

SS-40 SA-40 FIXED TYPE

MULTI-APERTURE ORIFICE



ORDER-MADE SERIES FOR DESIGNING THE IDEAL ORIFICE BASED ON THE CUSTOMER'S SPECIFICATIONS.

- It is designed so that effect of viscous change caused by temperature is small owing to the special knife edge orifice shape.
- The soft energy absorption is available as the multi-aperture orifice type is adopted.
- Shock absorber with the ideal absorption characteristics needed for the application conditions is available if it is less than the energy absorption capacity.
- Small, lightweight, low-cost for actual design.
- With the additional application of oil cooler (heat exchanger), the energy absorption capacity can be increased.
- With the adoption of air return method, the rod return time can be delayed.
- The rear ineffective stroke can be provided when the external stopper is mounted. (In this case, contact us.)
- Fifty per cent of the actual equivalent load against the design equivalent load can be absorbed.

$$0.5 \leq \frac{\text{Actual equivalent load}}{\text{Design equivalent load}} \leq 1$$

CODE For order, specify the following code.

S A F - 40 - 20

- ① Return method
- ② Mounting style
- ③ Stroke
- Bore

SYMBOL EXPLANATION

Return method					
① S	Spring return				
A	Air return				
Mounting style					
F	Front flange mounting				
② E	Rear flange mounting				
H	Foot mounting				
U	Clevis mounting				
Stroke (mm)					
③ 10	25.4	50	127.0	90	228.6
20	50.8	60	152.4	100	254.0
30	76.2	70	177.8	110	279.4
40	101.6	80	203.2	120	304.8

SPECIFICATIONS

Code	S** F U-40-10	S** F U-40-20	S** F U-40-30	S** F U-40-40	
Max. energy absorption	J	4250	8500	12800	17000
Stroke	mm	25.4	50.8	76.2	101.6
(※1) Max. energy capacity per min.	J/min	8870 [20400]	9240 [23600]	9600 [26700]	10100 [30100]
Impact speed range	m/s	0.05~7.6(Spring return)·0.05~2.3(Air return)			
(※2) Rod return force	N	778			
Temperature range	°C	-5~+50 (at non-freezing condition)			
Mounting style		F type(Front flange) E type(Rear flange) H type(Foot) U type(Clevis)			
Weight	kg	45.12	47.29	49.42	51.6
Accessories		Auxiliary oil tank·External accumulator·Heat exchanger			

● Figures in [] mark are the max. energy capacity per min. with heat exchanger.

SPECIFICATIONS

Code	S** F U-40-50	S** F U-40-60	S** F U-40-70	S** F U-40-80	
Max. energy absorption	J	21300	25500	29800	34000
Stroke	mm	127.0	152.4	177.8	203.2
(※1) Max. energy capacity per min.	J/min	11400 [37600]	11700 [40700]	12100 [49300]	12500 [47200]
Impact speed range	m/s	0.05~7.6(Spring return)·0.05~2.3(Air return)			
(※2) Rod return force	N	770			
Temperature range	°C	-5~+50 (at non-freezing condition)			
Mounting style		F type(Front flange) E type(Rear flange) H type(Foot) U type(Clevis)			
Weight	kg	60.79	62.97	65.10	67.27
Accessories		Auxiliary oil tank·External accumulator·Heat exchanger			

SPECIFICATIONS

Code	S** F U-40-90	S** F U-40-100	S** F U-40-110	S** F U-40-120	
Max. energy absorption	J	38300	F-E-H type:42600 U type:37800	F-E-H type:46800 U type:37300	F-E-H type:51100 U type:36600
Stroke	mm	228.6	254.0	279.4	304.8
(※1) Max. energy capacity per min.	J/min	14000 [54800]	14300 [57900]	14700 [61100]	15200 [64300]
Impact speed range	m/s	0.05~7.6(Spring return)·0.05~2.3(Air return)			
(※2) Rod return force	N	765			
Temperature range	°C	-5~+50 (at non-freezing condition)			
Mounting style		F type(Front flange) E type(Rear flange) H type(Foot) U type(Clevis)			
Weight	kg	76.47	78.60	80.77	82.94
Accessories		Auxiliary oil tank·External accumulator·Heat exchanger			

Note : (※1) ● Max. energy capacity per minute in the table is shown at the ambient temperature of 26.7°C. Max. energy capacity per minute at the ambient temperature T (°C) mentioned as E₂ (J/min) is calculated according to the following formula.

