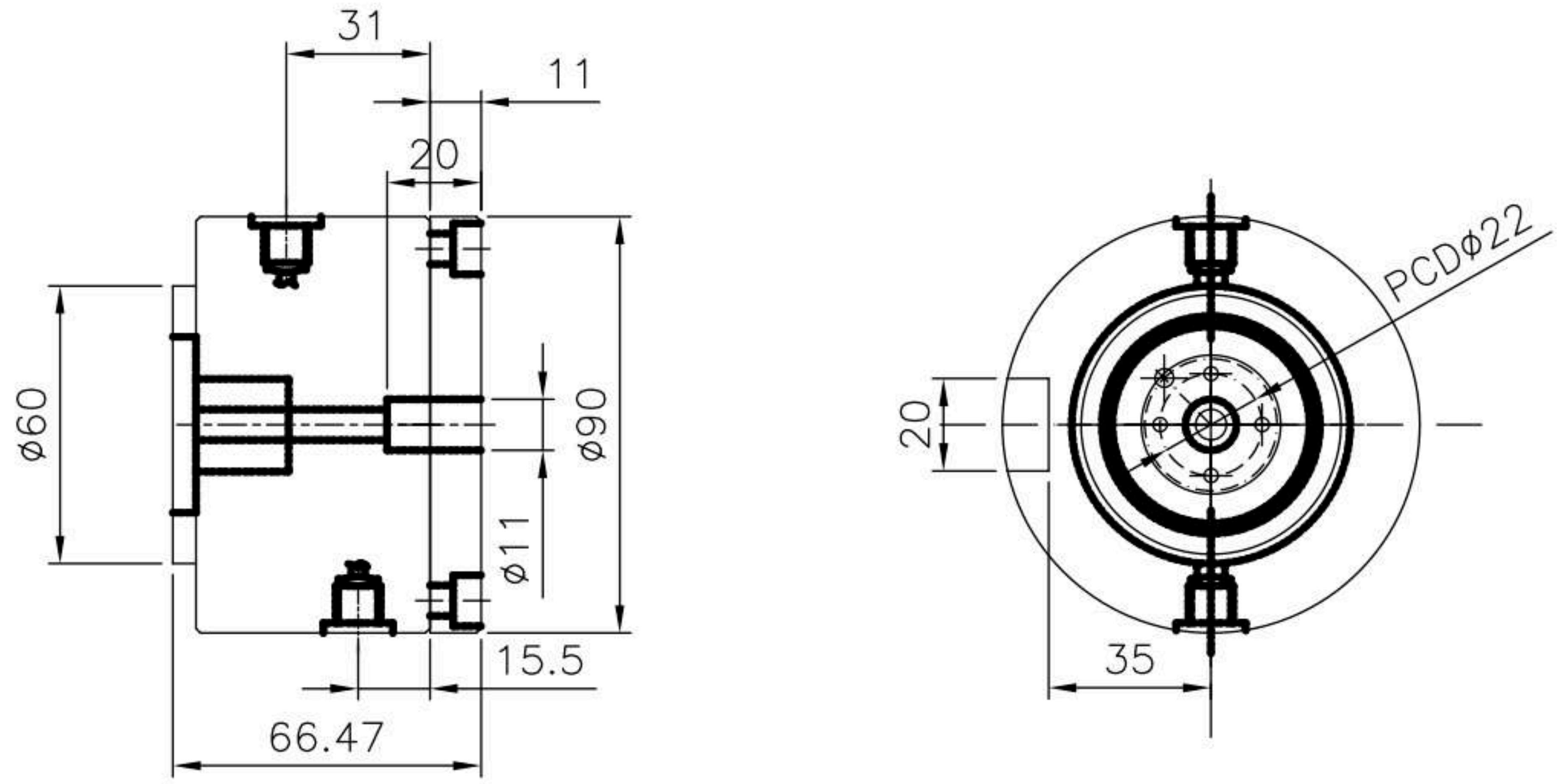
On Angle Plate Fixture

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0801 0101

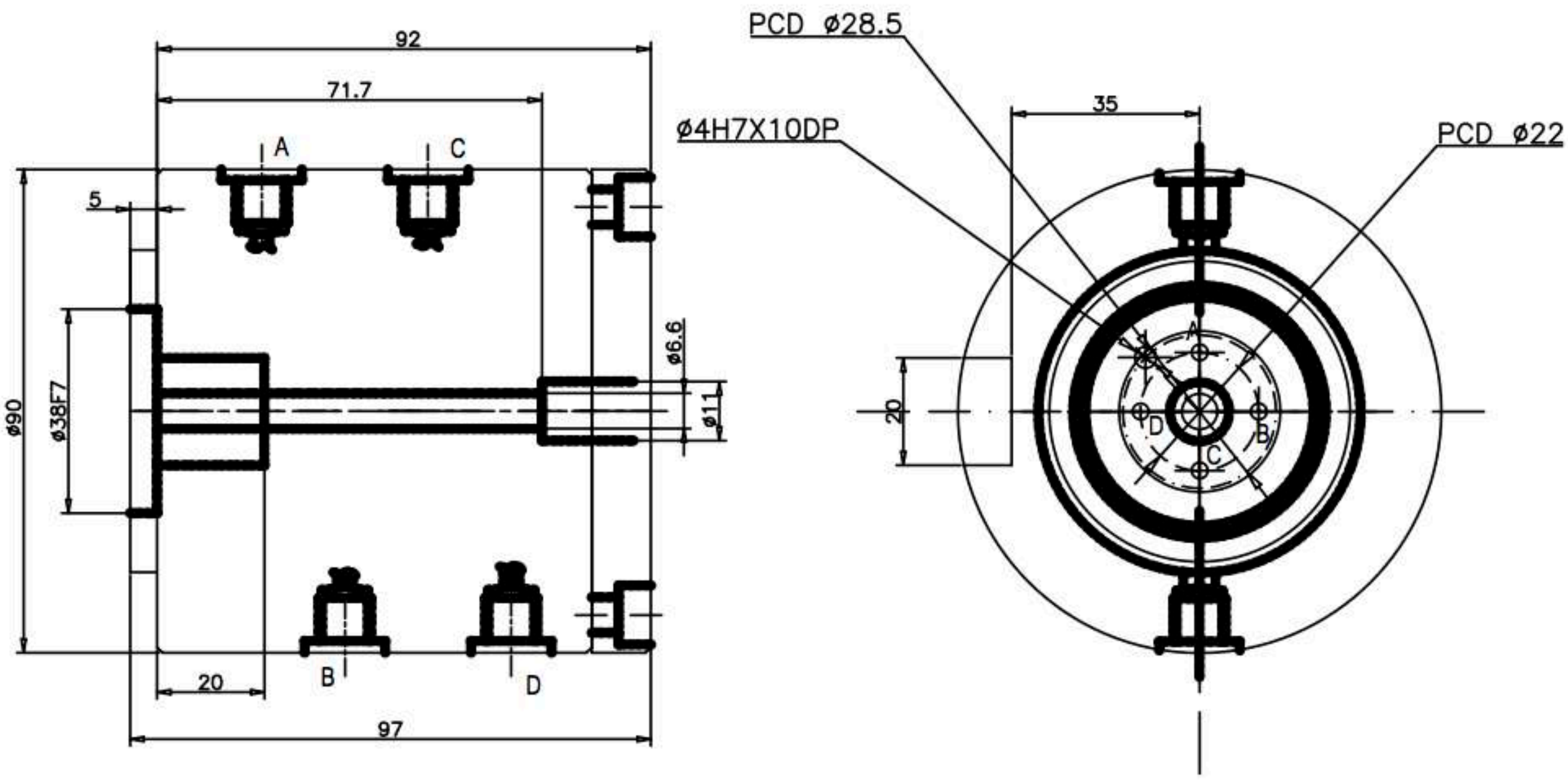
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**ROTARY JOINT** HYDRAULIC OIL MEDIUM	**0801**

2 PORT ROTARY JOINT LAYOUT



4PORT ROTARY JOINT LAYOUT



ORDERING METHOD.
PRODUCT CODE-MODEL NO. Eg. 0801 0101

CLASYS

DESIGNATION

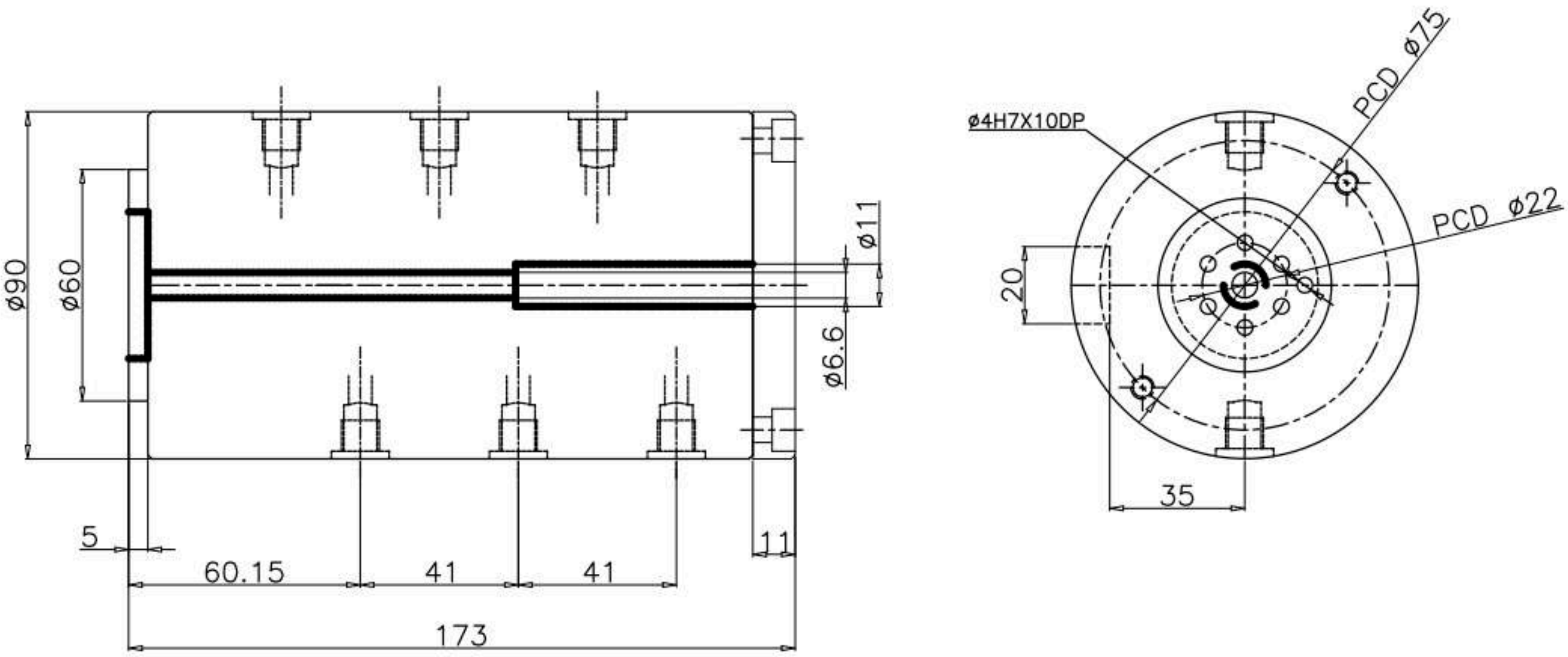
ROTARY JOINT

HYDRAULIC OIL MEDIUM

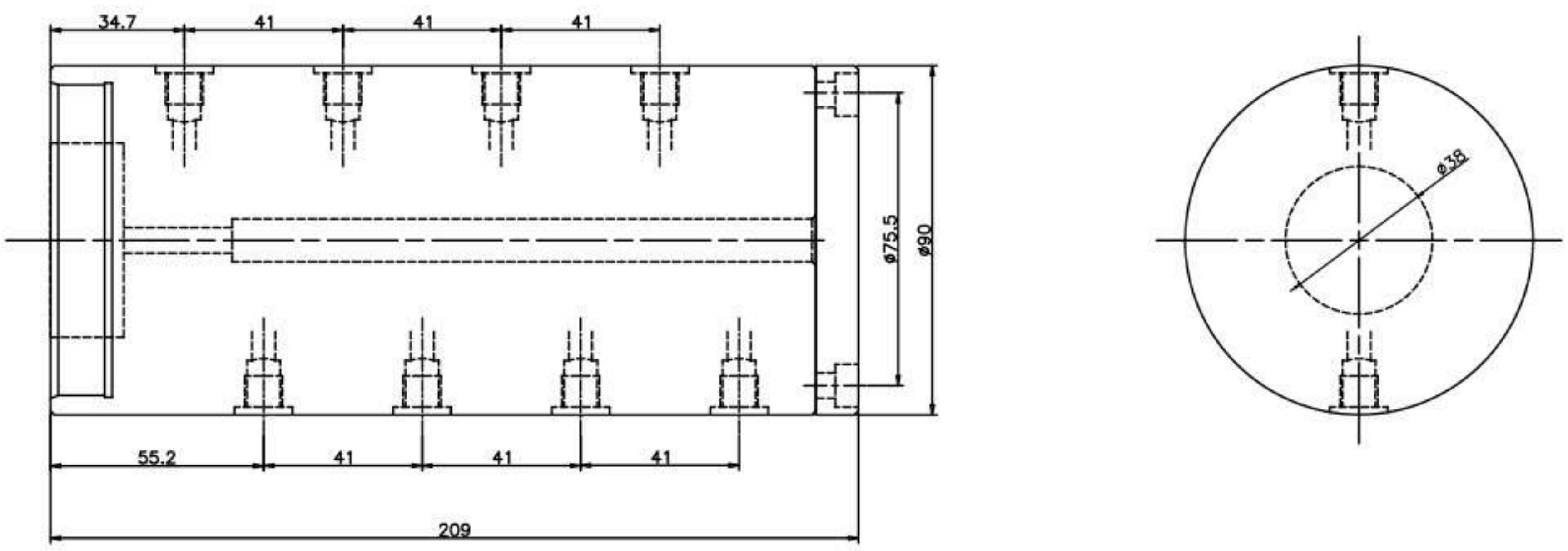
PRODUCT CODE

0801

6 PORT ROTARY JOINT LAYOUT

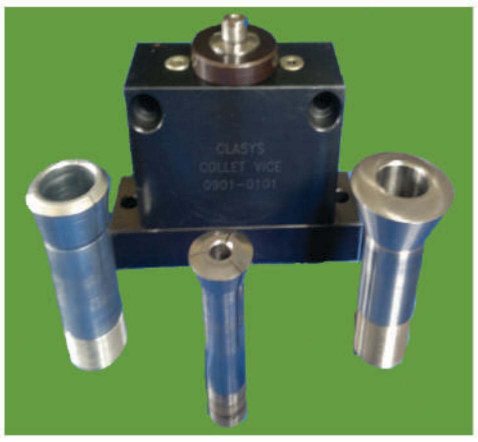


8 PORT ROTARY JOINT LAYOUT



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 0801 0101

	DESIGNATION	PRODUCT CODE
CLASYS	COLLET VICE Hydraulic (Tenon Mounting)	0901 0101

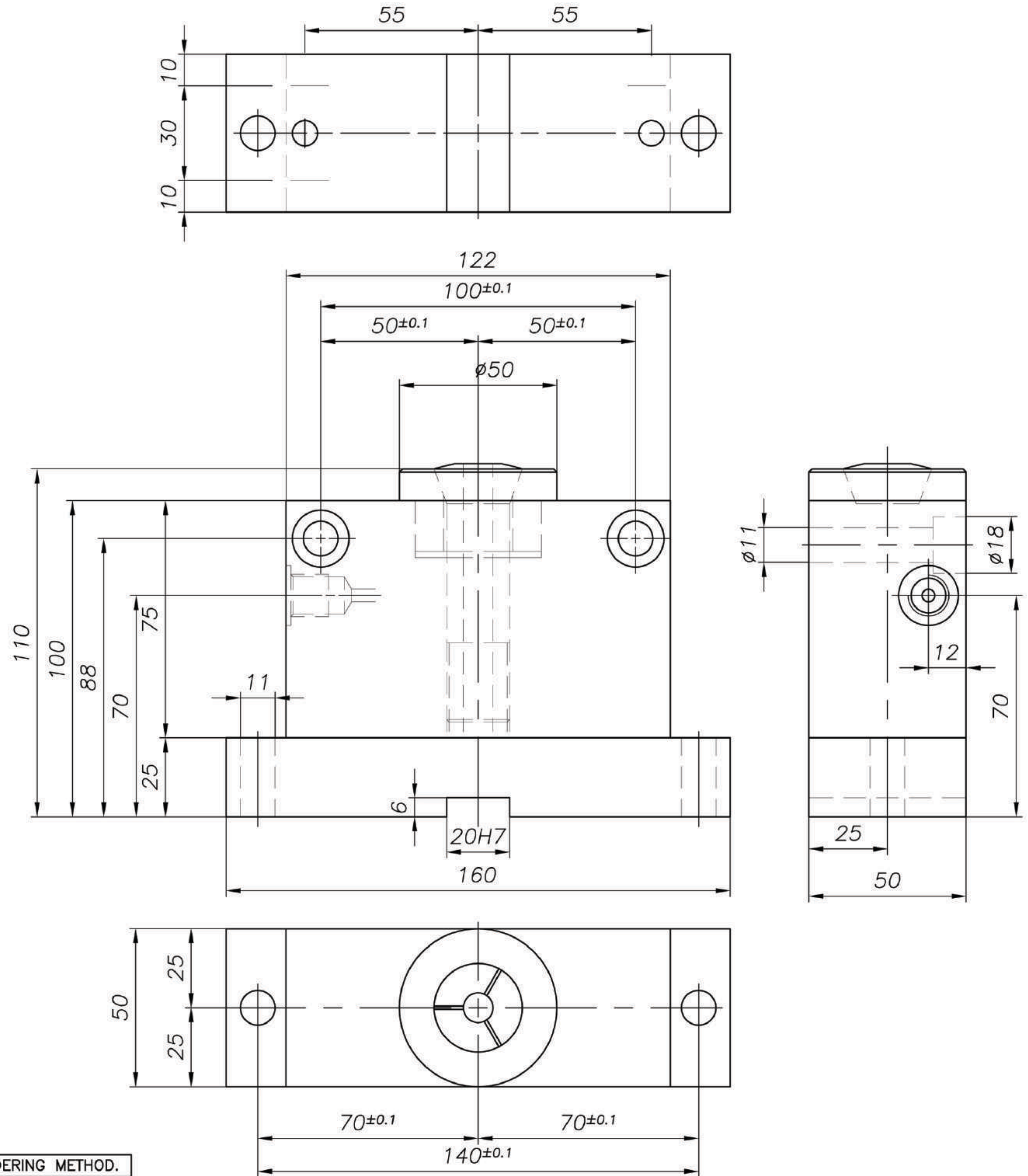


DESCRIPTION :

Max. Clamping Force, axial (kN) : 8.5
Max. Clamping Force, Radial(kN): 85
Max. Operating Pressure (Mpa) : 10
Clamping Range of Collet (mm) : Ø 01-26
Max. Oil Flowrate (cm³/s) : 20
Max. Oil volume/clamping stroke (cm³): 1.5
Weight (kg) : 4.3

APPLICATION :

Used in circuits to clamp work pieces by Pull Down method
Can clamp a wide range of components ranging from squares to hex shaped
Compact design allows for direct mounting on the fixture, even multiple loading
Single Acting.Collet is reset by spring.



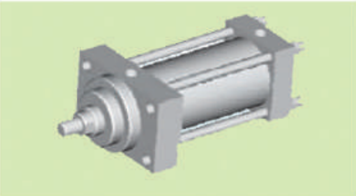
ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 0901–0101.

(Specifications subject to change)

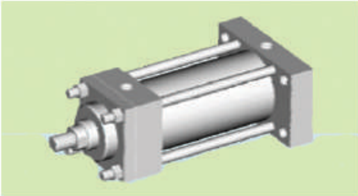
DESIGNATION
TIE ROD CYLINDER
Hydraulic

PRODUCT CODE
1001 0101

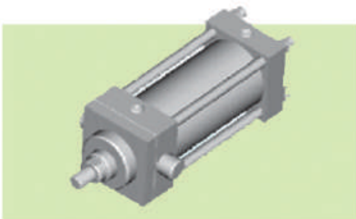
ME5 - Head Mounting Rectangular



ME6 Cap Mounting Rectangular

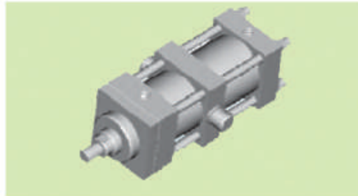


MT1 - Head Mounting Integral Trunnion

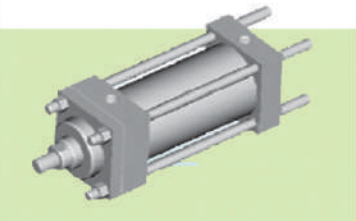


MT2- Cap Mounting Integral Trunnion

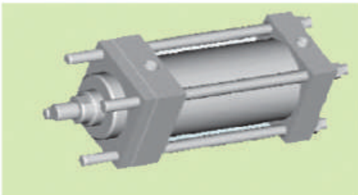
MT4- Mounting with Intermediate Fixed Trunnion



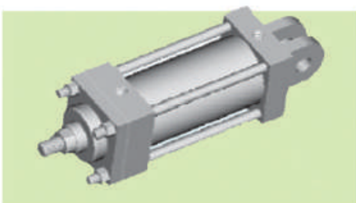
MX2- Cap Mounting Tie Rods Extended



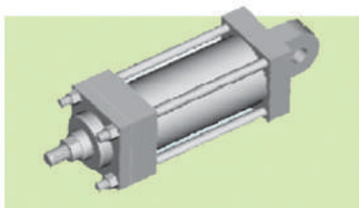
MX3- Head Mounting Tie Rods Extended



MP1- Cap Mounting Fixed Clevis



MP3- Cap Mounting Fixed Eye

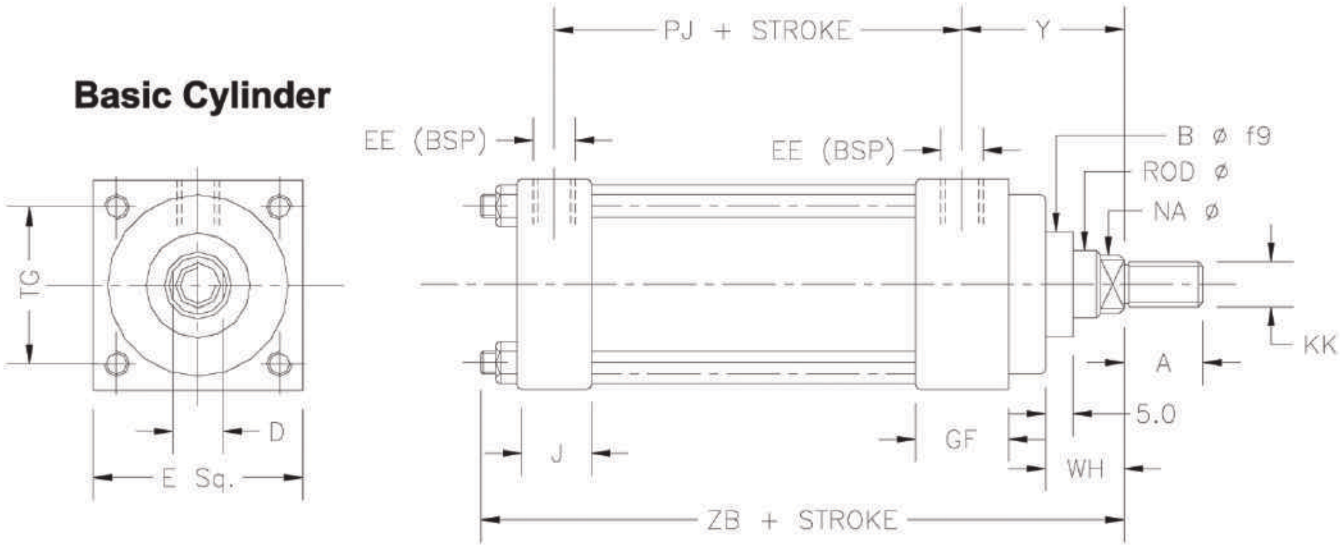


MS2 - Mounting with Side Lugs

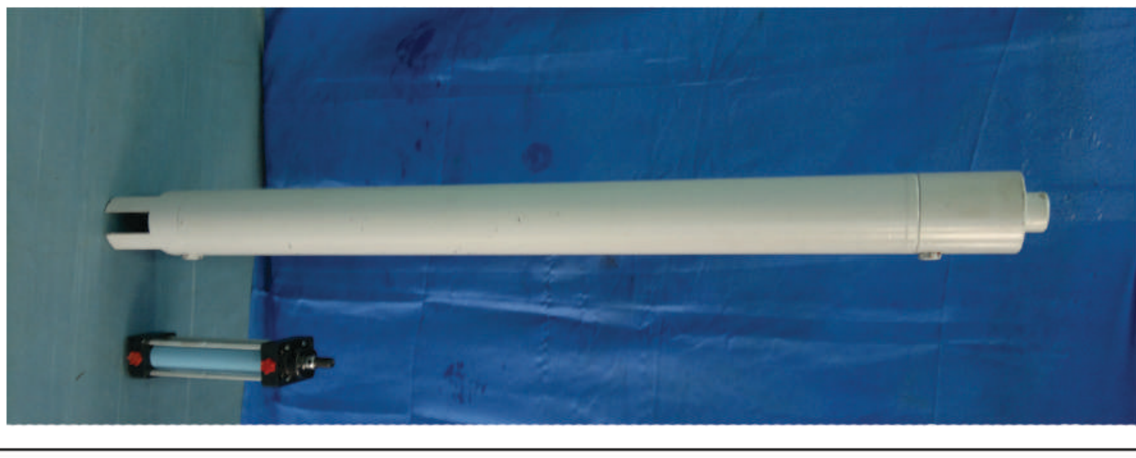
Specifications

- Max. pressure - 160 bar.
- Max reciprocating speed - 12 m/min.
- Break-away pressure - 3 to 5 bar.
- Standard cushioning length - 20 mm.
- Minimum cushioning speed - 400 mm/min or less adjustable.
- **Cushioning is available from 63 mm bore onwards only.**
- For Bronze filled teflon seals, min. speed without stick-slip - 5 mm/min.

Basic Cylinder



BORE	ROD		A		B		D		E	EE	GF	J	KK		NA		PJ	TG	WH	Y	ZB
25	12		14		24		10		40	1/4"	35	20	M 10 x 1.25		11		53	28.3	15	50	121
40	18	28	18	28	30	42	15	22	63	3/8"	39	30	M 14 x 1.5	M 20 x 1.5	17	26	73	41.7	25	62	166
50	22	36	22	36	34	50	18	30	75	1/2"	40	32	M 16 x 1.5	M 27 x 2	21	34	74	52.3	25	67	176
63	28	45	28	45	42	60	22	36	90	1/2"	37	32	M 20 x 1.5	M 33 x 2	26	43	80	64.3	32	71	185
80	36	56	36	56	50	72	30	46	115	3/4"	44	38	M 27 x 2	M 42 x 2	34	54	93	82.7	31	77	212
100	45	70	45	63	60	88	36	60	130	3/4"	43	38	M 33 x 2	M 48 x 2	43	68	101	96.9	35	82	225



	DESIGNATION	PRODUCT CODE
CLASYS	TIE ROD CYLINDER Hydraulic	1001 0101

APPLICATION ;

Used to clamp work pieces using Push or Pull method

Can clamp a wide range of components
Can be used in assembly automation.

Design allows for direct mounting on the application.

Various combination of endings & Mountings are possible.

Hard Chrome Plated & Ground Piston for improved working life

Use of International quality seals for increased life of cylinder

FEATURES :

Min operating pressure : 0.5Mpa

Max operating pressure : 16Mpa

High finish on cylinder tube for long seal life

All cylinders conform to ISO standards

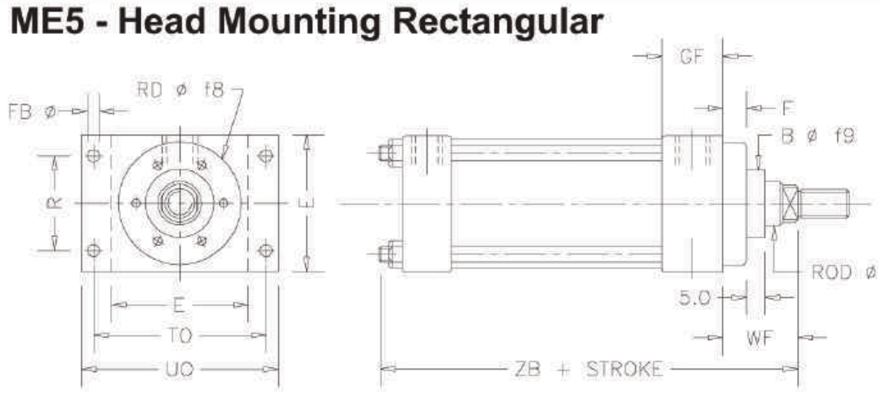
Cushioning available from Higher bore (Ø63) only.

How to Order :

CL-(bore)x(stroke)x(rodØ)-(ending)

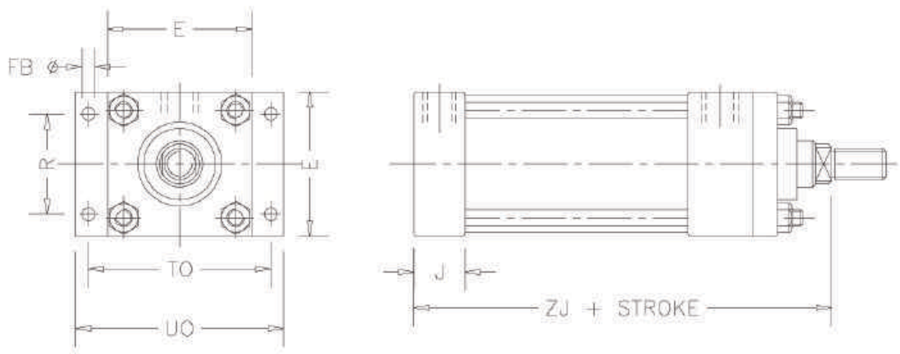
eg: CL-25x400x16-MX3

ME5 - Head Mounting Rectangular



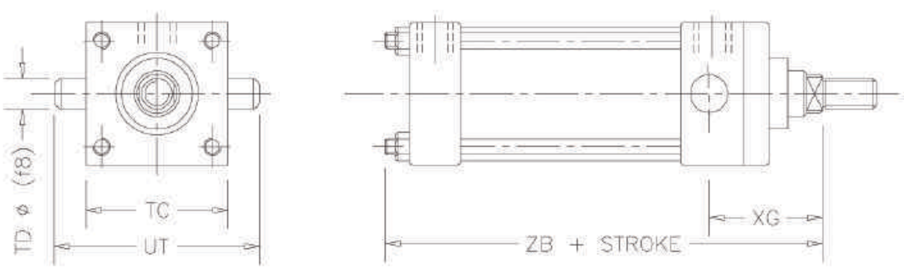
BORE	ROD		F	FB	R	RD		TO	UO	WF
25	12		10	5.5	27	38		51	65	25
40	18	28	10	11	41	62	62	87	110	35
50	22	36	16	14	52	74	74	105	130	41
63	28	45	16	14	65	75	88	117	145	48
80	36	56	20	18	83	82	105	149	180	51
100	45	70	22	18	97	92	125	162	200	57

ME6 Cap Mounting Rectangular



BORE	E	FB	J	R	TO	UO	ZJ
25	40	5.5	20	27	51	65	114
40	63	11	30	41	87	110	153
50	75	14	32	52	105	130	159
63	90	14	32	65	117	145	168
80	115	18	38	83	149	180	190
100	130	18	38	97	162	200	203

MT1 - Head Mounting Integral Trunnion



BORE	TC	TD	UT	XG	ZB
25	38	12	58	44	121
40	63	20	95	57	166
50	76	25	116	64	176
63	89	32	139	70	185
80	114	40	178	76	212
100	127	50	207	71	225

DESIGNATION

TIE ROD CYLINDER

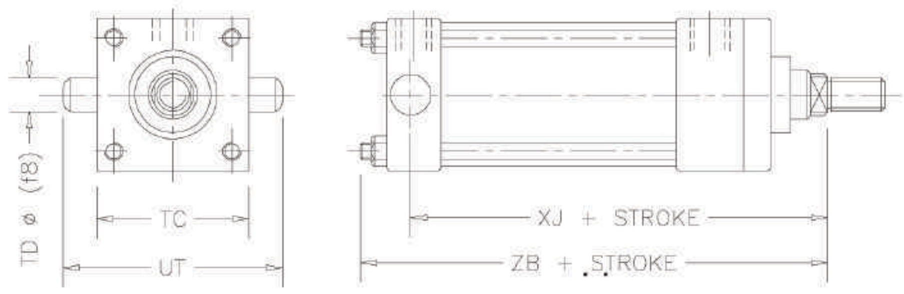
Hydraulic

PRODUCT CODE

1001 0101

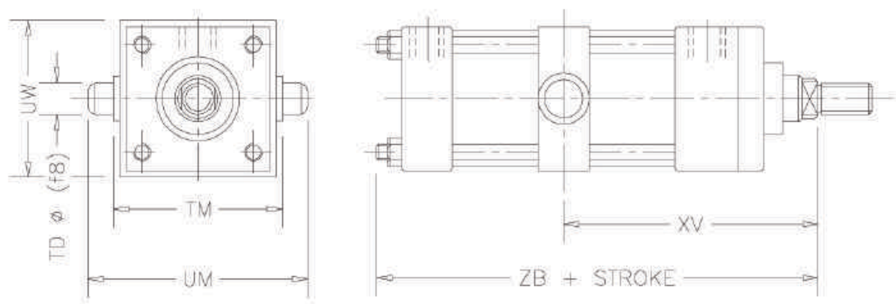
MT2- Cap Mounting Integral Trunnion

BORE	TC	TD	UT	XJ	ZB
25	38	12	58	101	121
40	63	20	95	134	166
50	76	25	116	140	176
63	89	32	139	149	185
80	114	40	178	168	212
100	127	50	207	187	225



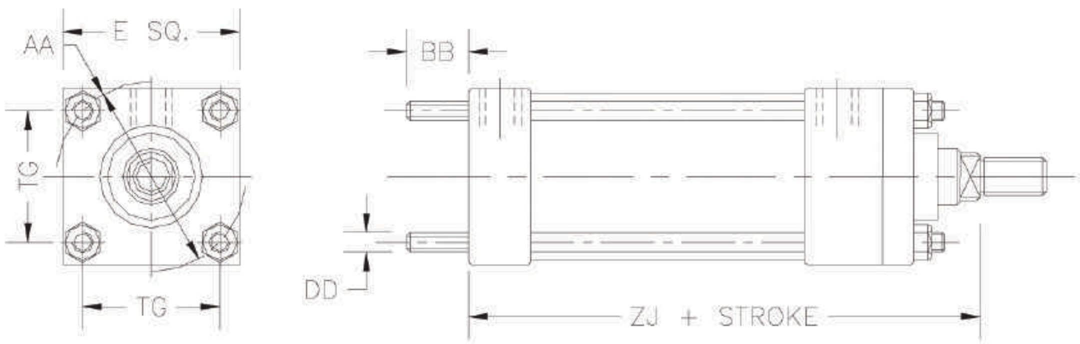
MT4- Mounting with Intermediate Fixed Trunnion

BORE	TD	TM	UM	UW	XV	ZB
25	12	48	68	63	To be specified	121
40	20	76	108	92		166
50	25	89	129	112		176
63	32	100	150	126		185
80	40	127	191	160		212
100	50	140	220	180		225



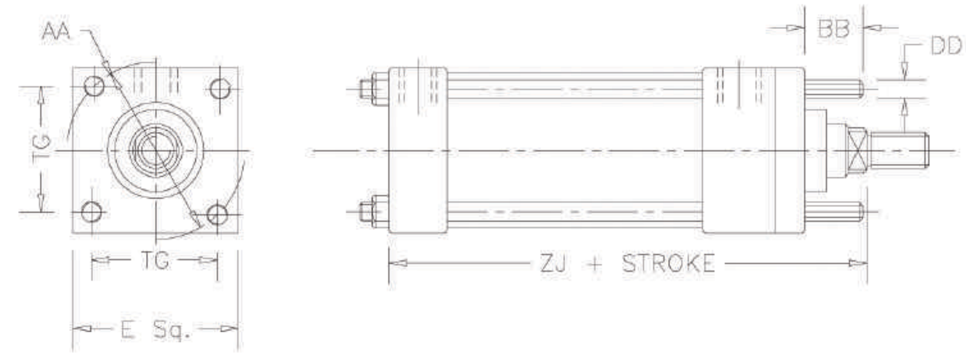
MX2- Cap Mounting Tie Rods Extended

BORE	AA	BB	DD	E	TG	ZJ
25	40	19	M 5 x 0.8	40	28.3	114
40	59	35	M 8 x 1	63	41.7	153
50	74	46	M 12 x 1.25	75	52.3	159
63	91	46	M 12 x 1.25	90	64.3	168
80	117	59	M 16 x 1.5	115	82.7	190
100	137	59	M 16 x 1.5	130	96.9	203



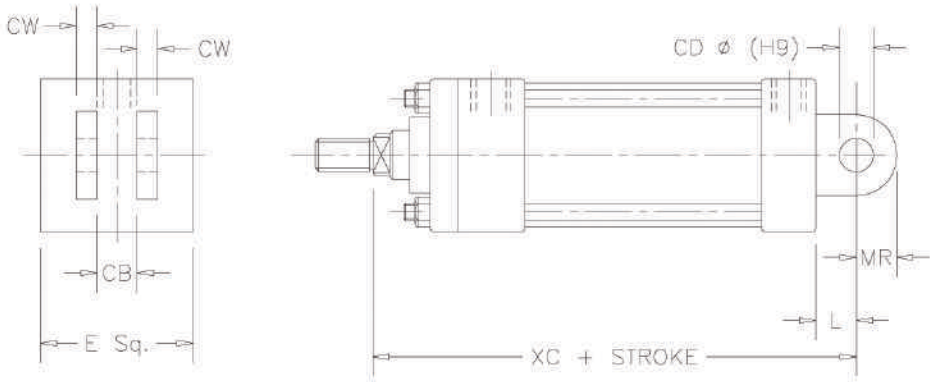
MX3- Head Mounting Tie Rods Extended

BORE	AA	BB	DD	E	TG	ZJ
25	40	19	M 5 x 0.8	40	28.3	114
40	59	35	M 8 x 1	63	41.7	153
50	74	46	M 12 x 1.25	75	52.3	159
63	91	46	M 12 x 1.25	90	64.3	168
80	117	59	M 16 x 1.5	115	82.7	190
100	137	59	M 16 x 1.5	130	96.9	203



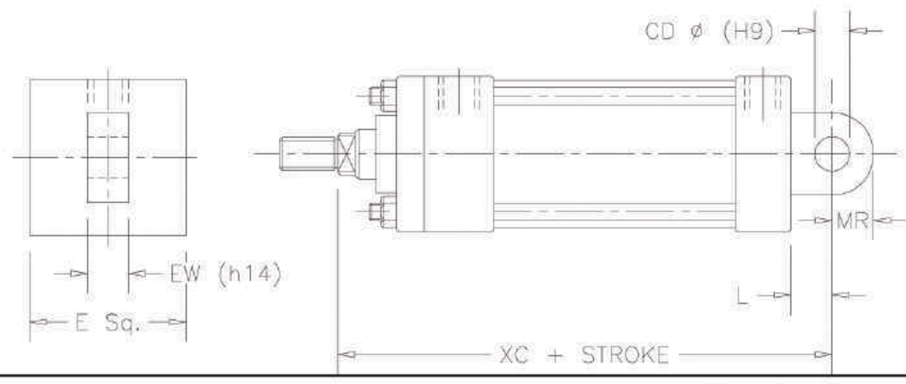
MP1- Cap Mounting Fixed Clevis

BORE	A		CB	CD	CW	E	L	MR	XC
25	14		12	10	6	40	13	12	127
40	18	28	20	14	10	63	19	17	172
50	22	36	30	20	15	75	32	29	191
63	28	45	30	20	15	90	32	29	200
80	36	56	40	28	20	115	39	34	229
100	45	63	50	36	25	130	54	50	257



MP3- Cap Mounting Fixed Eye

BORE	A		CD	E	EW	L	MR	XC
25	14		10	40	12	13	12	127
40	18	28	14	63	20	19	17	172
50	22	36	20	75	30	32	29	191
63	28	45	20	90	30	32	29	200
80	36	56	28	115	40	39	34	229
100	45	63	36	130	50	54	50	257



(Specifications subject to change)

CLASYS

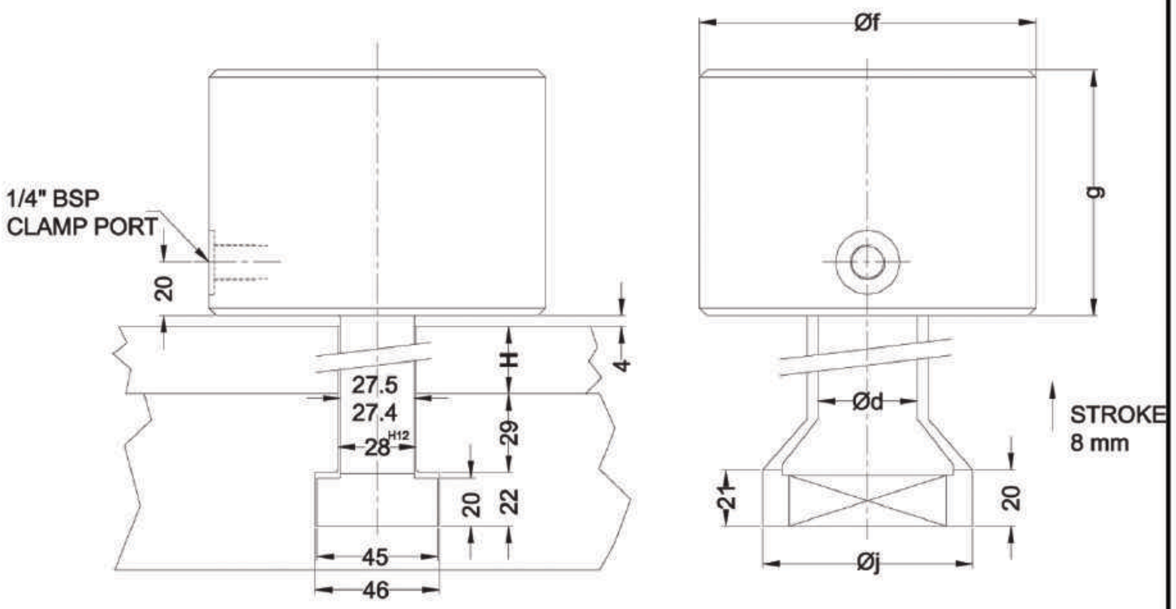
DESIGNATION

DIE CLAMP CYLINDER

SINGLE ACTING, SPRING RETURN

PRODUCT CODE

1101



PART NO.			
FORCE §	50 kN	75 kN	105 kN
ØBORE	70	80	94
d	40	40	45
g	87	87	92
f	95	105	125
j	60	74	78
H	To be specified		

Note : Force @ 200bar

Die clamping cylinder is a pull type, spring return cylinder. An integral 'T', suitable to 28 mm 'T' slot, is provided to the piston rod of the cylinder.

APPLICATION

Quick Change of Dies & Tools on Presses

OPERATION

De-Clamp the cylinders

Remove from the circuit (pneumatic / manual)

Replace the tool or die

Replace the cylinder back to original position

Clamp the cylinder

NOTES

SAFTEY :

Use 2 separate cylinders for the 2 diagonals of the tool

Cylinder Stroke : 8 mm. Reserve stroke 3 mm. Clamping height of tool must be accomodated in this value.

Tolerance : 1mm

Dimension 'H' must be specified while ordering

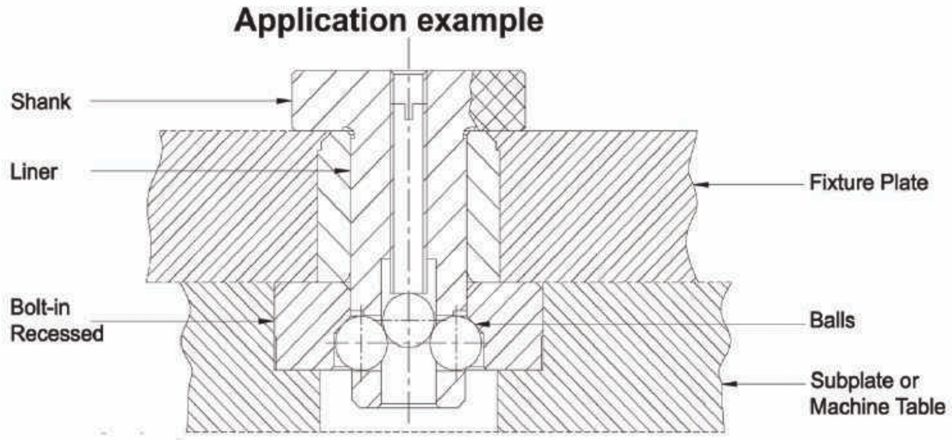
T-slot is of DIN650 std. Please specifiy, if different

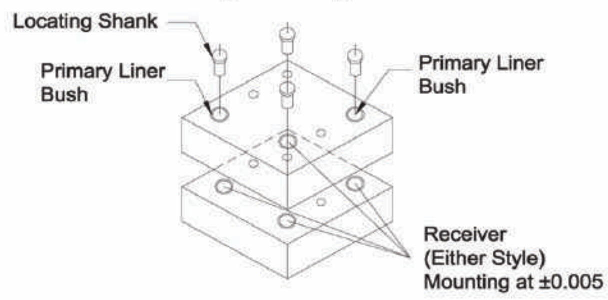
Specifications

- Maximum operating pressure - 200 bar.