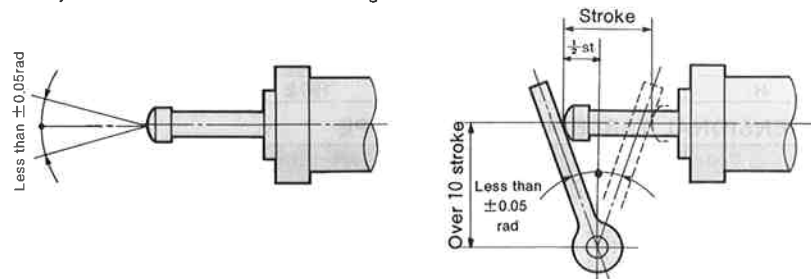
$$E_2 = \frac{(82.2 - T)}{55.5} \times (\text{Max. energy capacity per minute in table})$$

- In order that the absorption energy is less than about 70% (criterion) of maximum absorption energy, the selection with sufficient margin is recommended. In case that there is no margin for selection, contact us.

(※2) ● It indicates the maximum value when full stroke is pushed.

PRECAUTIONS FOR HANDLING

- Do not start running the equipment by using a rod return motion when a clevis type is used. Also, do not use a rod return and as stopper for the shock absorber.
- When shock absorber is mounted, the impact objects shall be applied on the center line of rod. In the impact at rotation, the work shall be set at right angle with piston rod at the half of stroke of shock absorber. And the rotation center and shock absorber shall also be kept away over 10-fold of stroke for mounting.



- Do not use in such environment that cutting oil and other liquids are adhered to piston rod.

WORKING FLUIDS

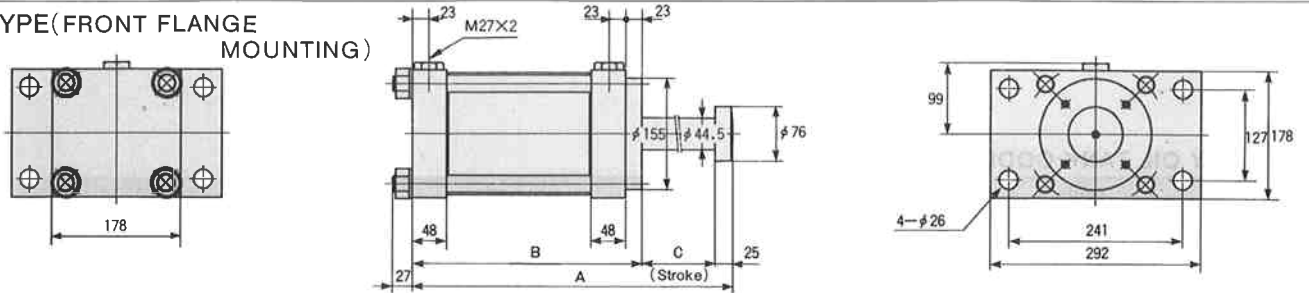
- To supply hydraulic oil use our recommended oil.