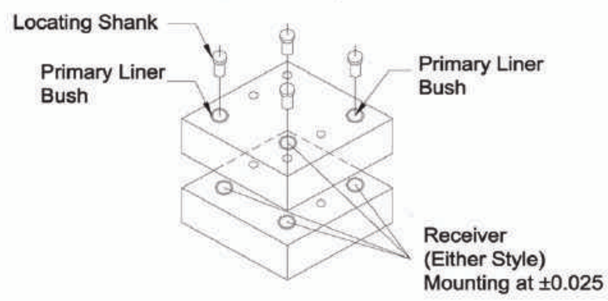
CLASYS	DESIGNATION **BALL LOCK MECHANISM MECHANICAL**	PRODUCT CODE. **1201**

Application example





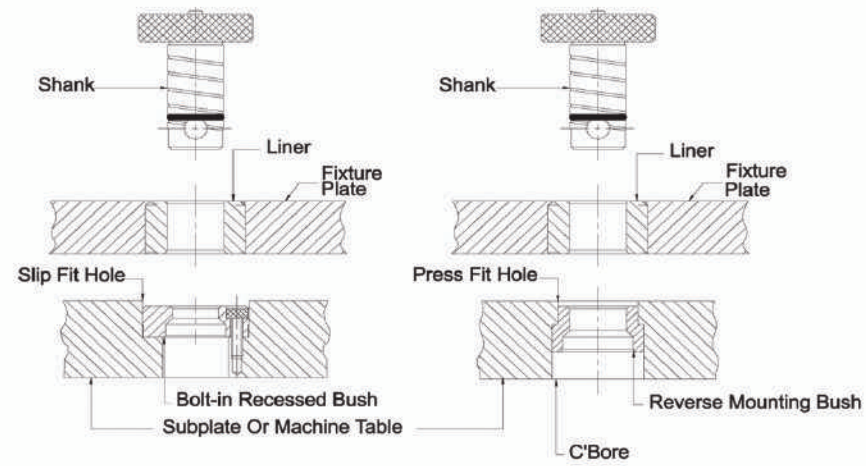
For Repeatability ±0.04



DESCRIPTION
Ball Lock Unit consists of
1. Shank (1no)
2. Primary / Secondary Liner (1no)
3. Receiver Bush (1no)
Ball Lock does the function of
a. Location b. Clamping
Location : 2 nos Precision Bushes & Shank combination
Clamping : Taper Seat over expanding steel ball

Application :
SMED CONCEPT IS POSSIBLE

OPERATION
2 Nos Ball Lock for Location & Clamping of plate
2-4 nos Ball Lock for additional clamping force
Primary Liners C.D tolerance to be 0.015mm
Secondary linders C.D tolerance to be 0.05mm
Bore Tolerance for bushes : H7

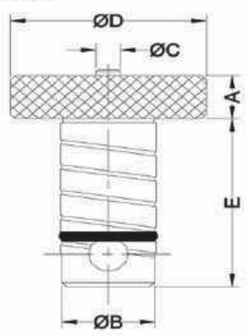


Mounting Method with Bolt-in Recessed Bush

Mounting Method with Reverse Mount Bush

All dimensions are in mm
Overall dimension tolerance ± 0.5 mm

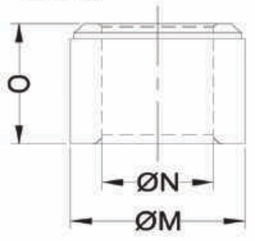
Shank



Part No.	Description	Max. Working Load (KN)	Max. Screw Torque(N-M)	Fixture Plate Thick. ± 0.05	A	Ø B	Ø C	Ø D	E
1201 0101-01	S-16 x 20	5.3	1.38	20	8	16	5	32	36.5
1201 0201-01	S-20 x 20	12.7	5.40	20	10	20	5	40	40.0
1201 0301-01	S-25 x 25	30.4	12.16	25	10	25	5	45	49.0

* Do not exceed maximum screw torque

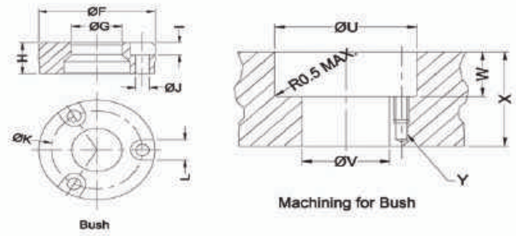
Liner



Part No. Primary Liner	Description	Part No. Secondary Liner	Description	M	N	O -0.25 -0.50	Hole Size For Liner	
							Min.	Max
1201 0101-02	PL 16 x 20	1201 0101-03	SL 16 x 20	25	16	20	25.016	25.026
1201 0201-02	PL 20 x 20	1201 0201-03	SL 20 x 20	35	20	20	35.018	35.028
1201 0301-02	PL 25 x 25	1201 0301-03	SL 25 x 25	35	25	25	35.018	35.028

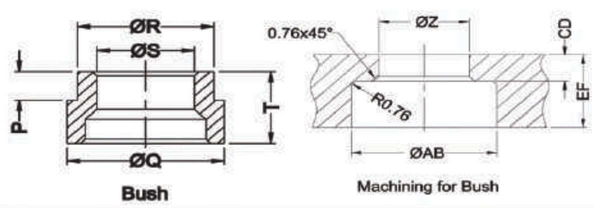
Primary Liner I.D. Is Nominal +0.005/+0.018
Secondary Liner I.D. Is Nominal + 0.025/+0.050

Bolt-in Recessed Bush



Part No.	Description	F	G	H	I	J	K	L	BORE -0.00 +0.01 U	DRILL DIA. V	DEPTH ± 0.025 W	MIN. SUBPLATE THICKNESS X	TAP Y
1201 0101-04	BB 16	37	16	11.56	4.5	4.4	29	7.6	37	16.5	11.91	20	M-4
1210 0201-04	BB 20	45	20	15.82	6.0	5.4	35	9.5	45	20.5	16.21	20	M-4
1201 0301-04	BB 25	55	25	19.94	7.0	6.4	42	11	55	25.5	20.32	25	M-5

Reverse Mounting Bush



Part No.	Description	P	Q	R	S	T	BORE -0.01 -0.00 Z	MIN. SUBPLATE THICKNESS EF	COUNTER BORE ABØ	DEPTH ± 0.025 CD
1201 0101-05	B 16	6.81	28.6	22	16	12.1	22	20	29	7.24
1201 0201-05	B 20	6.81	32.2	28	20	17.1	28	20	33	8.74
1201 0301-05	B 25	10.27	40.2	35	25	21.0	35	25	41	10.54

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**PULL DOWN CYLINDER** DOUBLE ACTING	**1301**

Size No	Clamping force at 400 bar clamp [kN]	unclamp [kN]	Stroke H [mm]	Piston dia. [mm]	Oil capacity clamp [cm³]	Oil capacity unclamp [cm³]	Screw (4 pieces)	Md max. [Nm]	Weight [g]
0101	12	4,5	8	20	2,5	0,9	M6x50	17	1500
0201	20	9,6	10	25	4,9	2,5	M8x60	25	2900
0301	32	12,5	12	32	9,7	4,0	M10x75	46	4900

Design:

Cylinder body made of tempering steel, blued. Piston case-hardened and ground. Exchangeable jaws. Standard version with serrated and hardened jaws. Complete with 4 mounting bolts (ISO), O-ring and oil plugs, particle wiper at clamping bolt.

Application:

Pull-down clamps are used wherever the workpiece can only be laterallly clamped but must be reliably secured on the fixture body. The hydraulic principle enables high pressing and pull-down forces. This clamp can be used on fixture bodies with manifold-type oil supply. The oil is then supplied through the fixture body. Sealing is achieved by an O-ring. Fastening is facilitated from above by 4 fasteners.

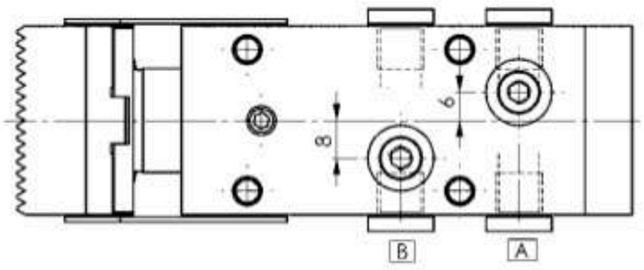
Features:

Quick and safe return movement, independent of the line lengths or the numbers of elements in the circuit. Independent horizontal and vertical movement (no locked coupling), giving a true pull-down effect. Lifting of the clamping jaw is prevented by the location of the clamping bolt right behind the jaw. Suitable for incorporation in fixtures. New design of jaw connection with rubber buffer ensures a sliding without any play.

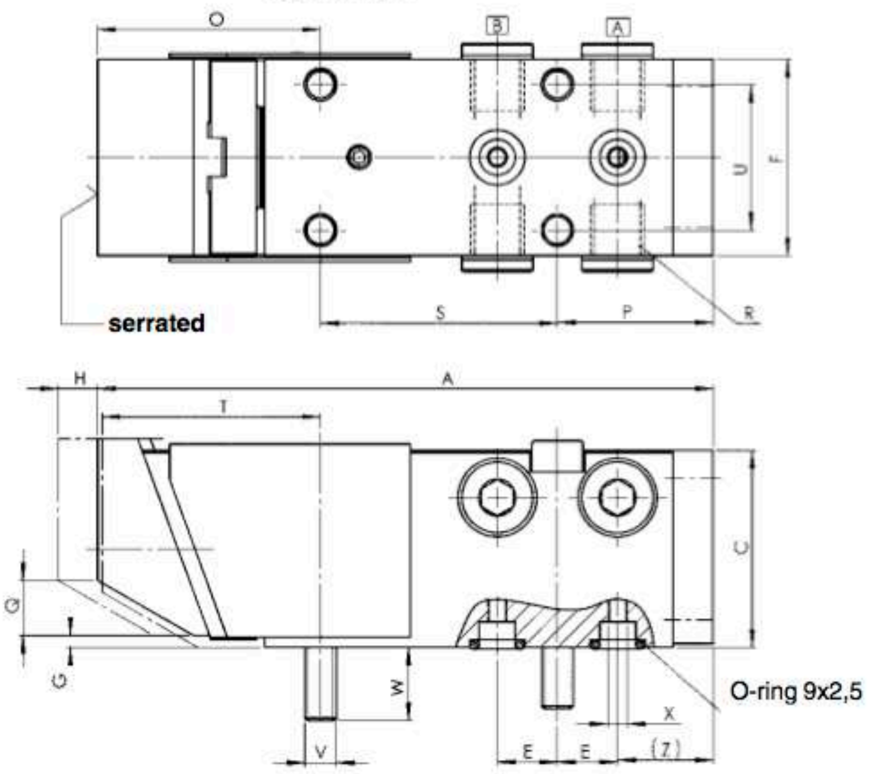
Note:

The maximum pull-down stroke of the jaw must not exceed dimension G. Do not overtighten the mounting fasteners! The maximum permissible torque must not be exceeded. The bottom oil channel is plugged by a sealing washer and a ISO 4762 - M 5x10 bolt. Minimum operating pressure is 40 bar.
High variability by oil connection on two sides and bottom oil channel. Jaw and hydraulic piston are connected by a joint to prevent the induction of bending forces into the piston, thus increasing the element's service life. Pull-down force is equal to approx. 1/3 of the corresponding clamping force.

0101



0201 & 0301



A = clamp
B = unclamp

Size	~A	C	E	F	G	H	O ±0.5	P	Q	R	S	T	U ±0,1	V	W	X	Z
0101	122	40	12,50	40	2	8	40,5	36,5	8,5	G1/8	45	39,5	30	M6	17,0	M5	24,0
0201	156	50	15,25	50	3	10	56,5	39,5	14,0	G1/4	60	55,5	37	M8	18,5	M5	24,3
0301	167	65	15,25	65	3	12	64,0	42,8	17,0	G1/4	60	63,0	48	M10	20,5	M5	27,5

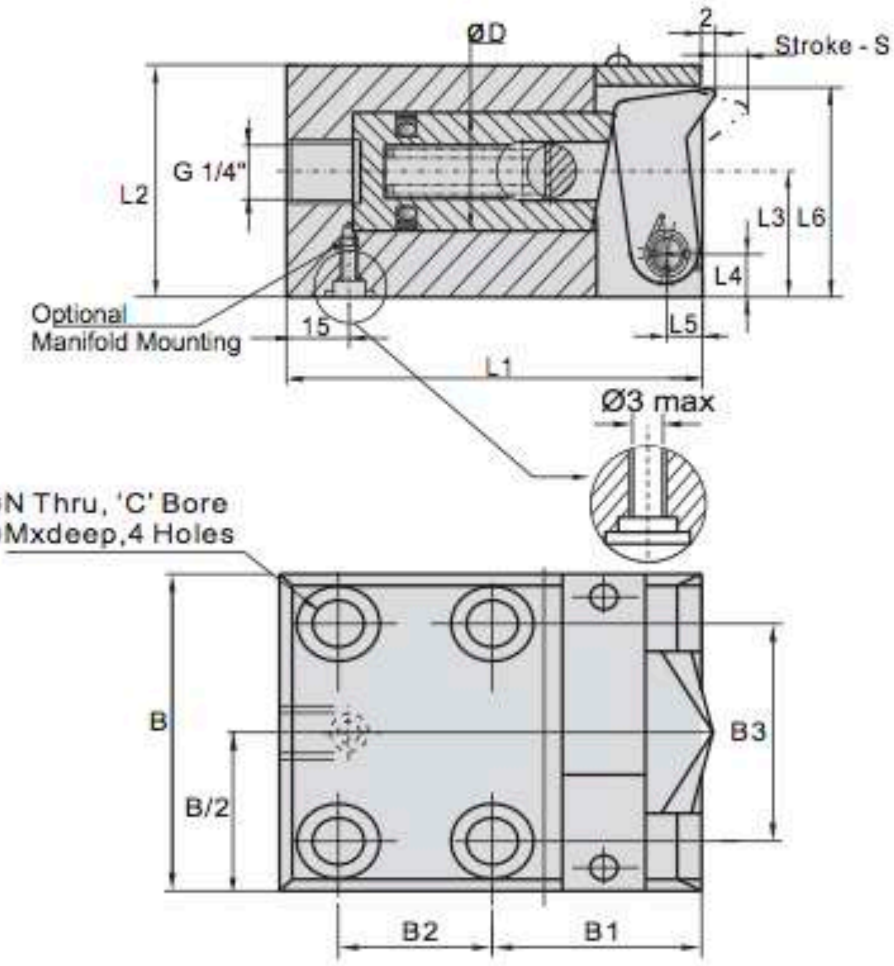
O-ring

(included in scope of supply)

O-ring	Weight [g]
9,0 x 2,5 - PU 93 Shore A	1

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 1301 0101

	DESIGNATION	PRODUCT CODE
CLASYS	**PULL DOWN CYLINDER TYPE 2** DOUBLE ACTING	**1311**



Description

These Low block cylinders are suitable for clamping work pieces from the sides where clamping is not possible from top. Hydraulically operated piston pushes the pivoted lever against the work piece. By positioning the pivot lever it is possible to have a downward force in addition to horizontal push force to clamp the work piece firmly on to workrest. This prevents lifting of component.

Specification

- Min./ Max. Operating Pressure 10/250 bar.
- The vertical force is approx. 30% of nominal clamping force.
- Compact cylinder design.
- Cylinder with Manifold mounting is available as optional. O-ring will be supplied.

Notes

1) Refer general design notes before selection & use.
2) For Manifold mounting, plug threaded port.
3) Ordering specification for seal kit. Add prefix "SK" to the model Number.

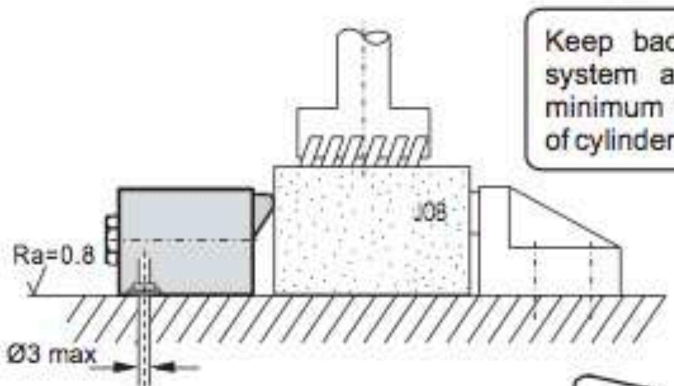
Dimension table

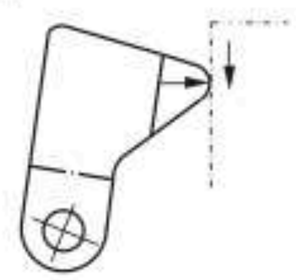
All dimensions in mm

Model No	1311 0101	1311 0201	1311 0301
Force kN @150bar	3.7	7.2	14.8
@ 250 bar	6.2	12	24.7
Piston ØD	18	25	36
Piston area Sq.cm	2.5	4.9	10
Stroke S ± 0.5	8	10	10
Oil Volume cc	2	5	10
L1	70	90	98
L2	35	40	50
L3	19	23	27
L4	6.5	9	11
L5	5.5	6	8
L6	32	38.5	47
B	50	60	80
B1	33	42	45
B2	23	38	38
B3	32	40	56
ØM x deep	14.5 x 9	14.5 x 9	17.5 x 11
ØN	9	9	11

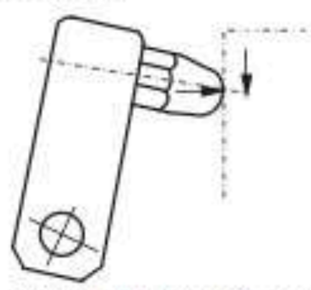
Important

Keep back pressure in the system and in the line to minimum for smooth working of cylinder.





Standard lever



Optional Lever with pressure point
Refer accessories sheet

Specifications subject to improvements.

ORDERING METHOD.
PRODUCT CODE-MODEL NO
Eg. 1311 0101

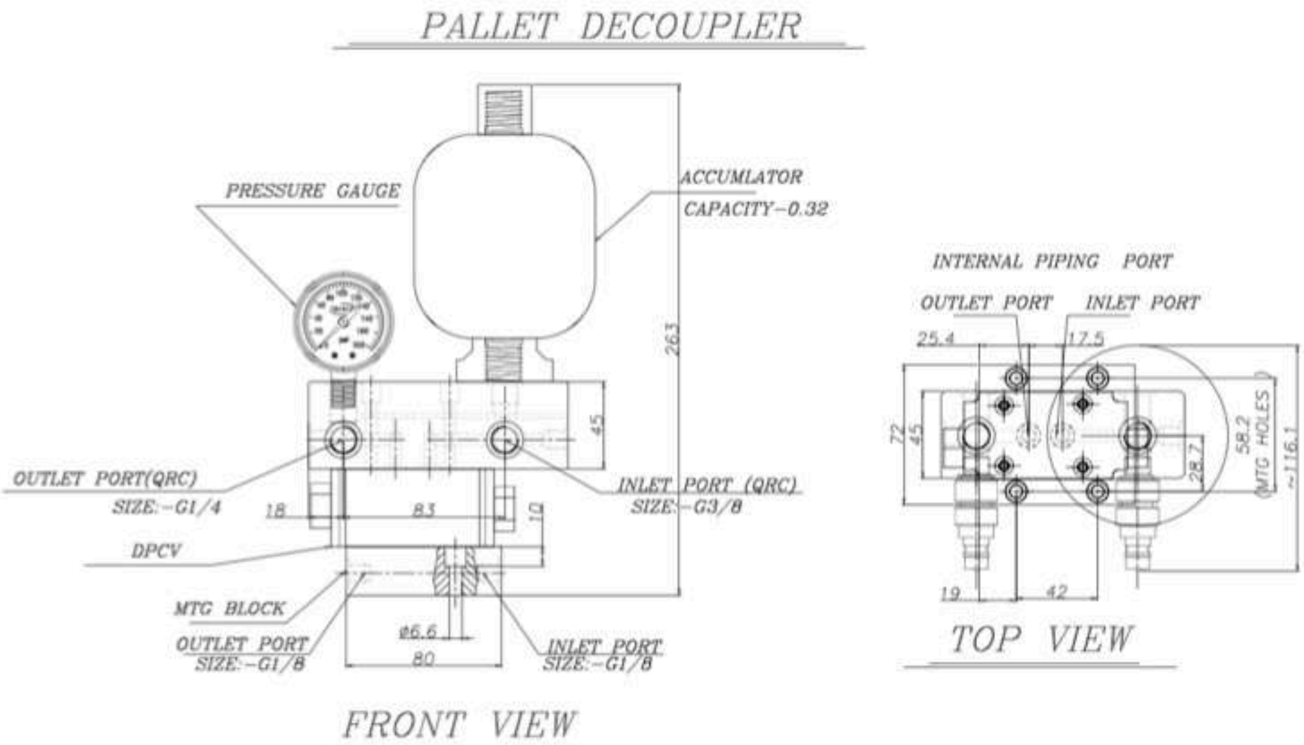
	DESIGNATION	PRODUCT CODE
CLASYS	**PALLET DISCONNECTOR** DOUBLE ACTING	**1401**

APPLICATION:
Used in holding pressure within the circuit while using QUICK DISCONNECT COUPLERS along with an accumulator

OPERATION:
Connect the Oil lines to the 2 ports provided using the QRC
One Clamp and One De- Clamp line is provided
Accumulator is used to compensate for oil leakages.
Pressure gauge indicates the line pressure

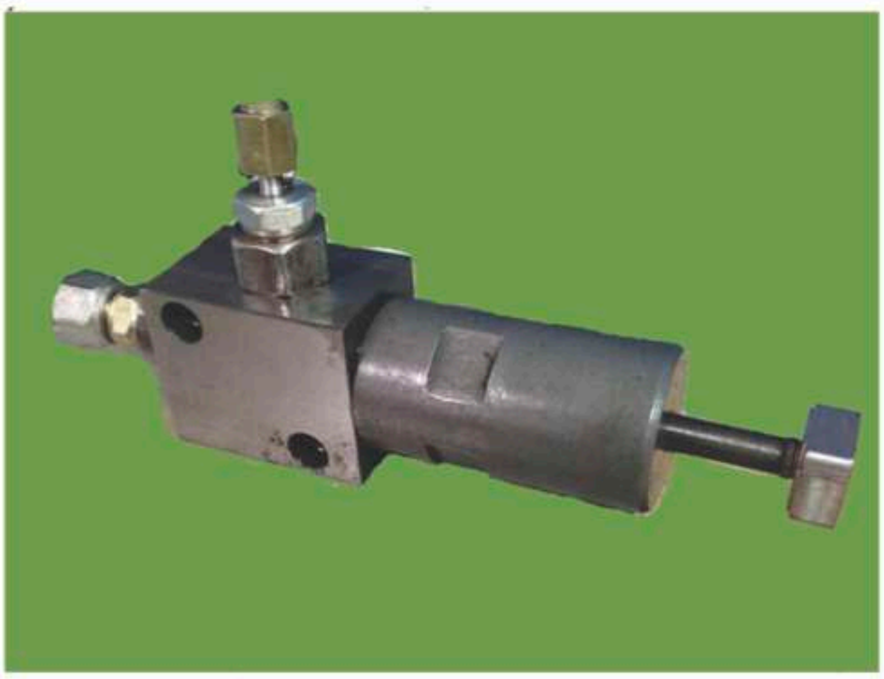
NOTE:
Min Operating Pressure : 10 Bar
Max Operating Pressure : 150 bar
1/4 & 3/8 BSP sizes provided for lines in order to have fool proofing of clamp and de-clamp lines

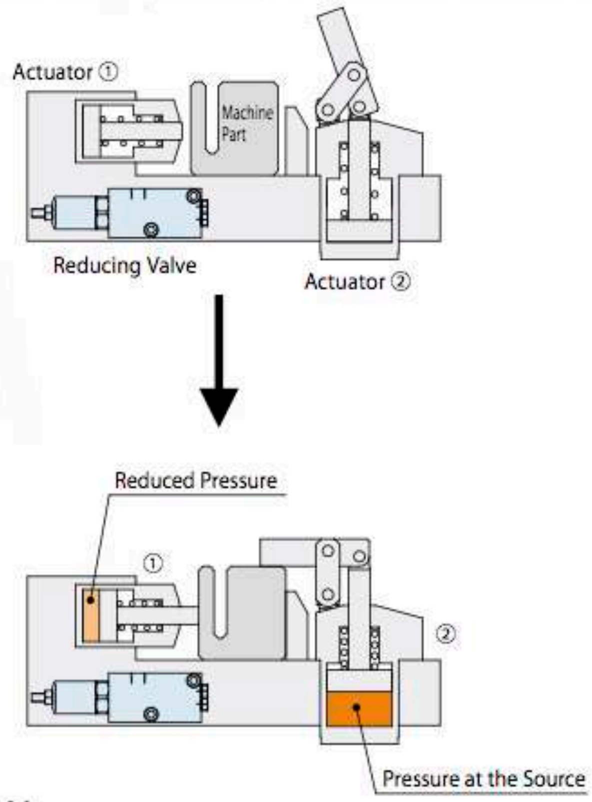
SCHEMATIC SKETCH



ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg.

CLASYS	DESIGNATION **PRESSURE REDUCING VALVE** HYDRAULIC OIL MEDIUM	PRODUCT CODE **1501**





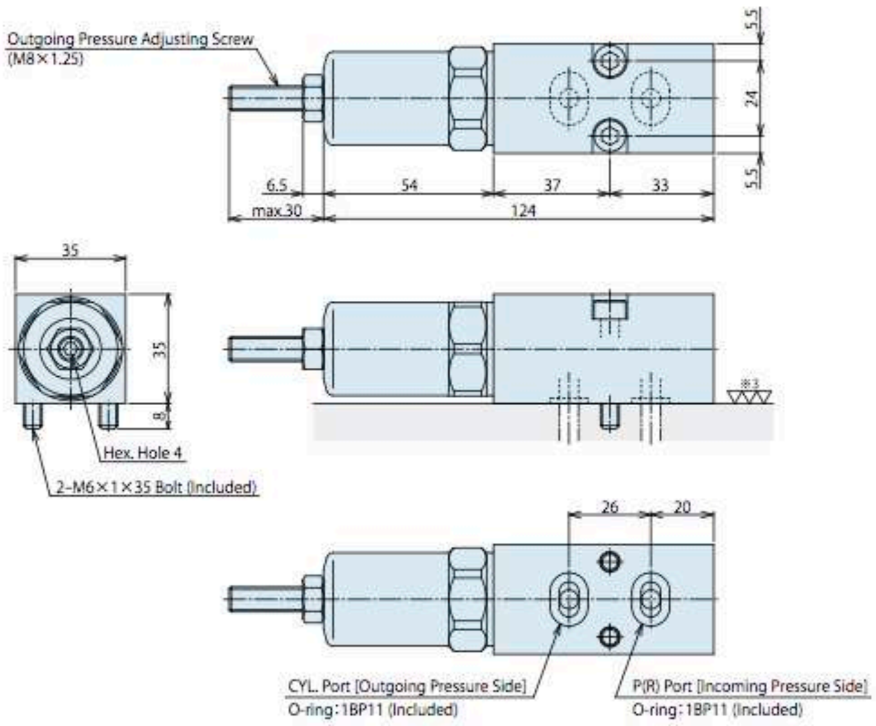
Example of Application:
IN CIRCUIT

APPLICATION

Pressure reduction without drain in series or after sequence valve for single or set of cylinders

OPERATION

Connect the ZLPRV in series either with or without sequence valve
Supply input oil @ higher pressure into INLET PORT
Using the Thumb Wheel / SHCS, adjust the knob so that desired pressure is shown on connected pressure gauge
Once desired pressure is reached, please engage the locknut to disable further adjustment



NOTES

SAFTEY :
Operating Pressure :
Min reducion pressure: 20bar
Max input pressure: 150 bar
Intial setting : 1:1 output
Please connect only in series.. not parallel

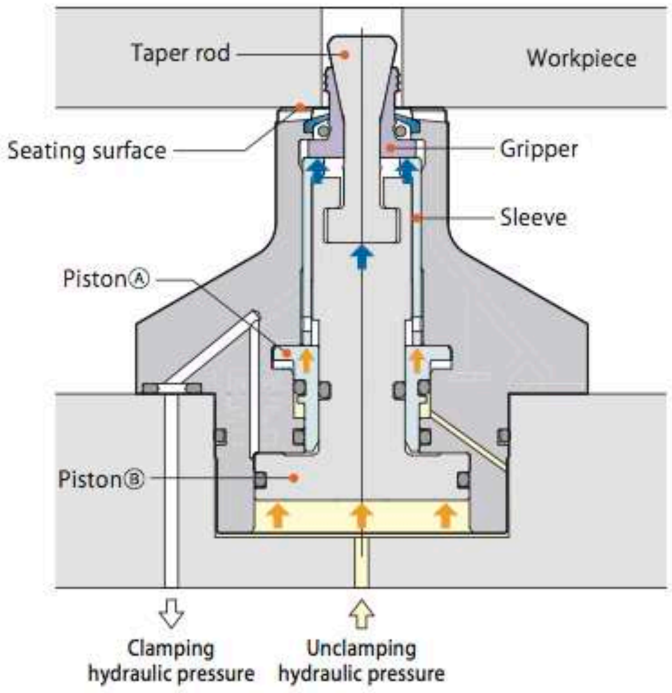
Model No	1501 0101	1501 0201
Incoming Supply Pressure MPa	2.0 ～ 7.0	6.0 ～ 30.0
Outgoing Set Pressure MPa	1.0 ～ 6.0	3.0 ～ 14.0
Allowable Minimum Pressure Difference ※2 MPa	1.0	3.0
Withstanding Pressure MPa	10.5	37.5
Min. Passage Area mm²		23.3
Operating Temperature ℃		0 ～ 70
Usable Fluid	**Hydraulic Oil with viscosity 68 centistokes**	
Mass kg	**1.5**	

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 1501 0101

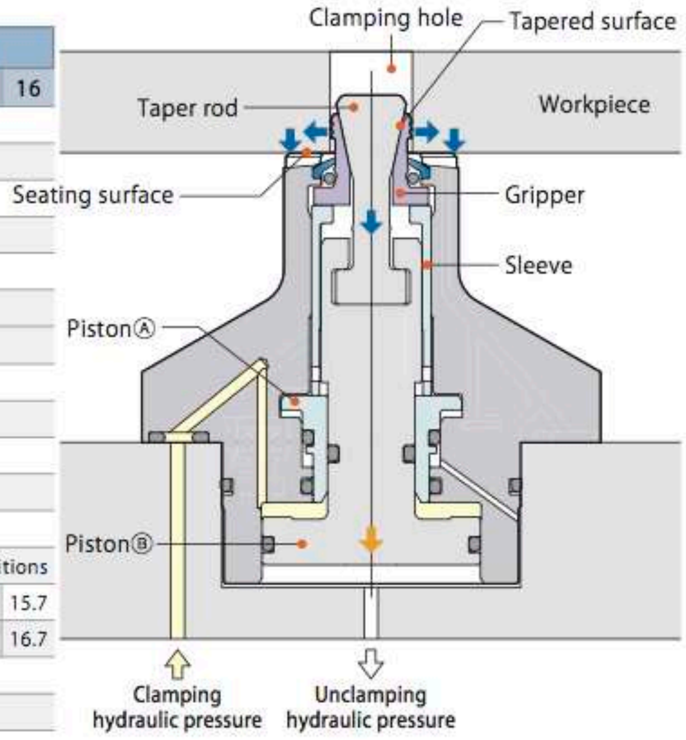
(Specifications subject to change)

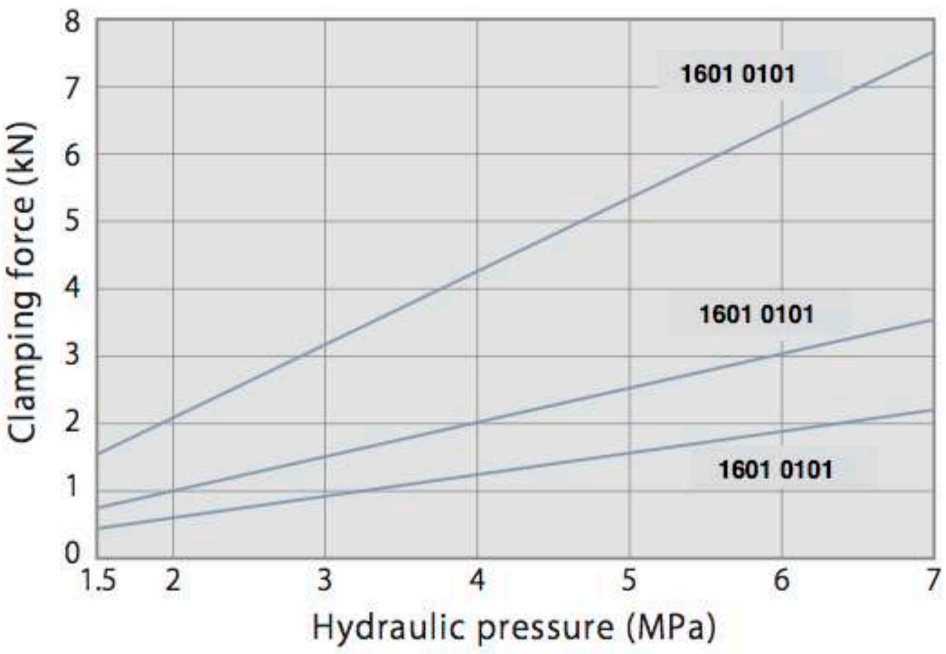
DESIGNATION	PRODUCT CODE
HOLE CLAMP CYLINDER DOUBLE ACTING	**1601**

DESCRIPTION
Direct Mounting
2 & 3 Piece Expansion Clamping
Alloy steel body
Hydraulic Expansion
Optional Air seat check sensing
Max Pressure : 8.5Mpa
Min Pressure: 1.0Mpa



Model	Size		1601 0101					1601 0201						1601 0301				
	Grip inner diameter		070	073	076	079	082	085	09	10	11	12	13	12	13	14	15	16
Number of grippers			2 Grippers								3 Grippers							
Clamping force (Hydraulic pressure 7MPa)		kN	1.92*1	2.24				3.04*1	3.54					7.50				
Radial expansion force (Hydraulic pressure 7MPa)		kN	6.7*1	7.8				9.5*1	11.1					23.4				
Taper rod stroke		mm	4.8															
Clamp stroke		mm	1.2															
Cylinder capacity	Clamp	cm^3	1.7					2.7						5.8				
	Unclamp	cm^3	2.3					3.5						7.2				
Allowable eccentricity *4		mm	±0.5															
Recommended air blow pressure		MPa	0.3															
Recommended sensor air pressure		MPa	0.2															
Mass		kg	0.38					0.50						0.83				
Recommended tightening torque of mounting screws *2		N·m	3.5					7						12				
Workpiece material			Aluminum, steel and others (HRC30 or below) Cast iron also usable depending on conditions															
Allowable min. grip inner diameter		mm	6.7	7.0	7.3	7.6	7.9	8.2	8.7	9.7	10.7	11.7	12.7	11.7	12.7	13.7	14.7	15.7
Allowable max. grip inner diameter		mm	7.4	7.7	8.0	8.3	8.6	9.2	9.7	10.7	11.7	12.7	13.7	12.7	13.7	14.7	15.7	16.7
Grip inner diameter tapering angle (Draft angle)			3° or below															
Grip inner diameter circularity			0.1° or below															





Number of grippers	Grip inner diameter	Clamping force
2 Grippers	ø 7.0	1.92 kN (Hydraulic pressure 6MPa)
	ø 7.3 7.6 7.9 8.2	2.24 kN (Hydraulic pressure 7MPa)
	ø 8.5	3.04 kN (Hydraulic pressure 6MPa)
	ø 9 10	3.54 kN (Hydraulic pressure 7MPa)
Number of grippers	**Grip inner diameter**	**Clamping force**
3 Grippers	ø 11 12 13	3.54 kN (Hydraulic pressure 7MPa)
	ø 12 13 14 15 16	7.50 kN (Hydraulic pressure 7MPa)

2 Grippers
ø7.0 7.3 7.6 7.9 8.2

2 Grippers
ø8.5 9 10

3 Grippers
ø11 12 13

3 Grippers
ø12 13 14 15 16

ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 1601-0101-076

(Specifications subject to change)

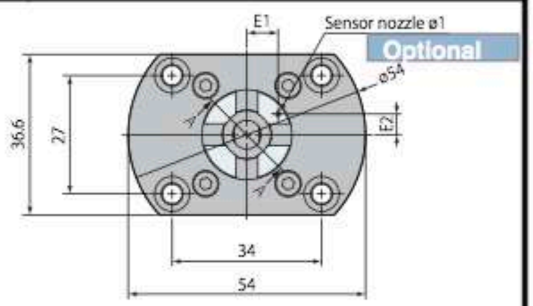
DESIGNATION

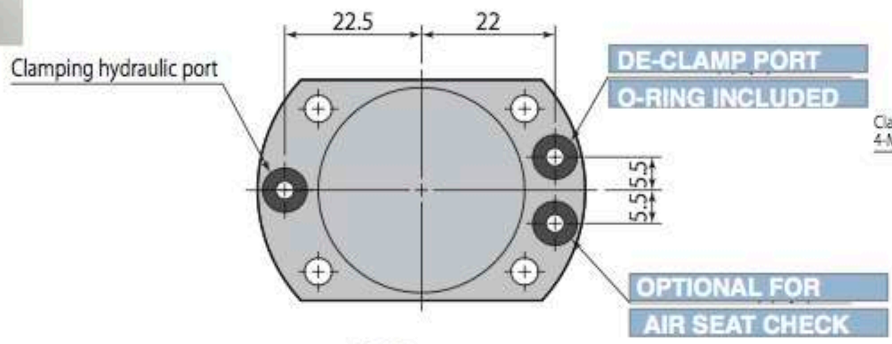
HOLE CLAMP CYLINDER

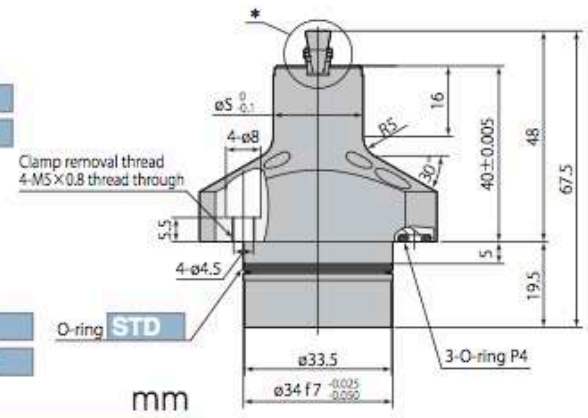
DOUBLE ACTING

PRODUCT CODE

1601







mm

mm

Model	1601 0101					1601 0201		
	070	073	076	079	082	085	09	10
E1	7.1	7.1	7.3	7.5	7.6	8.3	8.3	8.9
E2	4.7	4.7	4.7	4.7	4.7	4.6	4.6	4.6
ø F3	6.5	6.8	7.1	7.4	7.7	8	8.5	9.5
ø F4	6.55	6.85	7.15	7.45	7.75	8.05	8.55	9.55
ø S	20.5	20.6	20.9	21.2	21.5	22.5	22.5	23.5
ø T	10.6	10.9	11.2	11.5	11.8	12.1	12.6	13.6
ø U	20	20.1	20.4	20.7	21	22	22	23
ø AD	5.4	5.7	6	6.3	6.6	6.3	6.8	7.8

mm

Model	1601 0201			1601 0301				
	11	12	13	12	13	14	15	16
E1	9.4	9.9	10.4	10.7	10.7	10.7	11	11.5
E2	4.7	4.8	4.9	6	6	6	6	6.1
ø F3	10.5	11.5	12.5	11.5	12.5	13.5	14.5	15.5
ø F4	10.55	11.55	12.55	11.55	12.55	13.55	14.55	15.55
ø S	24.5	25.5	26.5	28	28	28	28.5	29.5
ø T	14.6	15.6	16.6	15.6	16.6	17.6	18.6	19.6
ø U	24	25	26	27.5	27.5	27.5	28	29
ø AD	8.2	9.2	10.2	9.2	10.2	11.2	12.2	13.2

ORDERING METHOD.

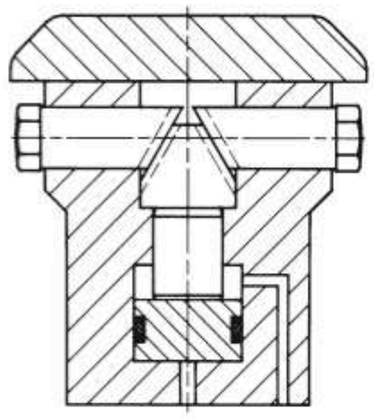
PRODUCT CODE–MODEL NO.

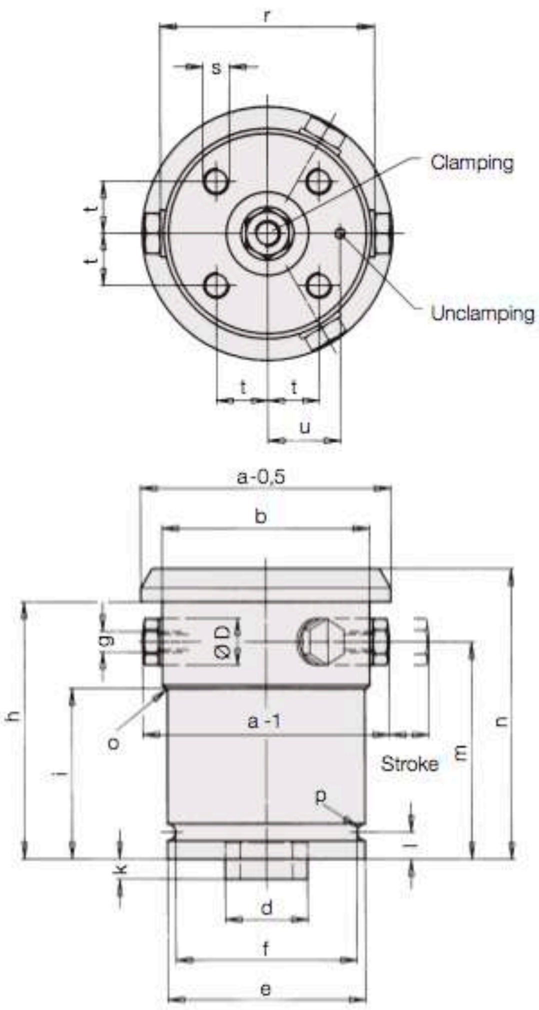
Eg. 1601-0101-076

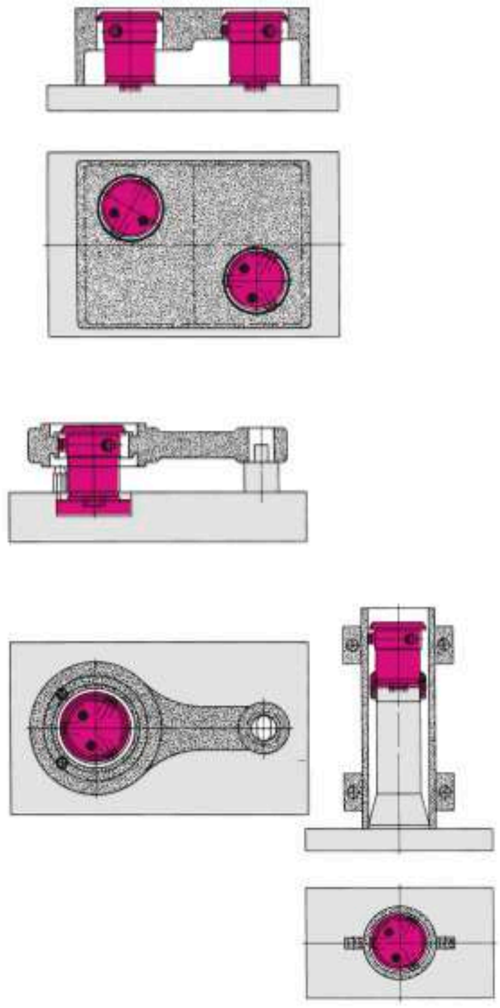
(Specifications subject to change)

CLASYS	DESIGNATION **BORE CLAMP CYLINDER** DOUBLE ACTING	PRODUCT CODE **1701 &1711**

DESCRIPTION:
1. DOUBLE ACTING
2. VARIABLE MOUNTING
3. MAX PRESSURE : 25 MPa
4. MIN PRESSURE : 1 MPa
5. 2&3 POINT CONCENTRIC CLAMPING
6. CAST OR MACHINED BORE
7. HIGH REPEATABILITY
8.