SS-40 FIXED TYPE SA-40

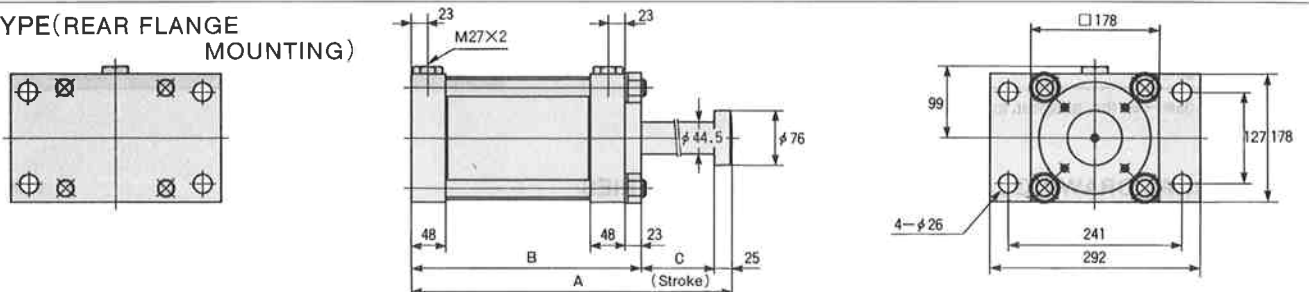
DIMENSIONAL DRAWINGS

Unit : mm

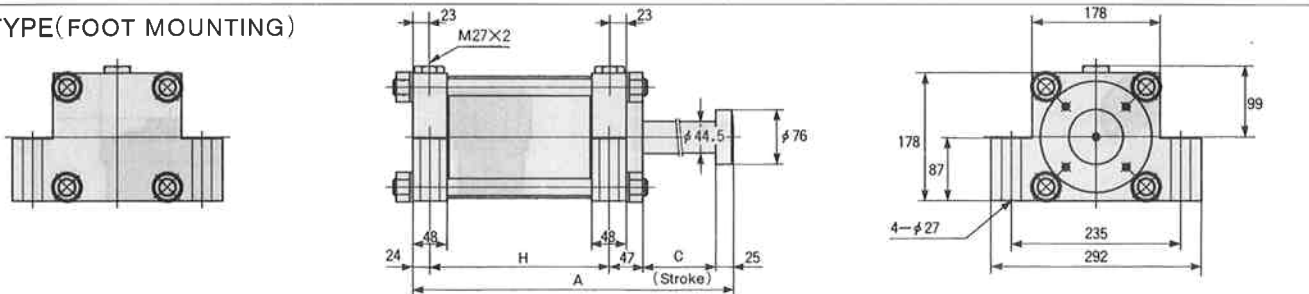
F TYPE(FRONT FLANGE MOUNTING)



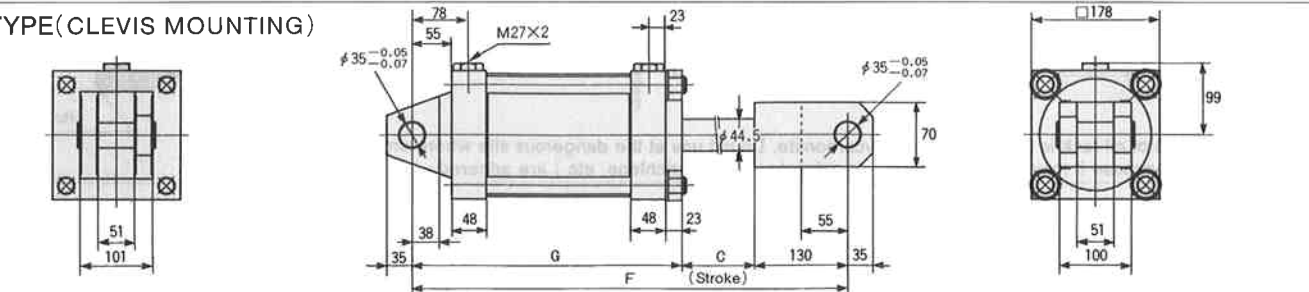
E TYPE(REAR FLANGE MOUNTING)



H TYPE(FOOT MOUNTING)



U TYPE(CLEVIS MOUNTING)



DIMENSIONAL TABLE/SPRING RETURN TYPE

Code	SS*-40-10	SS*-40-20	SS*-40-30	SS*-40-40	SS*-40-50	SS*-40-60	SS*-40-70	SS*-40-80	SS*-40-90	SS*-40-100	SS*-40-110	SS*-40-120
Symbol Stroke	10	20	30	40	50	60	70	80	90	100	110	120
A	294.2	345	395.8	446.6	567.3	618.1	668.9	719.7	840.3	891.1	941.9	992.7
B	243.8	269.2	294.6	320	415.3	440.7	466.1	491.5	586.7	612.1	637.5	662.9
C	25.4	50.8	76.2	101.6	127.0	152.4	177.8	203.2	228.6	254	279.4	304.8
F	454.2	505	555.8	606.6	727.3	778.1	828.9	879.7	1000.3	1051.1	1101.9	1152.7
G	298.8	324.2	349.6	375	470.3	495.7	521.1	546.5	641.7	667.1	692.5	717.9
H	172.8	198.2	223.6	249	344.3	369.7	395.1	420.5	515.7	541.1	566.5	591.9

DIMENSIONAL TABLE/AIR RETURN TYPE

Code	SA*-40-10	SA*-40-20	SA*-40-30	SA*-40-40	SA*-40-50	SA*-40-60	SA*-40-70	SA*-40-80	SA*-40-90	SA*-40-100	SA*-40-110	SA*-40-120
Symbol Stroke	10	20	30	40	50	60	70	80	90	100	110	120
A	275.1	325.9	376.7	427.5	478.3	529.1	579.9	630.7	681.5	732.3	783.1	833.9
B	224.7	250.1	275.5	300.9	326.3	351.7	377.1	402.5	427.9	453.3	478.7	504.1
C	25.4	50.8	76.2	101.6	127	152.4	177.8	203.2	228.6	254	279.4	304.8
F	435.1	485.9	536.7	587.5	638.3	689.1	739.7	790.7	841.5	892.3	943.1	993.9
G	279.7	305.1	330.5	355.9	381.3	406.7	432.1	457.5	482.9	508.3	533.7	559.1
H	153.7	179.1	204.5	229.9	255.3	280.7	306.1	331.5	356.9	382.3	407.7	433.1