Clamping Ø a	Part-no. 2-point element	Part-no. 3-point element
25 – 29	1701 2529	1711 2529
28 – 32	1701 2832	1711 2832
32 – 36	1701 3236	1711 3236
36 – 40	1701 3640	1711 3640
39 – 43	1701 3943	1711 3943
42 – 46	1701 4246	1711 4246
45 – 49	1701 4549	1711 4549
48 – 52	1701 4852	1711 4852
51 – 55	1701 5155	1711 5155
54 – 59	1701 5459	1711 5459
58 – 63	1701 5863	1711 5863
62 – 67	1701 6267	1711 6267
67 – 72	1701 6772	1711 6772
71 – 76	1701 7176	1711 7176
76 – 84	1701 7684	1711 7684
83 – 91	1701 8391	1711 8391
90 – 98	1701 9098	1711 9098
98 – 109	1701 98109	1711 90109
109 – 120	1701 109120	1711 109120
119 – 130	1701 119130	1711 119130
130 – 145	1701 130145	1711 130145
141 – 156	1701 141156	1711 141156
152 – 167	1701 152167	1711 152167
163 – 177	1701 163177	1711 163177

MODEL CODE		2529 to 3236	3640 to 5155	5459 to 7176	7684 to 9098	98109 to 119130	130145 to 163177
Clamping range Ø	[mm]	25-36	36-55	54-76	76-98	98-130	130-177
Clamping force at 100 bar	[kN]	4	4	3	7	11	17
at 250 bar	[kN]	10	10	7	17	28	44
Absol. repetitive accuracy of clamping force	[mm]	0.02	0.02	0.02	0.02	0.02	0.02
Min. operating pressure	[bar]	20	20	20	20	20	20
Max. operating pressure	[bar]	250	250	250	250	250	250
Oil vol./mm clamping stroke	[cm³]	0.35	0.35	0.35	0.85	1.39	2.17
/mm return stroke	[cm³]	0.15	0.15	0.15	0.50	0.84	1.33
Bolt Ø D	[mm]	14	14	12	14	18	22
Stroke	[mm]	2.5	2.5	3	4.5	6	8
b	[mm]	24	35	45	65	85	115
d j6	[mm]	16	16	16	25	32	40
e -0.1	[mm]	45	45	45	60	74	90
f -0.1	[mm]	40	40	40	54	67	81
g x depth of thread	[mm]	–	M 8 x 6	M 6 x 6	M 6 x 12	M 8 x 16	M 10 x 20
h	[mm]	64	64	57	68	80	91
i	[mm]	28	28	-	41	47	52
k	[mm]	6	6	6	6	6	7
l	[mm]	8	8	8	9	10	12
m	[mm]	51	51	45	56	64	72
n	[mm]	66.5	72	65	77	91	105
o	[mm]	R 6	R 6	-	R 0.5	R 2.5	R 2.5
p	[mm]	2.6	2.6	2.6	3.1	3.6	4.6
r	[mm]	–	29	45	65	85	115
s x depth of thread	[mm]	M6 x 12	M6 x 12	M6 x 12	M8 x 16	M 10 x 20	M 12 x 24
t	[mm]	11.3	11.3	11.3	15.6	19.1	23.3
u	[mm]	16.8	16.8	16.8	22	27	33
Weight	[kg]	0.5	0.7	1.1	1.8	3.6	7.2

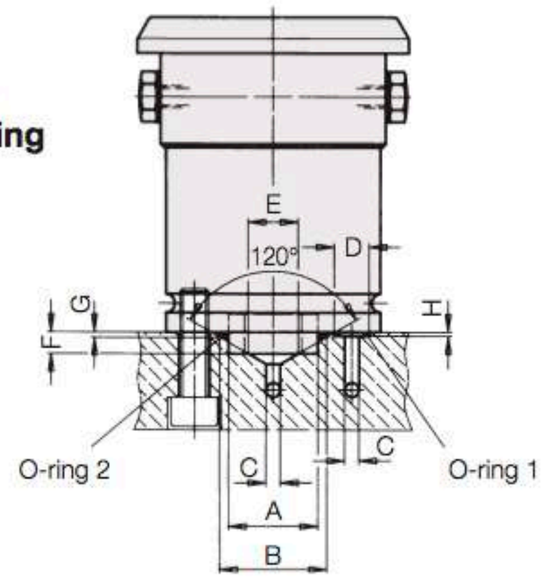
ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 1701 3640

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**BORE CLAMP CYLINDER** DOUBLE ACTING	**1701 & 1711**

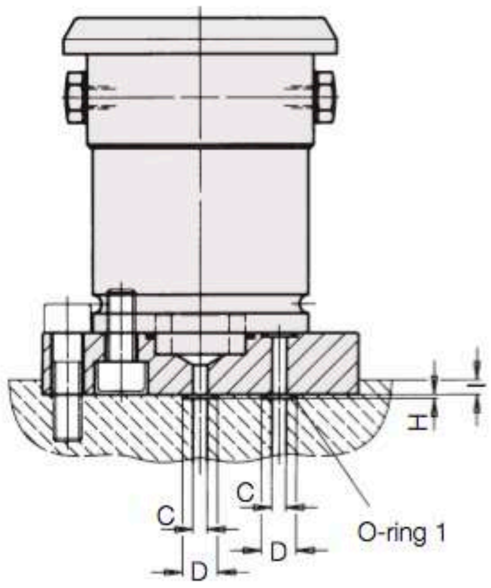
APPLICATION :
***CLAMPING OF BORE**
*** TOP & SIDE FACES LEFT FREE FOR MACHINING**
***ORIENTATION OF COMPONENT / BLOCK**
USABLE FOR SHORT AND LONG BORES
***EASY REFERENCING OF COMPONENT**
***POSSIBLE TO LOCATE AND ORIENT A COMPONENT**

① **Direct mounting**



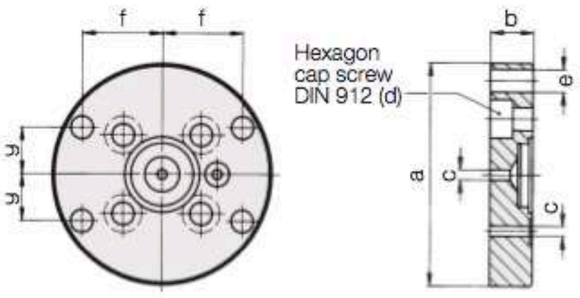
② **Mounting by flange**

③ **Mounting by flange G 1/4**



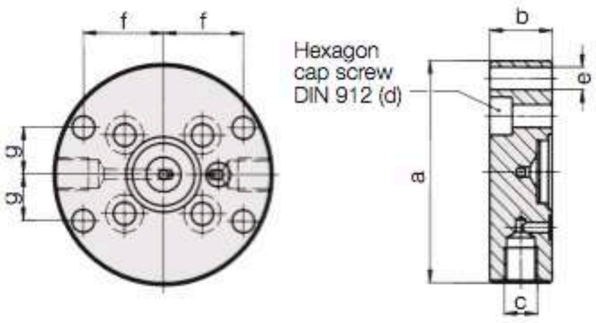
O-rings for mounting versions ① ② ③ ④ ⑤

for elements	A H7	B+0.2	C	D+0.2	E	F-0.1	G±0.05	H±0.05	K	I	O-ring 1	O-ring 2
2529 to 5155	16	20.6	3	7.8	8	6	1.3	1.1	5	4	5 x 1.5	17.17 x 1.78
5459 to 7176	16	20.6	3	7.8	8	6	1.3	1.1	5	4	5 x 1.5	17.17 x 1.78
7684 to 9098	25	30	4	9.8	14	6	1.5	1.1	6	4	7 x 1.5	26 x2
98109 to 119130	32	36.6	5	10.8	16	6	1.3	1.1	7	4	8 x 1.5	33.05 x 1.78
130145 to 163177	40	46.6	5	10.8	18	7	2	1.1	9	4	8 x 1.5	40.95 x 2.62



Mounting by flange ②

for elements	a h7	b	c	d	e	f	g
2529 to 5155	68	15	3	M 6 x 16	Ø 6.6	24.2	14.0
5459 to 7176	68	15	3	M 6 x 16	Ø 6.6	24.2	14.0
7684 to 9098	88	17	4	M 8 x 20	Ø 9	32.0	18.5
90109 to 119130	110	20	5	M 10 x 25	Ø 11	39.8	23.0
130145 to 163177	130	22	5	M 12 x 25	Ø 13.5	47.6	27.5



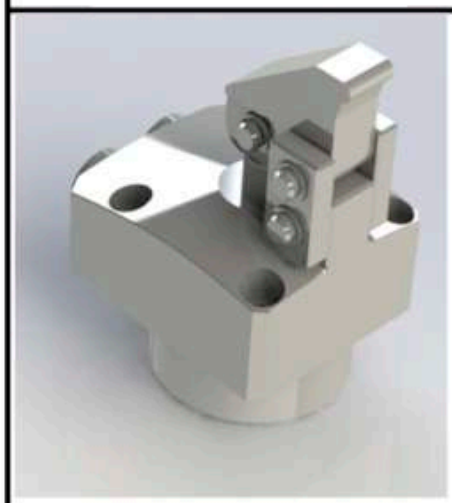
Mounting by flange G 1/4 ③

for elements	a h7	b	c	d	e	f	g
2529 to 5155	68	30	G 1/4	M 6 x 35	Ø 6.6	24.2	14.0
5459 to 7176	68	30	G 1/4	M 6 x 35	Ø 6.6	24.2	14.0
7684 to 9098	88	30	G 1/4	M 8 x 35	Ø 9	32.0	18.5
90109 to 119130	110	30	G 1/4	M 10 x 35	Ø 11	39.8	23.0
130145 to 163177	130	30	G 1/4	M 12 x 35	Ø 13.5	47.6	27.5

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 1701 3640

(Specifications subject to change)

DESIGNATION	PRODUCT CODE
SIDE CLAMP CYLINDER DOUBLE ACTING	**1801**

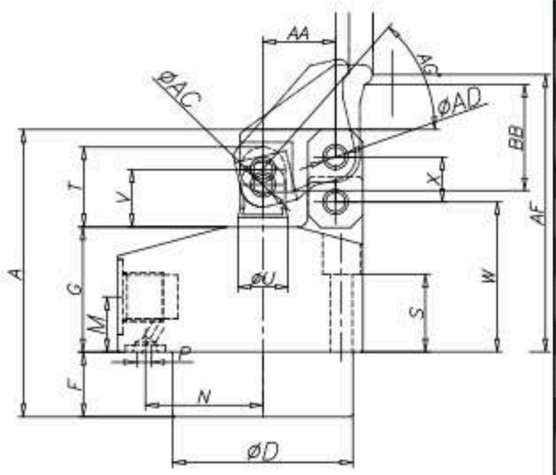


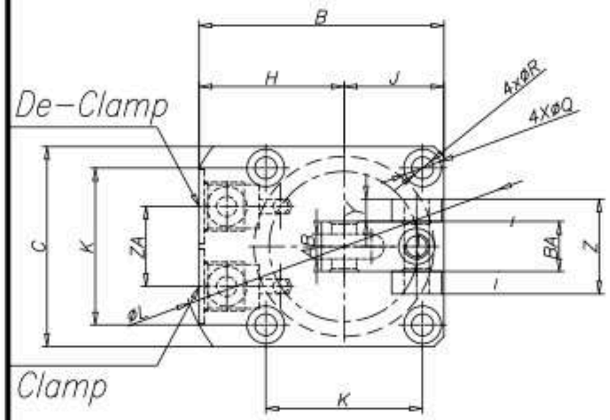
DESCRIPTION:

1. DOUBLE ACTING
2. FLANGE MOUNTING
3. MAX PRESSURE : 15 MPa
4. MIN PRESSURE : 1 MPa
5. HARD CHROME PLATED PISTON ROD
6. ALLOY STEEL BODY COATED WITH ANTI RUST COATING

APPLICATION :

*PUSHING OF COMPONENT
*ORIENTATION OF COMPONENT / BLOCK
*EASY LOADING AND UNLOADING OF COMPONENT
*MULTIPLICATION OF CLAMP FORCE DUE TO LINKAGE





MODEL NO	1801 0361	1801 0401	1801 0481	1801 0551	1801 0651	1801 0751
A	57.5	63.5	76.5	84	97	114
B	50	54	61	69	81	94.5
C	41	45	51	60	70	85
ØD	36	40	48	55	65	75
E	38	41	49	53	60	72
F	13	16	21	25	30	35
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
ØL	68	73	83	88	106	116
M	11	11	11	11	12	12
N	23.5	26	30	33.5	39.5	45
ØP	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	16	18	21.5	24.5	29	33.5
U	10	12	14	16	18	22
V	11.5	12.8	15.5	17.5	21	24
W	30	30.5	34.5	35.5	39	48
X	9	10	12	14	16	19
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	G 1/8	G 1/8	G 1/4	G 1/4
AA	14.5	16	18.5	21	24.5	30
AB	5	5	6	8	10	11
AC	5	6	6	6	8	10
AD	6	6	6	8	10	12
AF	55.5	59	68	80.5	81	102
AG°	38	38	38	40	40	40
AH	4.77	5.3	6.4	7.3	8.6	10
BA	10	12	12	16	19	22
BB	22	27	28.5	33	39	45
BC	7.5	8.3	9.8	11.2	13.5	15.5

MODEL NO		1801 0361	1801 0401	1801 0481	1801 0551	1801 0651	1801 0751
Cylinder Area	sq.cm	2.54	4.9	9.62	12.56	19.62	28.27
Full Stroke	mm	6	6	6	10	10	10
Clamp Stroke	mm	3	3	3	7	7	7
Reserve Stroke	mm	3	3	3	3	3	3
Cylinder vol	lock cc	7.62	14.71	28.9	87.9	137.3	197.9
	release cc	5.3	11.35	16.6	73.9	119.7	171.3
Max Pressure	Mpa	15	15	15	15	15	15
Min Pressure	Mpa	1	1	1	1	1	1
Max Temp	˚C	70	70	70	70	70	70

De-Clamp

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 1801-0361

(Specifications subject to change)

CLASYS

DESIGNATION

CENTERING VICE

DOUBLE ACTING

PRODUCT CODE

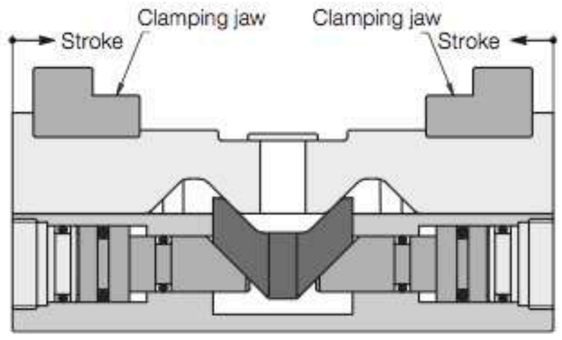
1901

Fixture clamp, concentric clamping
max. clamping force 6.5 kN and 9 kN, jaw width 40 and 65 mm double acting, max. operating pressure 250 bar

Advantages

- Very compact design
- High rigidity
- Retention force higher than clamping force
- Repetitive accuracy ±0.02 mm
- 2 sizes
- Strokes 2 x 5 and 2 x 8 mm
- Double-acting function
- Fixtures without tubes possible
- Exchangeable jaws
- Good swarf protection
- Port for central lubrication
- Mounting position: variable

Function



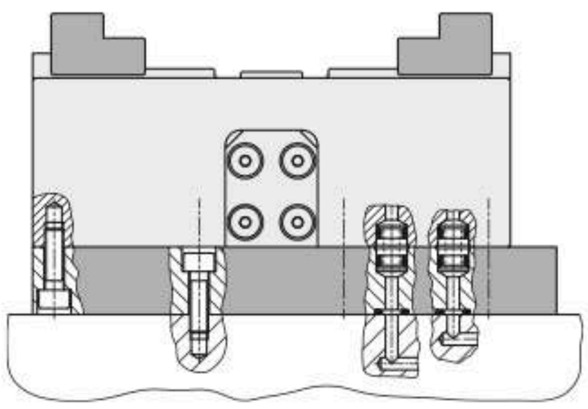
Application

The fixture clamps are used for machining of dimensionally stable workpieces in single or multiple clamping fixtures.
Due to their compact design they can be arranged in a very limited space. Fixture clamps are especially suitable for series manufacturing in automated mode.
The double-acting cylinder function combined with central lubrication and good swarf protection guarantees a high process safety.

Fixing from above

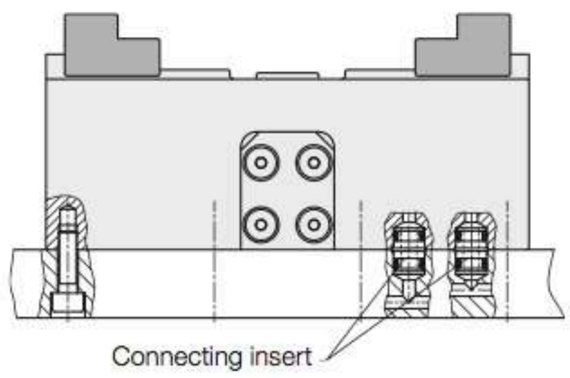
with accessory adaptor plate

Drilled channels



Fixing from below

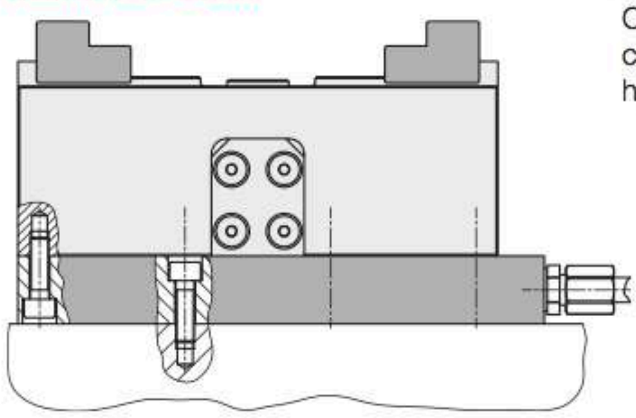
Drilled channels



Description

The fixture clamp with concentric clamping function consists of a very slim basic body with 2 integrated hydraulic cylinders.
The piston forces are transfered via a guided connecting link to the two clamping slides so that a centric synchronism is obtained.
All threads and ports are at the bottom to allow a space-saving arrangement of several clamping points in a very limited space.
If fixing from below is not possible an adaptor plate for manifold mounting or tube connection is available. As accessory also blanks of clamping jaws are available for adaptation to the workpiece contour.

Fitting connection

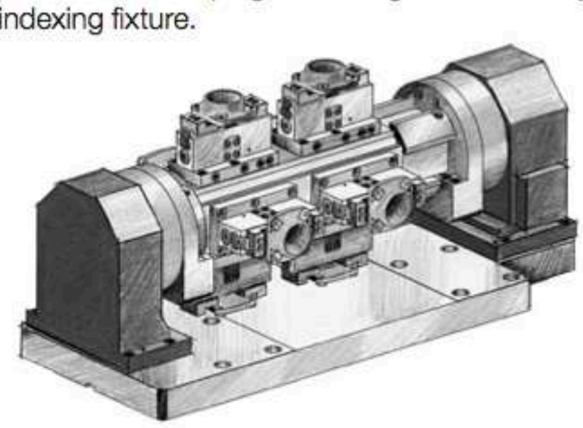


Accessories

Clamping jaws and adaptor plate are not included in the delivery of the fixture clamp and have to be ordered separately as accessory.

Application example

Concentric clamping of 8 flanges on a rotary indexing fixture.



Important notes!

The fixture clamp is only suitable for exterior clamping.
Lubricate at the latest after 500 clamping cycles the clamping slide via the central lubrication.
Never use the complete clamping stroke to guarantee safe clamping of the workpiece.
Max. operating temperature 80 °C.

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. 1901 0101

(Specifications subject to change)

DESIGNATION	PRODUCT CODE
CENTERING VICE DOUBLE ACTING	**1901**

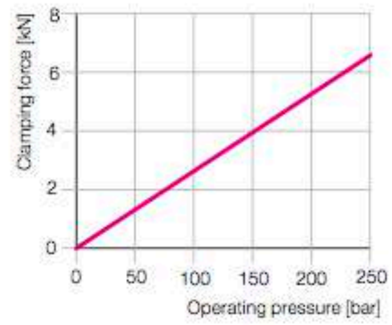
Clamping force 6.5 kN • Clamping stroke 2 x 5 mm
Technical data • Accessories • Dimensions

Part no. **1901 0101**

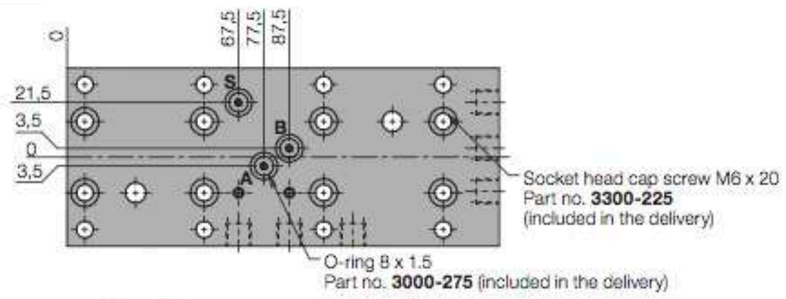
Technical data		
Clamping force / jaw	[kN]	6.5
Retention force	[kN]	8
Release force	[kN]	0.5
Min. operating pressure	[bar]	10
Clamping stroke	[mm]	2 x 5
Repetitive accuracy of clamping	[mm]	±0.02
Jaw width	[mm]	40
Max. flow rate	[cm³/s]	25
Stroke volume Clamping	[cm³]	6.4
Unclamping	[cm³]	3.2
Weight	[kg]	appr. 2.4

Adaptor plate (accessory)		
Weight	[kg]	approx. 1.9
Part no.		1901 0101

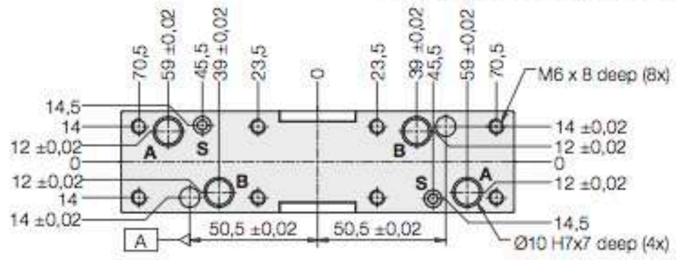
Clamping force diagram
(Height of the clamping jaw 15 mm)



Accessory: adaptor plate
View from below

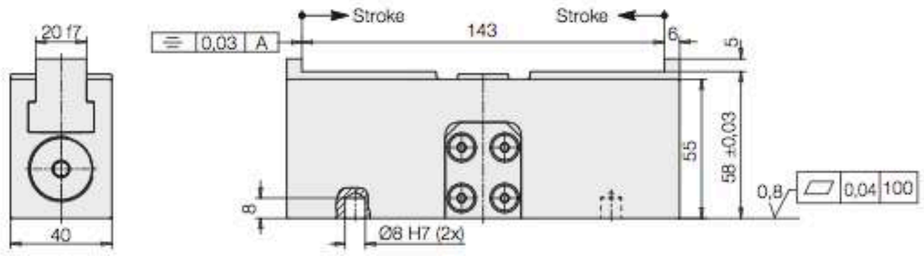


A = Clamping
B = Unclamping
S = Central lubrication

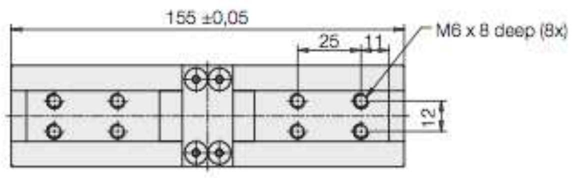


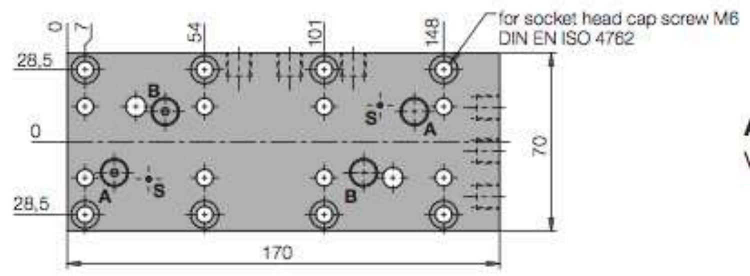
Clamping and unclamping
each Ø10 H7 x 7 deep for connecting insert **9210-132** (included in the delivery), see also page F 9.300

Central lubrication
2 x with O-ring **3001-842** (5x1 mm) (included in the delivery)



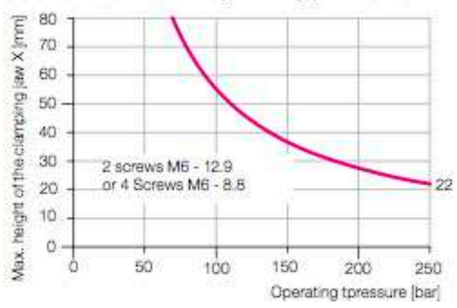
Accessory: adaptor plate
Side views



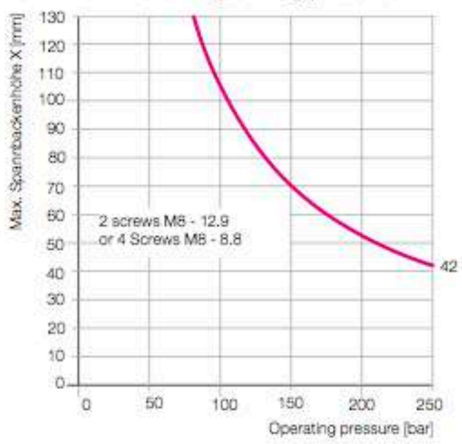


Accessory: adaptor plate
View from above

Max. height of the clamping jaw X for 4413-051 as a function of the operating pressure



Max. height of the clamping jaw X for 4413-151 as a function of the operating pressure



ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 1901 0101

(Specifications subject to change)

CLASYS	DESIGNATION **CENTERING VICE** DOUBLE ACTING	PRODUCT CODE **1901**

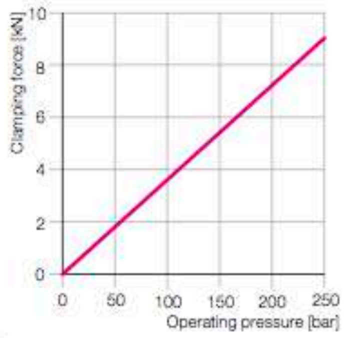
Clamping force 9 kN • Clamping stroke 2 x 8 mm
Technical data • Accessories • Dimensions

Part no. **1901 0201**

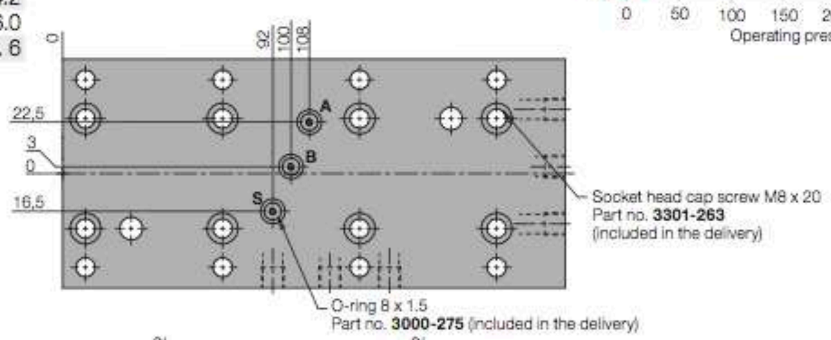
Technical data		
Clamping force / jaw	[kN]	9
Retention force	[kN]	15
Release force	[kN]	0.5
Min. operating pressure	[bar]	10
Clamping stroke	[mm]	2 x 8
Repetitive accuracy of clamping	[mm]	±0.02
Jaw width	[mm]	65
Max. flow rate	[cm³/s]	50
Stroke volume Clamping	[cm³]	14.2
Unclamping	[cm³]	6.0
Weight	[kg]	appr. 6

Adaptor plate (accessory)		
Weight	[kg]	ca. 3.5
Part no.		**1901 0201**

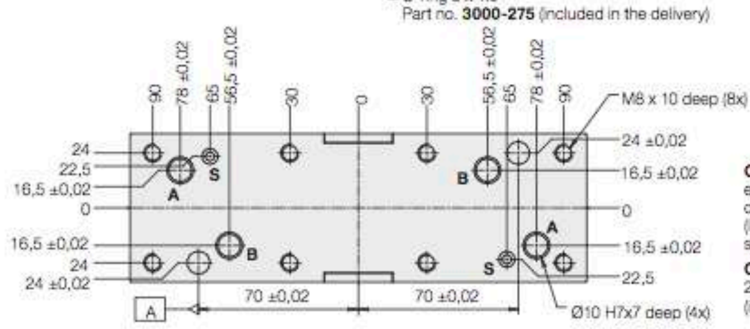
Clamping force diagram
(Height of the clamping jaw 25 mm)



Accessory: adaptor plate
View from below

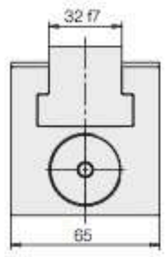


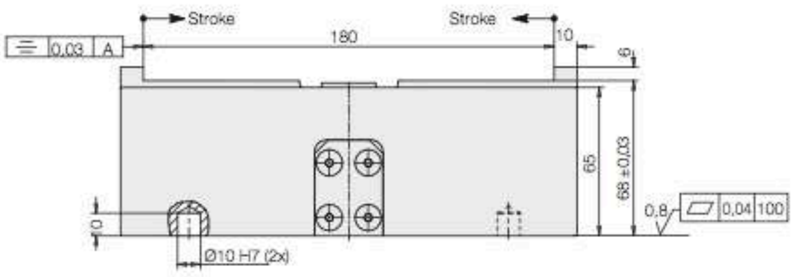
A = Clamping
B = Unclamping
S = Central lubrication

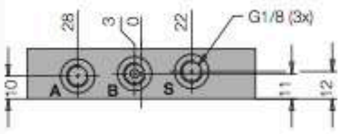


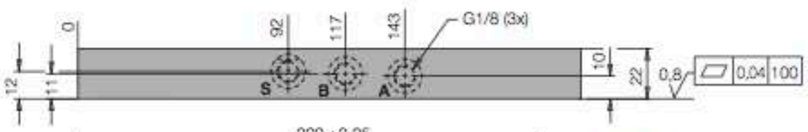
Clamping and unclamping
each Ø10 H7 x 7 deep for connecting insert **9210-132** (included in the delivery), see also page F 9.300

Central lubrication
2 x with O-ring **3001-842** (5x1 mm) (included in the delivery)

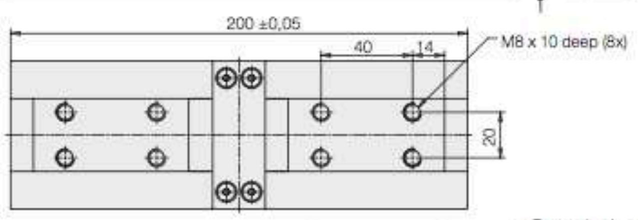


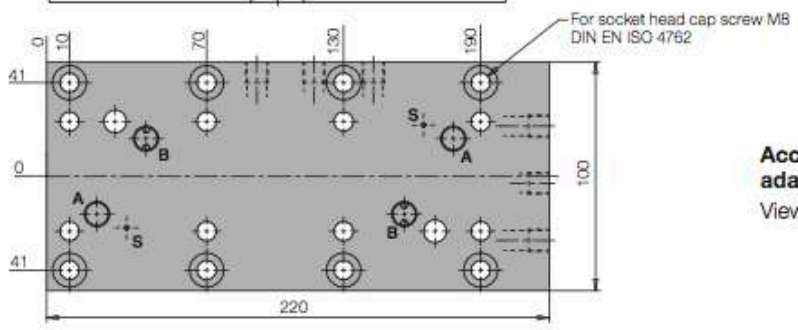






Accessory: adaptor plate
Side views

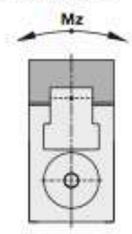


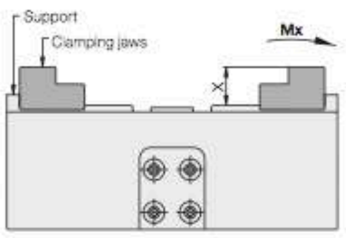


Accessory adaptor plate
View from above

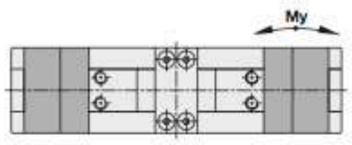
Admissible torques acting on the clamping jaws

Mx = 140 Nm
My = 120 Nm
Mz = 120 Nm





Mx = 375 Nm
My = 200 Nm
Mz = 200 Nm



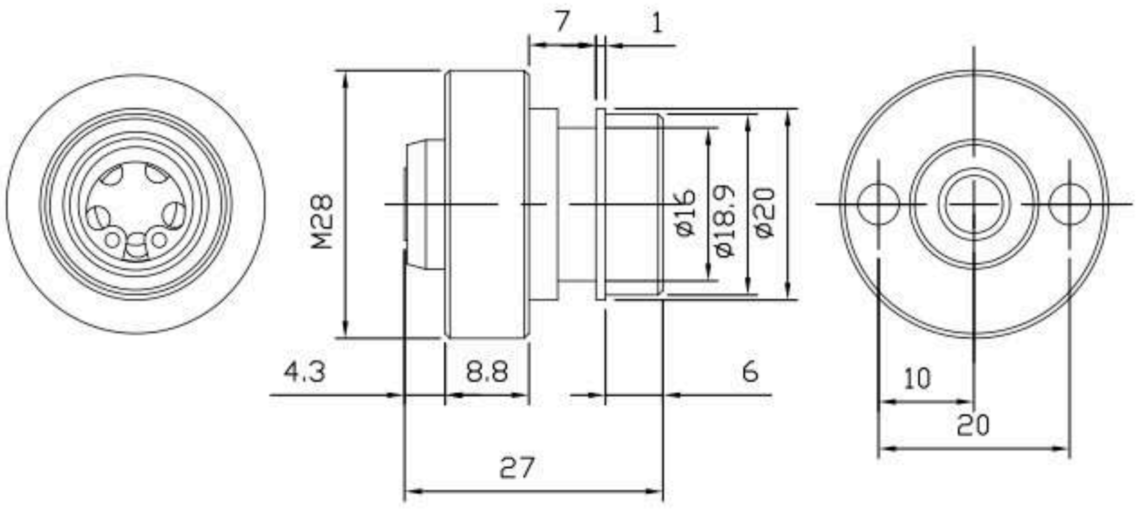
ORDERING METHOD.
PRODUCT CODE–MODEL NO. Eg. 1901 0101

(Specifications subject to change)

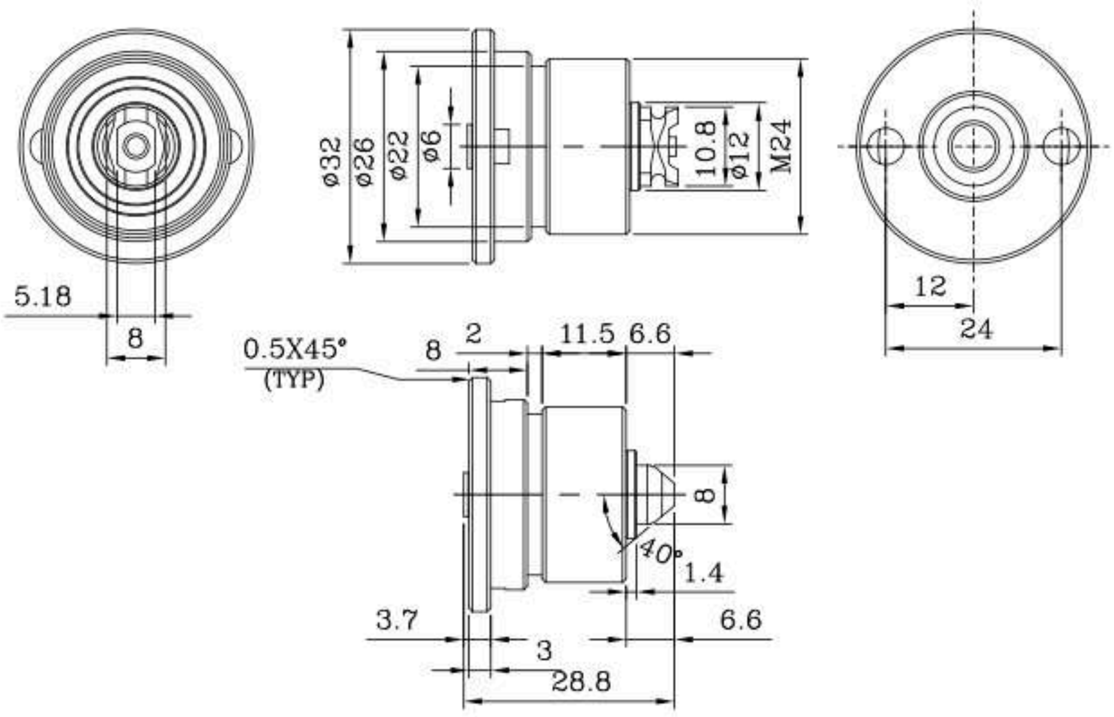
	DESIGNATION	PRODUCT CODE
CLASYS	**AUTO COUPLER** DOUBLE ACTING	**2000 0101**

Application

Compared to other coupling elements the threaded coupling elements are very compact devices.
If the slide movement of the workpiece carrier is to be used or if a fixture is to be connected to the base plate without lines, the threaded nipple and the coupling mechanisms can be directly screwed into the parts which are to be connected. The coupling mechanisms have the advantage that they are flush-faced in uncoupled mode.
Flange-type housings are available to simplify the manufacture of the fixture mounting hole contours. In cramped conditions it is possible to make and install the flange-type housing retrospectively.
The fixture bodies which are to take up the coupling parts have to be guided 2–3 mm in a parallel motion before they are coupled.
The axial forces which arise during the pressure build-up in coupled mode (see diagram) have to be absorbed outside the coupling parts.
The threaded nipples, which are installed into the tank lines, are equipped with a pre-loaded valve (VSV). The pre-loaded valve limits a possible pressure build-up in the return line to approx. 5 bar by causing internal leakage in the hydraulic clamping elements. In coupled mode the pre-loaded valve is not effective.

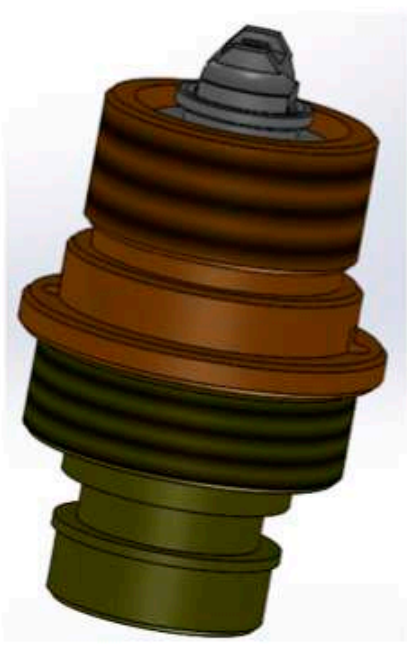


MALE PIECE



FEMALE NIPPLE

ASSEMBLY



ORDERING METHOD.
PRODUCT CODE–MODEL NO
Eg. 2000 0101

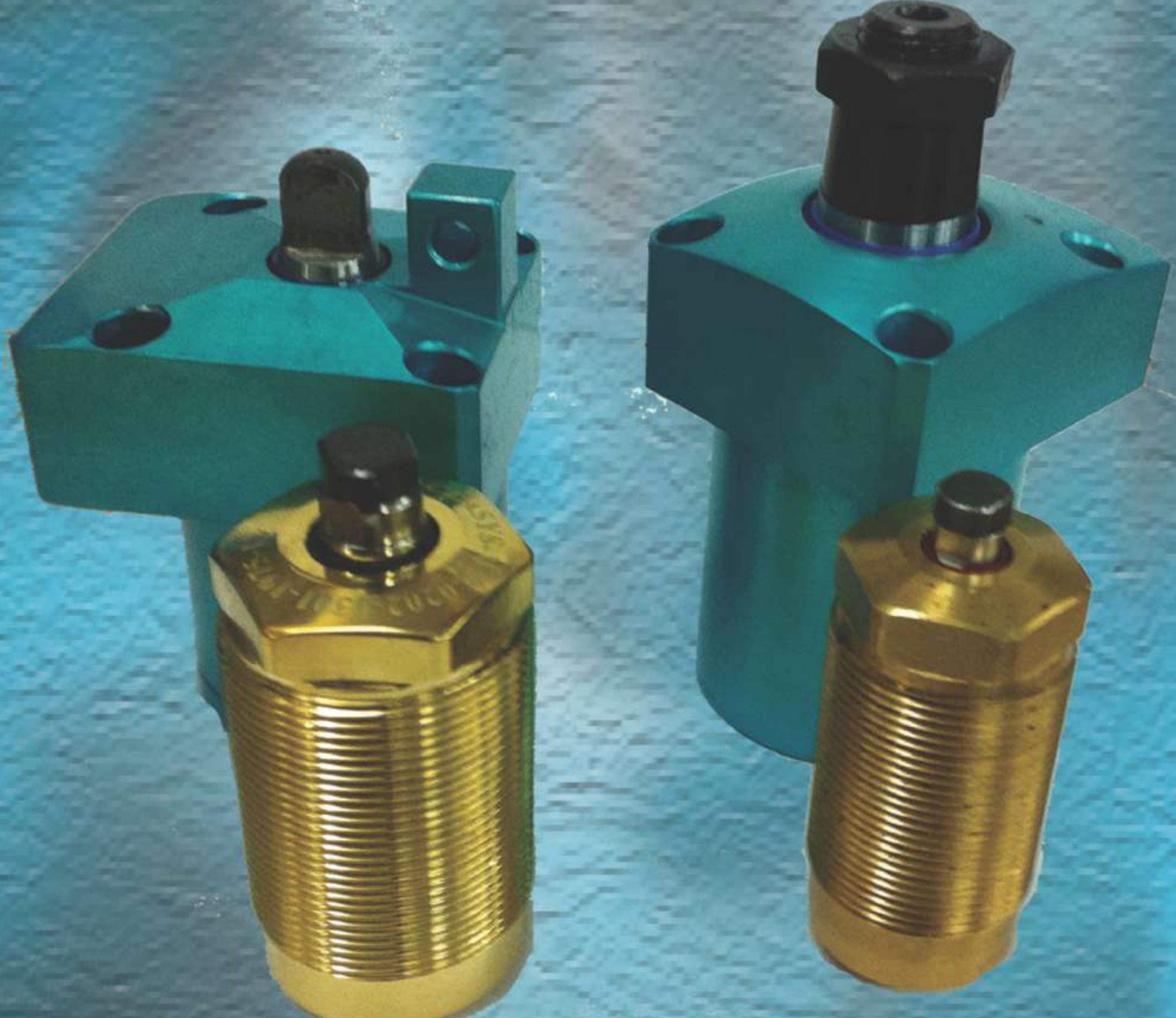
(Specifications subject to change)

PROVEN TECHNOLOGY
STRINGENT QUALITY
RELIABILITY

CLASYS

World Class Work Holding Solutions

PNEUMATICS



DESIGNATION

WORK SUPPORT

Pneumatic (Threaded Body)

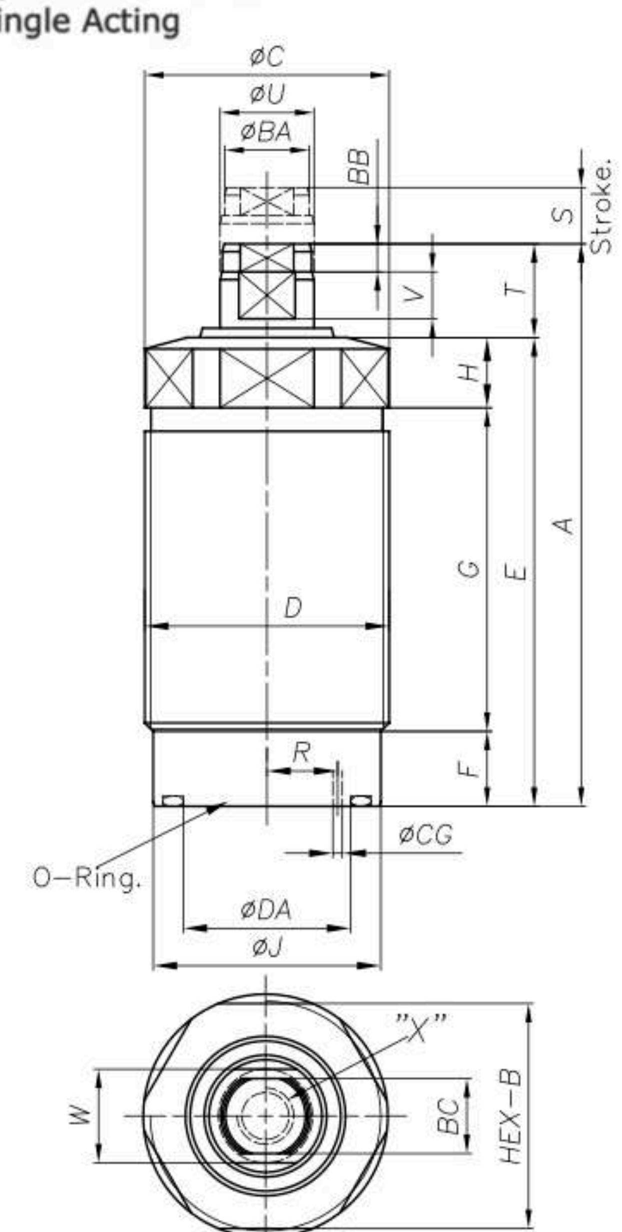
PRODUCT CODE

0211

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

DESCRIPTION :

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

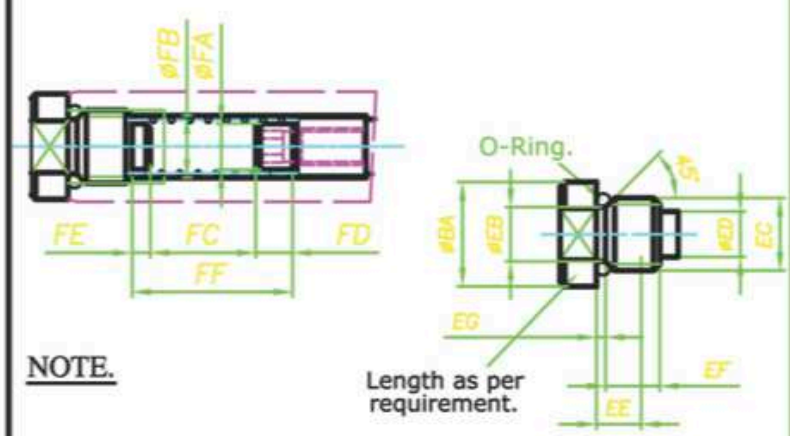


SPECIFICATIONS				
Model No.	0211 0261	0211 0301	0211 0361	0211 0451
Support Force at 0.5Mpa (kN)	0.4	0.525	0.89	1.4
Support Force Formula for Operating pressure (Mpa)	1.80XP - 0.5	2.25xP-0.6	3.38xP-0.8	4.8xP-01.0
Plunger Stroke - S (mm)	6	8	8	10
Plunger Rising Force L (N)	2.8~4.1	3.6~5.7	4.7~7.8	5.8~9.7
Plunger Rising Force H (N)	3.8~5.9	4.9~8	6.2~11	7.9~13.6
Cylinder Volume (cm^3)	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

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

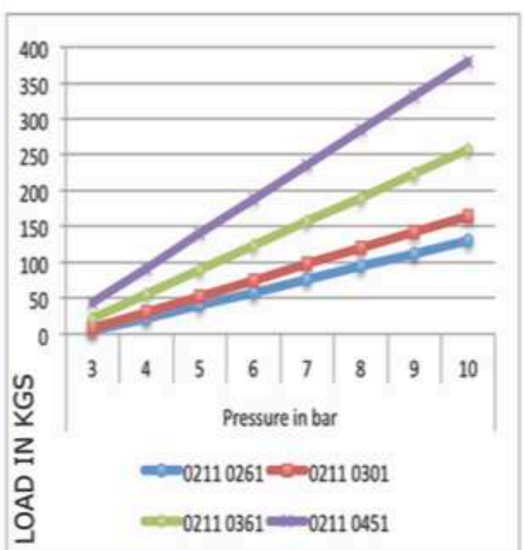
Plunger Spring & Contact Bolt Dimensions



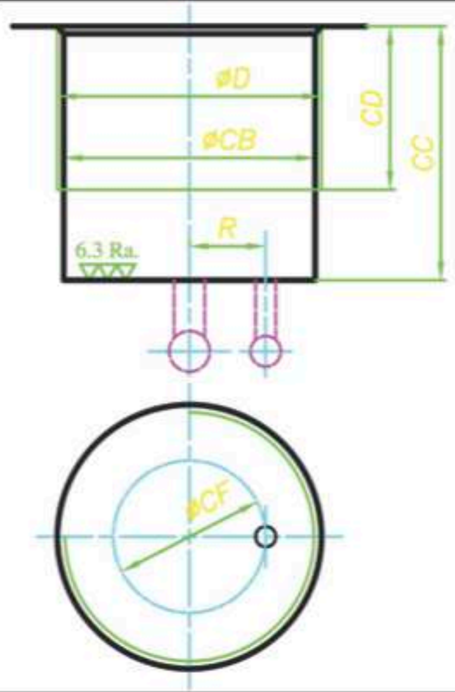
NOTE.

Length as per requirement.

LOAD GRAPHS



MOUNTING DIMENSIONS.



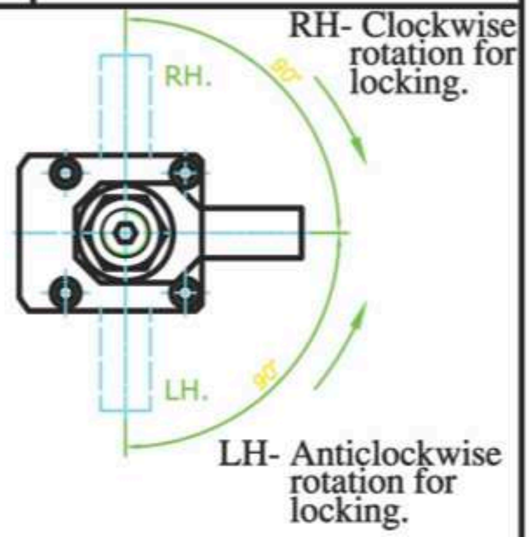
(Specifications subject to change)

DESIGNATION	PRODUCT CODE
SWING CYLINDER (Top Mount) Pneumatic (Double Acting)	**0311**

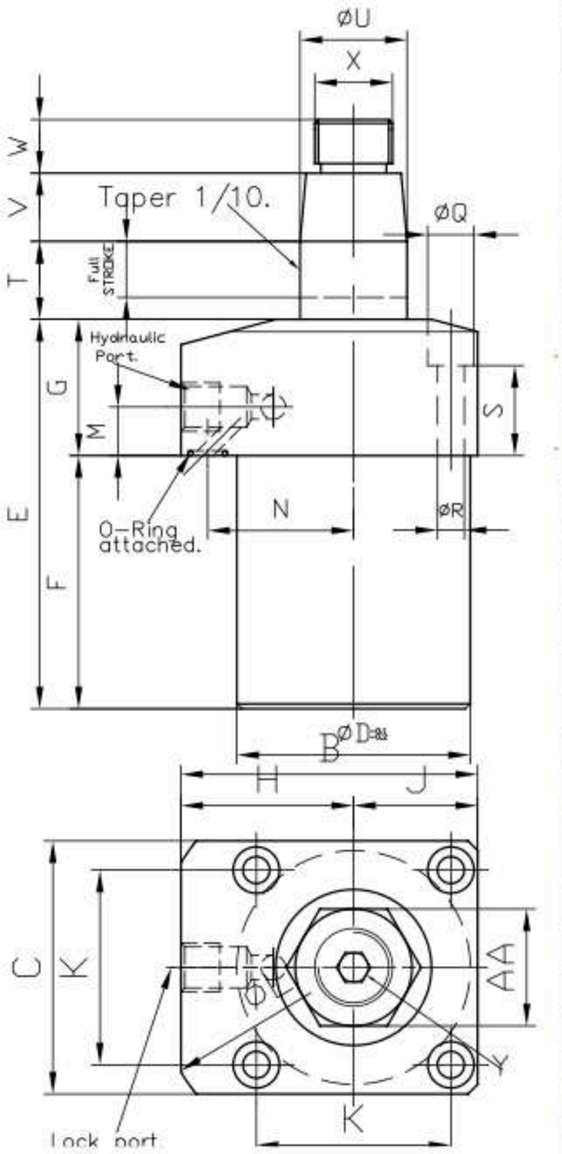
DESCRIPTION :

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



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



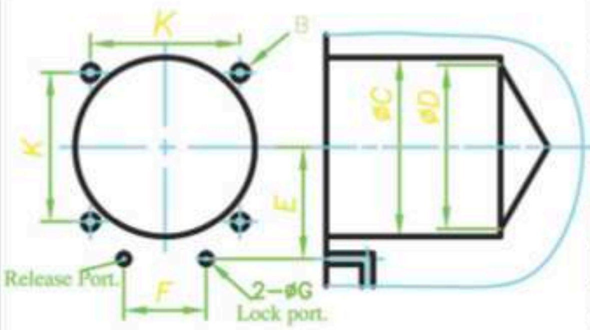
Model						
90° RH.	0311-0361	0311-0401	0311-0481	0311-0551	0311-0651	0311-0751
90° LH.	0311-0362	0311-0402	0311-0482	0311-0552	0311-0652	0311-0752
A	95	111	122	137.5	145	171.5
B	49	54	61	69	81	92
C	40	45	52	60	70	80
D	36	40	48	55	65	75
E	64.5	75	80	87	93	108
F	39.5	50	52	59	63	71
G	25	25	28	28	30	37
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)

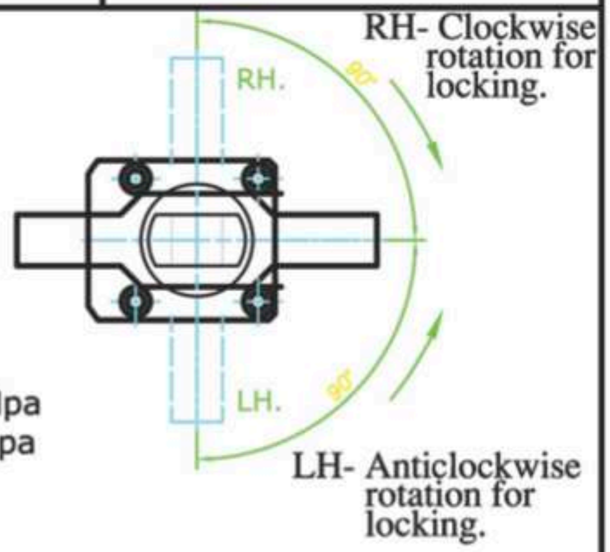
PRODUCT CODE

0311- P

DESCRIPTION :

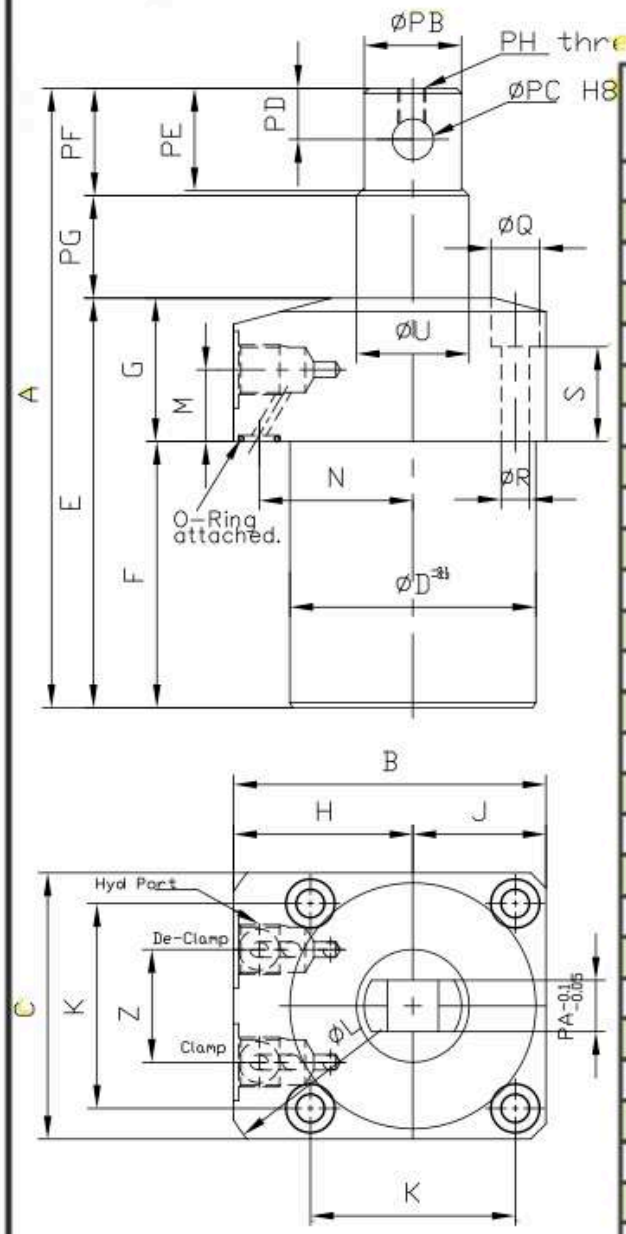
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting

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



ORDERING METHOD.

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

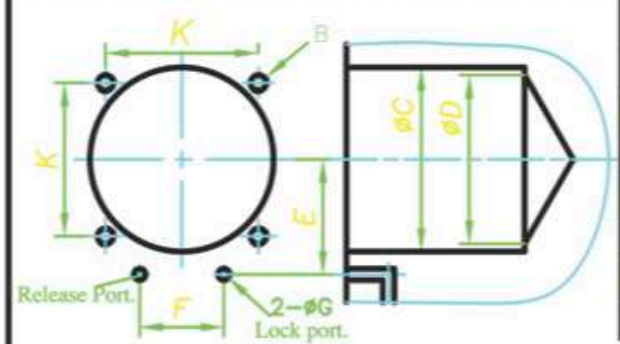


Model				
90° RH.	0312-0481	0312-0551	0312-0651	0312-0751
90° LH.	0312-0482	0312-0552	0312-0652	0312-0752
A	122	137.5	145	171.5
B	61	69	81	92
C	52	60	70	80
D	48	55	65	75
E	80	87	93	108
F	52	59	63	71
G	28	28	30	37
H	35	39	46	52
J	26	30	35	40
K	40	47	55	63
øL	83	88	106	116
M	11	11	12	12
N	30	33.5	39.5	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)

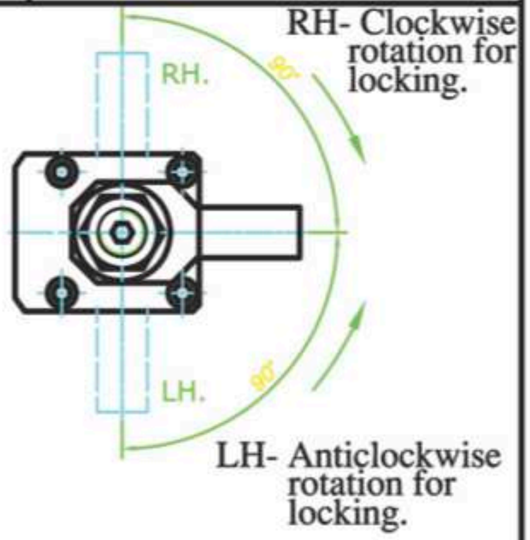
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	SWING CYLINDER (Bottom Mount) Pneumatic (Double Acting)	0312

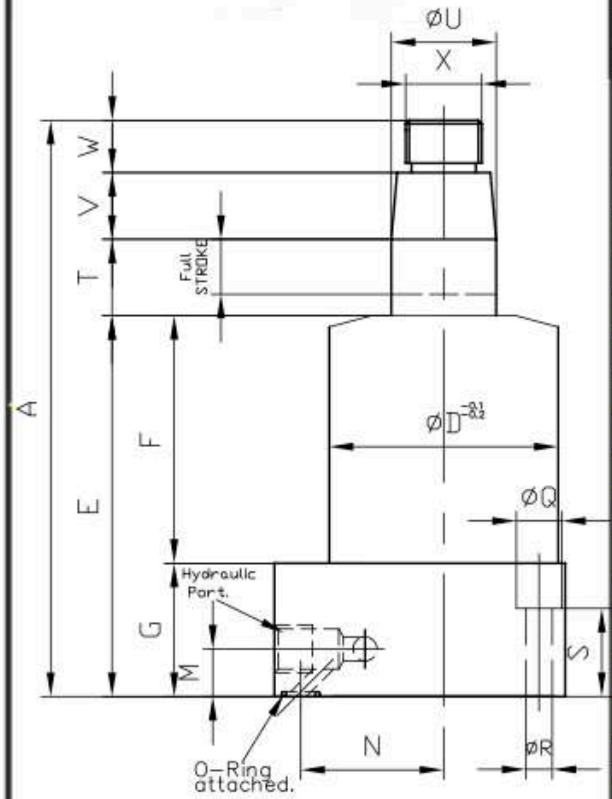
DESCRIPTION :

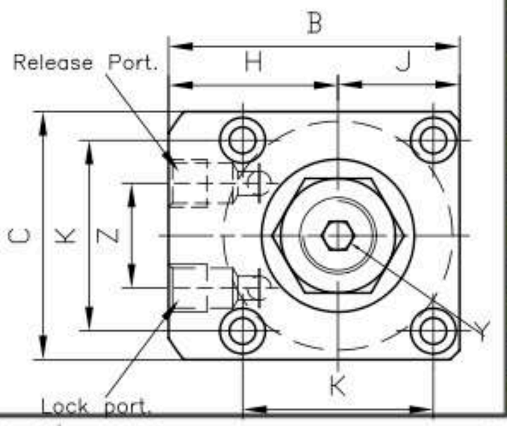
Double Acting Swing Clamp
90° Rotation (RH or LH)
RH: Clock wise rotation for clamping
LH: Counter-clockwise rotation for clamping
Chromium plated piston rod
Aluminium body
Flange Mounting

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



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



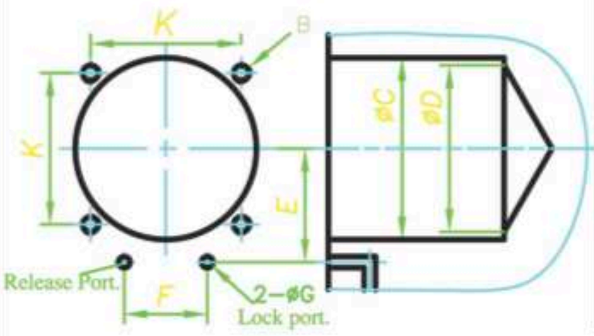


Model	90° RH.	0312-0361	0312-0401	0312-0481	0312-0551	0312-0651	0312-0751
	90° LH.	0312-0362	0312-0402	0312-0482	0312-0552	0312-0652	0312-0752
A		95	111	122	137.5	145	171.5
B		49	54	61	69	81	92
C		40	45	52	60	70	80
D		36	40	48	55	65	75
E		64.5	75	80	87	93	108
F		39.5	50	52	59	63	71
G		25	25	28	28	30	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

		Unit						
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		

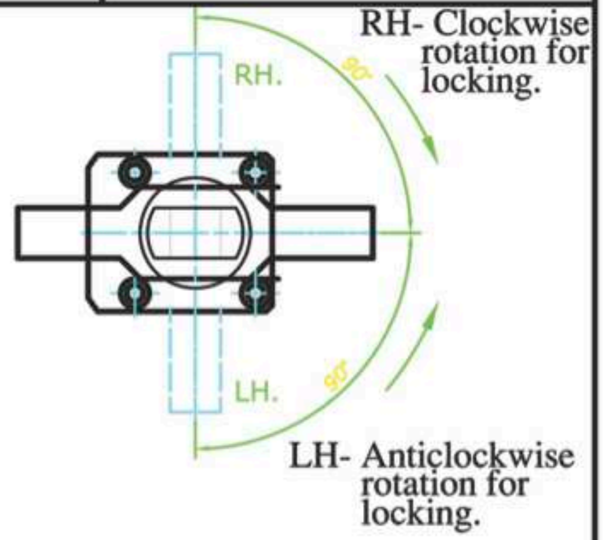
(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**SWING CYLINDER (Bottom Mount)** Pneumatic (Double Acting)	**0312- P**

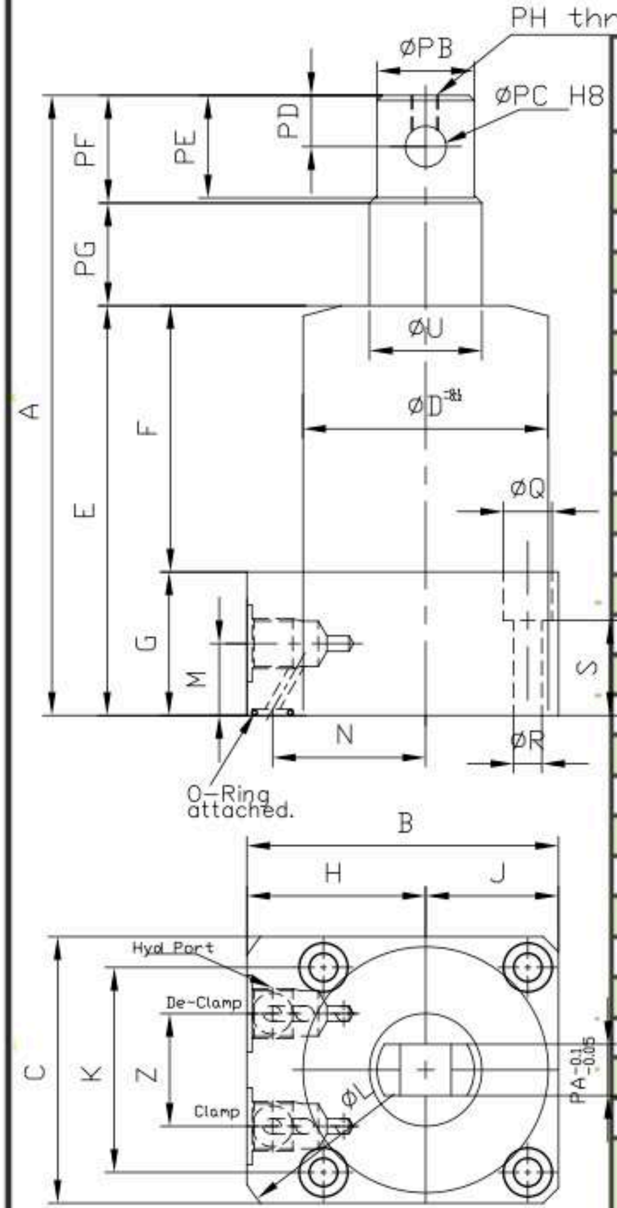
DESCRIPTION :

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



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

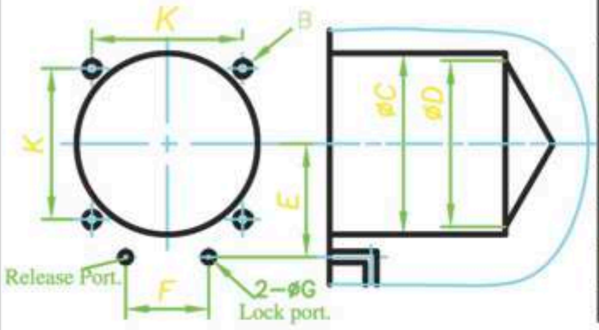


Model				
90° RH.	0312-0481	0312-0551	0312-0651	0312-0751
90° LH.	0312-0482	0312-0552	0312-0652	0312-0752
A	122	137.5	145	171.5
B	61	69	81	92
C	52	60	70	80
D	48	55	65	75
E	80	87	93	108
F	52	59	63	71
G	28	28	30	37
H	35	39	46	52
J	26	30	35	40
K	40	47	55	63
ØL	83	88	106	116
M	11	11	12	12
N	30	33.5	39.5	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

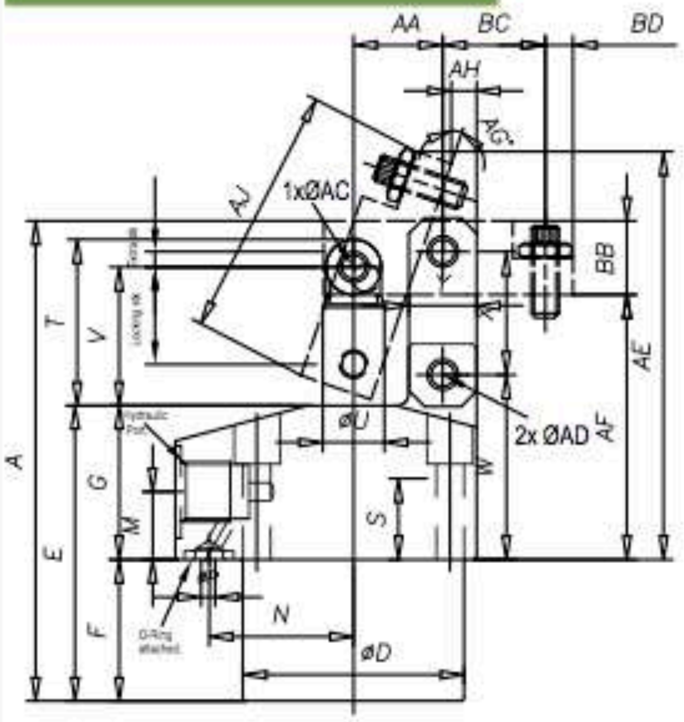
(Single Acting Cylinders available on request. Please contact nearest Dealer)

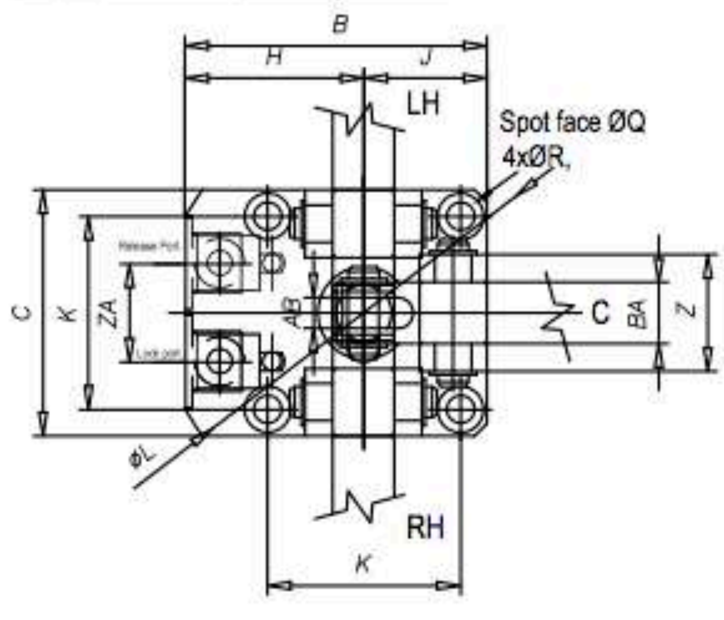
(Specifications subject to change)

DESIGNATION	PRODUCT CODE.
COMPACT LINK CLAMP CYLINDER Pneumatic (Double Acting)	**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



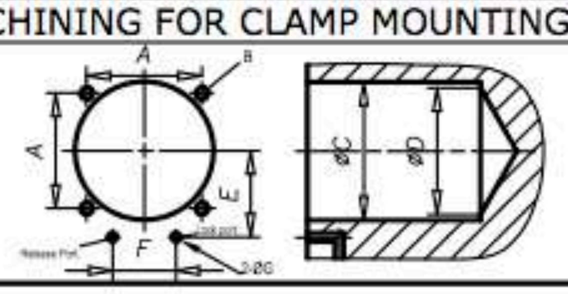


Model.	C	0412 0361	0412 0401	0412-0481	0412-0551	0412-0651	0412-0751
	RH	0412 0362	0412 0402	0412-0482	0412-0552	0412-0652	0412-0752
	LH	0412 0363	0412 0403	0412-0483	0412-0553	0412-0653	0412-0753
A		79	87.5	101	112.5	129.5	153
B		50	54	61	69	81	94.5
C		41	45	51	60	70	85
D		36	40	48	55	65	75
E		55	56	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.

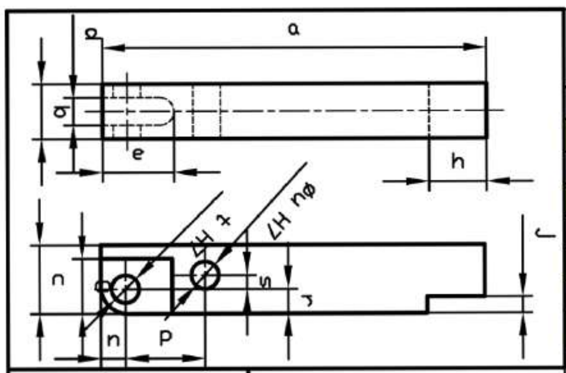


A	31.4	34	55	63	75	88
B	M4	M5	M6	M8	M10	M12
C+0.2	36	40	65	75	90	105
D	30	35	60	70	85	100
E	23.5	26	39.5	45	52.5	60
F	16	18	30	32	37	45
G	2.5	2.5	3	3	3	4

(Specifications subject to change)

ACCESSORIES

CLAMP LEVER TABLE (Standard) FOR 0411

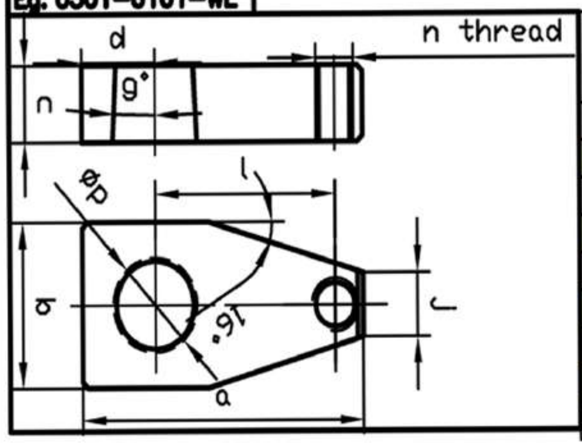


ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. 0401-0101-SC

Model 0401	008x	009x	010x	020x	030x	040x	050x	060x
Model 0402	036x	040x	048x	055x	065x	075x	090x	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

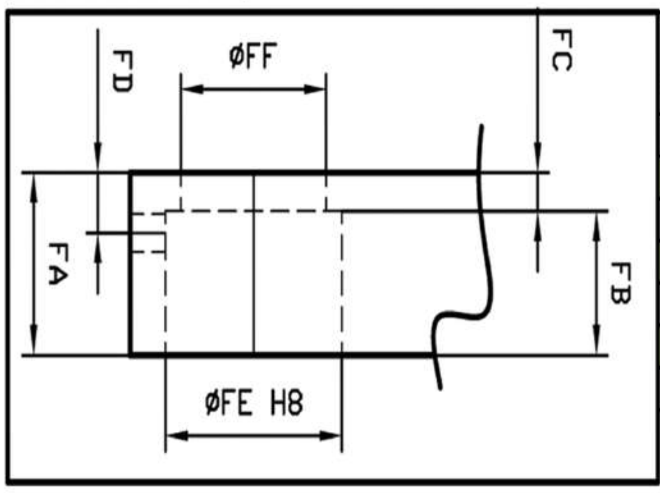
CLAMP LEVER TABLE (WITHOUT SLEEVE) FOR 0311 & 0312



Model 90° RH.	0081	0091	0101	0201	0301	0401	0501	0601
Model 90° LH.	0082	0092	0102	0202	0302	0402	0502	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**
ϕp	**15**	**18**	**22**	**25**	**30**	**36**	**45**	**55**

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

CLAMP LEVER TABLE (WITH SLEEVE) FOR 0311 & 0312



Model 90° RH.	0081	0091	0101	0201	0301	0401	0501	0601
Model 90° LH.	0082	0092	0102	0202	0302	0402	0502	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**
ϕFE	**17**	**20**	**25**	**28**	**34**	**40**	**49**	**60**
ϕFF	**13.9**	**16.7**	**20.6**	**23**	**28**	**32.9**	**41.8**	**51.2**
ϕFG	**3**	**4**	**4**	**4**	**6**	**6**	**8**	**8**

	DESIGNATION POWER PACKS	PRODUCT CODE **PP**

DESCRIPTION :

Min operating pressure : 1Mpa

Max operating pressure : 20Mpa

Fabricated tank of various capacities

Electrical panel design can be customized

All elements are of std. design & Reputed brand

Design: Gear Pump/Vane Pump/ Radial Piston Pump

Mounting: Flange mounting

Nominal voltage: 220/400 V

Power system: 3-phase AC, 50 Hz

Oil level indicator

Pressure relief valve & Return Line Filter

Temperature control (Optional)

APPLICATION :

Tank capacities available in various sizes from 10-100L

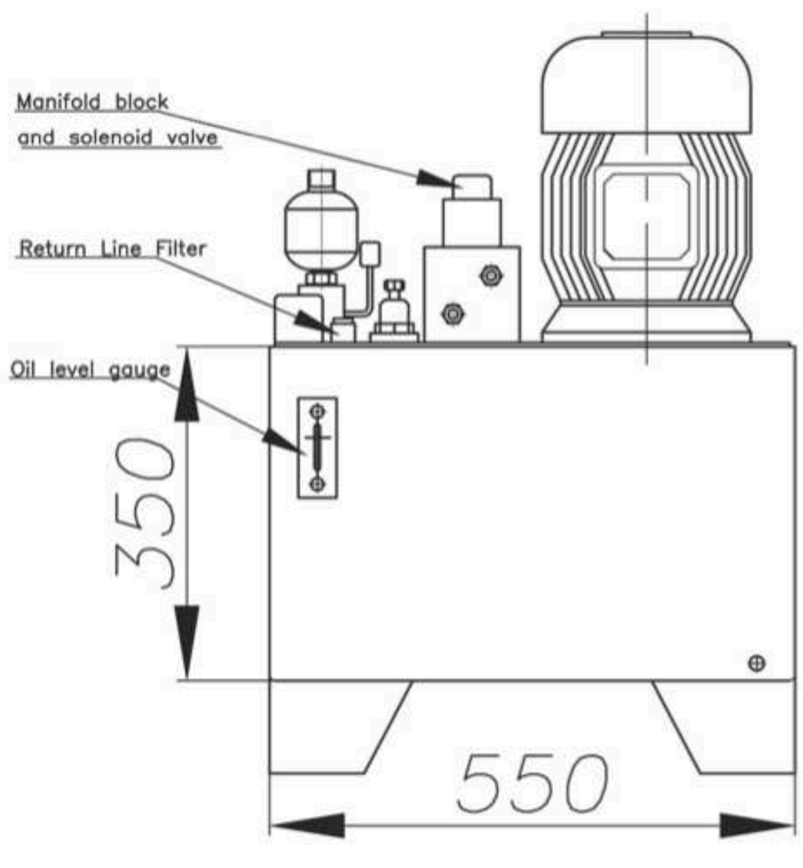
FACTOR OF SAFETY in PUMP-MOTOR ratio is high preventing overload and burn out. Can be used in assembly automation.

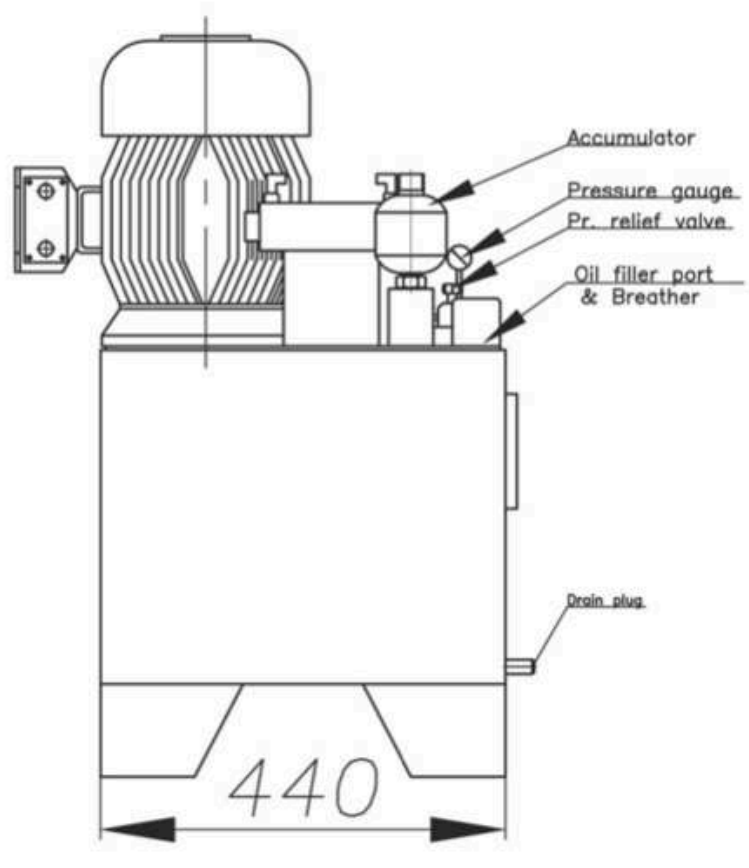
Manifold design is adapable to suit 1-5 valve banks for sequential clamping.

Operating range from 5-200 bar available.

Accumulator present in case of power failure

Designed for optimal heat exchange to prevent over heating of oil and elements





(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**QUICK RELEASE COUPLER** HYDRAULIC OIL MEDIUM	**QRC**

ISO-A series – Steel - NPT

Quick Disconnect Couplings

Standard: ISO 7241-1 Series 'A'

Interchangeable with:
Snap Tite 61, Parker 6600, Aeroquip 5600, Dixon K, Safeway S56, Tomco A5600, Stucchi BIR, Faster ANV

Material: Steel
Seals: NBR

SAE ORB and BSP threads available on request

MAX PRESSURE RATING : 350 BAR / 35MPa

Socket

Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
1/4	1/4	NPT	5075 psi	SMB-04-AF
3/8	3/8	NPT	4350 psi	SMB-06-AF
1/2	1/2	NPT	4350 psi	SMB-08-AF
3/4	3/4	NPT	3625 psi	SMB-12-AF
1	1	NPT	3335 psi	SMB-16-AF
1-1/4	1 1/4	NPT	3335 Psi	SMB-20-AF
1-1/2	1 1/2	NPT	2900 Psi	SMB-24-AF
2	2	NPT	1885 Psi	SMB-32-AF

Plug

Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
1/4	1/4	NPT	5075 psi	SMB-04-AM
3/8	3/8	NPT	4350 psi	SMB-06-AM
1/2	1/2	NPT	4350 psi	SMB-08-AM
3/4	3/4	NPT	3625 psi	SMB-12-AM
1	1	NPT	3335 psi	SMB-16-AM
1-1/4	1 1/4	NPT	3335 Psi	SMB-20-AM
1-1/2	1 1/2	NPT	2900 Psi	SMB-24-AM
2	2	NPT	1885 Psi	SMB-32-AM

PLEASE ASK FOR BSP OR OTHER TYPES OF THREADING WHILE PLACING ORDERS

STAINLESS STEEL AND BRASS MATERIAL ALSO AVAILABLE UPON REQUEST

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. QRC-PT-04-04-A

(Specifications subject to change)

DESIGNATION	PRODUCT CODE
QUICK RELEASE COUPLER HYDRAULIC OIL MEDIUM	**QRC**

ISO-B series – Steel - NPT

Industrial Quick Disconnect Couplings

Standard: ISO 7241-1 Series 'B'

Interchangeable with:
Snap Tite 72, Parker 60, Aeroquip FD45, Dixon H, Safeway S10, Tomco THK, Stucchi IRB, Hansen HK, Faster HNV

Material: Steel
Seals: NBR

SAE ORB and BSP threads available on request

MAX PRESSURE RATING : 250 BAR / 25MPa

Socket

Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
1/8	1/8	NPT	5800 psi	SMB-02-BF
1/4	1/4	NPT	5000 psi	SMB-04-BF
3/8	3/8	NPT	4000 psi	SMB-06-BF
1/2	1/2	NPT	4000 psi	SMB-08-BF
3/4	3/4	NPT	3000 psi	SMB-12-BF
1	1	NPT	3000 psi	SMB-16-BF
1-1/2	1 1/4	NPT	1500 psi	SMB-20-BF
1-1/2	1 1/2	NPT	1500 psi	SMB-24-BF
2-1/2	2	NPT	1500 psi	SMB-32-BF
2-1/2	2-1/2	NPT	1500 psi	SMB-40-BF
2-1/2	3	NPT	1500 psi	SMB-48-BF

Plug

Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
1/8	1/8	NPT	5800 psi	SMB-02-BM
1/4	1/4	NPT	5000 psi	SMB-04-BM
3/8	3/8	NPT	4000 psi	SMB-06-BM
1/2	1/2	NPT	4000 psi	SMB-08-BM
3/4	3/4	NPT	3000 psi	SMB-12-BM
1	1	NPT	3000 psi	SMB-16-BM
1-1/2	1 1/4	NPT	1500 psi	SMB-20-BM
1-1/2	1 1/2	NPT	1500 psi	SMB-24-BM
2-1/2	2	NPT	1500 psi	SMB-32-BM
2-1/2	2-1/2	NPT	1500 psi	SMB-40-BM
2-1/2	3	NPT	1500 psi	SMB-48-BM

PLEASE ASK FOR BSP OR OTHER TYPES OF THREADING WHILE PLACING ORDERS
STAINLESS STEEL AND BRASS MATERIAL ALSO AVAILABLE UPON REQUEST

ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. QRC-PT-04-04-B

(Specifications subject to change)

	DESIGNATION	PRODUCT CODE
CLASYS	**QUICK RELEASE COUPLER** HYDRAULIC OIL MEDIUM	**QRC**

SMB-Series 16028 – Steel - NPT

Flush Face (Non Spill) Quick Disconnect Couplings, NPT threads

Standard: ISO 16028

Interchangeable with:
Snap Tite 74, Parker FEM, Aeroquip FD89, Dixon HT, Safeway FFE49, Tomco FE/FF, Stucchi FIRG/A, Faster 2FFI

Material: Steel
Seals: NBR

MAX PRESSURE RATING : 350 BAR / 35MPa

Socket

Body Size			Port		Max. Op. Pr Coupled	Part Number
Inch	ISO	Ø	Size	Thread		
1/4	6.3	1.15	1/4	NPT	5075 psi	FF-04-04F
3/8	10	1.26	3/8	NPT	4350 psi	FF-06-06F
3/8	10	1.26	1/2	NPT	4350 psi	FF-06-08F
1/2	12.5	1.50	1/2	NPT	3625 psi	FF-08-08F
1/2	12.5	1.50	3/4	NPT	3625 psi	FF-08-12F
5/8	16	1.65	3/4	NPT	3625 psi	FF-10-12F
3/4	19	1.89	3/4	NPT	3625 psi	FF-12-12F
3/4	19	1.89	1	NPT	3625 psi	FF-12-16F
1	25	2.17	1	NPT	3045 psi	FF-16-16F

Plug

Body Size			Port		Max. Op. Pr Coupled	Part Number
Inch	ISO	Ø	Size	Thread		
1/4	6.3	.63	1/4	NPT	5075 psi	FF-04-04M
3/8	10	.78	3/8	NPT	4350 psi	FF-06-06M
3/8	10	.78	1/2	NPT	4350 psi	FF-06-08M
1/2	12.5	.96	1/2	NPT	3625 psi	FF-08-08M
1/2	12.5	.96	3/4	NPT	3625 psi	FF-08-12M
5/8	16	1.06	3/4	NPT	3625 psi	FF-10-12M
3/4	19	1.18	3/4	NPT	3625 psi	FF-12-12M
3/4	19	1.18	1	NPT	3625 psi	FF-12-16M
1	25	1.42	1	NPT	3045 psi	FF-16-16M

PLEASE ASK FOR BSP OR OTHER TYPES OF THREADING WHILE PLACING ORDERS
STAINLESS STEEL AND BRASS MATERIAL ALSO AVAILABLE UPON REQUEST

ORDERING METHOD.
PRODUCT CODE-MODEL NO.
Eg. QRC-PT-04-04-FF

	DESIGNATION	PRODUCT CODE
CLASYS	**QUICK RELEASE COUPLER** HYDRAULIC OIL MEDIUM	**QRC**

HPA high pressure series – Steel

Screw Couplings, Ball Style

Standard: Enerpac interchange

Interchangeable with:
Snap-tite 76, Parker 3000, Faster PVV, Perfecting 300, Powerteam C39, Enerpac C-604

Material: Steel
Seals: NBR

MAX PRESSURE RATING : 700 BAR / 70MPa

SOCKETS

Description	Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
Socket	1/4	1/4	NPT	10,000 psi	SMB-SC-4F
Socket	3/8	3/8	NPT	10,000 psi	SMB-SC-6F

PLUGS

Description	Body Size	Port Size	Port Thread	Max. Op. Pressure Coupled	Part Number
Plug	1/4	1/4	NPT	10,000 psi	SMB-SC-4M
Plug	3/8	3/8	NPT	10,000 psi	SMB-SC-6M

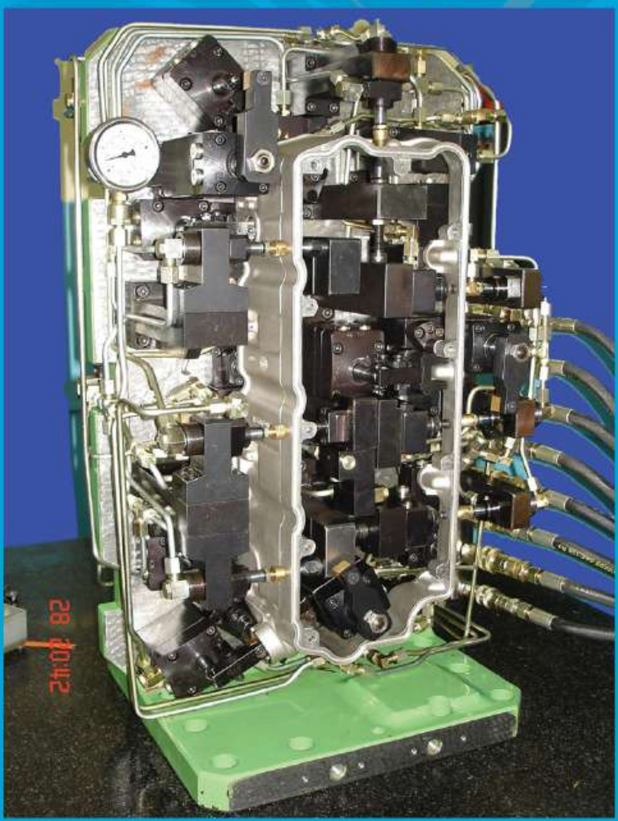
PLEASE ASK FOR BSP OR OTHER TYPES OF THREADING WHILE PLACING ORDERS

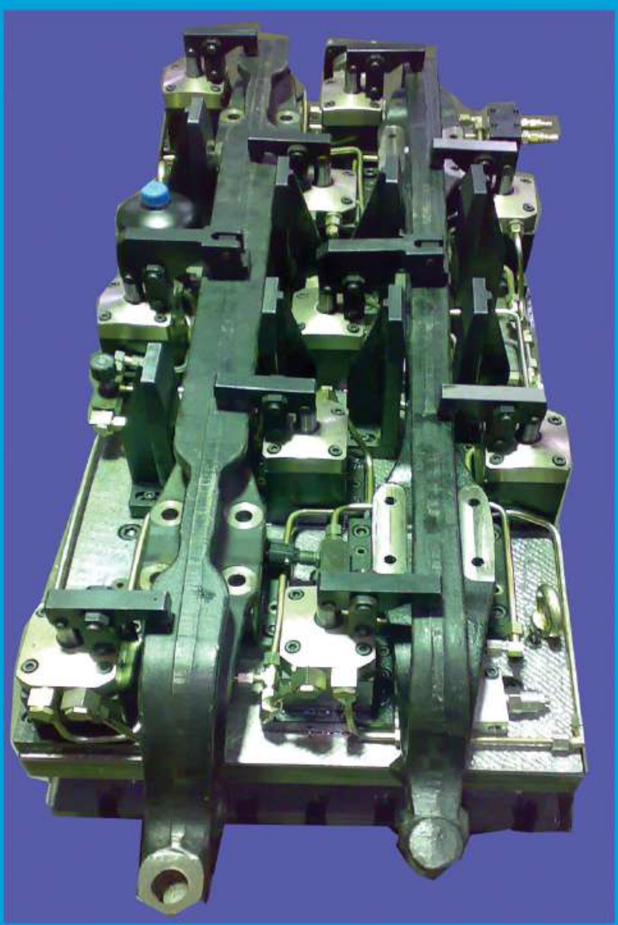
ORDERING METHOD.
PRODUCT CODE–MODEL NO.
Eg. QRC-PT-SC-04-04


CLASYS

CLASYS

CLAMPING SYSTEMS





3D modelling and Design analysis before Prototyping for reduced development cycle.

Specially designed and Made to order cylinders with Specific strokes and sizes on customer request.

Extremely Compact design and space saving mountings!

Hydraulic Testing of all clamping cylinders between 15to120N/m2 to assess reliability and performance.

Use of high quality seals ensures long Operating life & Leak Proof,Sustained operation.

Hydraulic units, capable of lifting, rotating, tilting and moving of workpieces.

Pressing devices for riveting

A selective range of Work Supports with a range of mountings to enhance the solutions that can be offered to the customer.

Any type of linear motion or actuation is possible.

Spares & Accessories are standardised and easily available

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