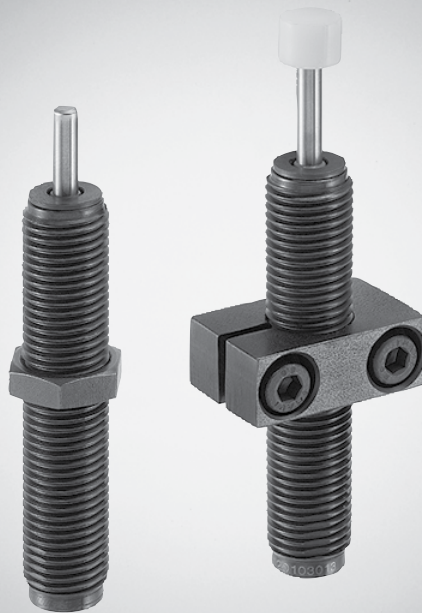


Cylinder accessories → Shock absorbers











# SA1 series

Brochure







Cylinder accessories → Shock absorbers

**SA1 series**

	Industrial shock absorber, Series SA1-MC ▶ cushioning: self-compensating ▶ sealing for piston rod: Lip ring ▶ Mounting thread: M6x0,5 - M12x1 ▶ Max. energy absorption/stroke: 1 - 14 Nm	<b>4</b>
	Industrial shock absorber, Series SA1-MC ▶ cushioning: self-compensating ▶ sealing for piston rod: Lip ring ▶ Mounting thread: M6x0,5 - M12x1 ▶ Max. energy absorption/stroke: 1 - 14 Nm	<b>7</b>
	Industrial shock absorber, Series SA1-MC ▶ cushioning: self-compensating ▶ sealing for piston rod: Lip ring ▶ Mounting thread: M14x1,5 - M25x1,5 ▶ Max. energy absorption/stroke: 30 - 220 Nm	<b>10</b>
	Industrial shock absorber, Series SA1-MC ▶ cushioning: self-compensating ▶ sealing for piston rod: Lip ring ▶ Mounting thread: M14x1,5 - M25x1,5 ▶ Max. energy absorption/stroke: 30 - 220 Nm	<b>12</b>
	Industrial shock absorber, Series SA1-MA ▶ cushioning: adjustable ▶ sealing for piston rod: Lip ring ▶ Mounting thread: M12x1 - M64x2 ▶ Max. energy absorption/stroke: 22 - 8000 Nm	<b>15</b>
<b>Accessories</b>		
	Lock nut ▶ for SA1-MC	<b>18</b>
	Groove nut ▶ for SA1-MA	<b>19</b>
	Flange mounting ▶ for SA1-MC	<b>19</b>
	Stop sleeve ▶ for SA1-MC	<b>20</b>
	Clamping flange ▶ for SA1-MC	<b>21</b>

Cylinder accessories → Shock absorbers

**SA1 series**

	Clamping flange ▶ for SA1-MC	<b>21</b>
	Clamping flange ▶ for SA1-MA-33, SA1-MA-64	<b>22</b>
	Side load adapter ▶ for SA1-MC	<b>23</b>
	Stop head ▶ for SA1-MC	<b>24</b>

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm



00136590

Ambient temperature min./max.

-20 °C / +80 °C

Impact speed, min./max.

See table below

Medium

Oil

Mounting

Lock nut

Materials:

Cylinder tube

Steel, salt bath nitrocarburized

Piston rod

Stainless steel, hardened

Lock nut

Steel, salt bath nitrocarburized

	Type	Stroke	Effective mass	Return spring	Max. energy ab-	Max. energy ab-	Part No.
		[mm]	me min./max. [kg]	force min./max. [N]	sorption/stroke [Nm]	sorption/hour [Nm/h]	
	SA1-MC	5	0.8 / 2.8	2 / 5	1	3000	R412010284
		5	1.5 / 4	2 / 5	1	3000	R412010285
		5	0.5 / 4	2 / 5	1.5	4000	<b>R412010286</b>
		5	0.8 / 6	2 / 5	1.5	4000	<b>R412010287</b>
		8	1.3 / 5.3	3.6 / 8	10	24000	R412010288
		8	4.3 / 20	3.6 / 8	10	24000	<b>R412010289</b>
		8	16.5 / 47	3.6 / 8	10	24000	<b>R412010290</b>
		10	0.5 / 1.8	3.5 / 7	14	30000	R412010291
		10	1.5 / 7.7	3.5 / 7	14	30000	<b>R412010292</b>
		10	5 / 57	3.5 / 7	14	30000	<b>R412010293</b>

Part No.	impact speed min./max. [m/s]	Mounting thread	Weight [kg]	Fig.	Note	Delivery unit
R412010284	0.9 / 1.6	M6x0,5	0.003	Fig. 1	1); 3)	1
R412010285	0.7 / 1.2	M6x0,5	0.003	Fig. 1	1); 3)	
<b>R412010286</b>	0.9 / 2.5	M8x1	0.007	Fig. 2	2); 4)	
<b>R412010287</b>	0.7 / 1.9	M8x1	0.007	Fig. 2	2); 4)	
R412010288	1.9 / 3.9	M10x1	0.02	Fig. 3	2); 4)	
<b>R412010289</b>	1 / 2.2	M10x1	0.02	Fig. 3	2); 4)	
<b>R412010290</b>	0.7 / 1.1	M10x1	0.02	Fig. 3	2); 4)	
R412010291	3.5 / 5	M12x1	0.036	Fig. 4	2); 4)	
<b>R412010292</b>	1.9 / 4.3	M12x1	0.036	Fig. 4	2); 4)	
<b>R412010293</b>	0.7 / 2.4	M12x1	0.036	Fig. 4	2); 4)	

1) sealing for piston rod: Polyurethane

2) sealing for piston rod: Acrylonitrile Butadiene Rubber

3) Stop: Polyoxymethylene

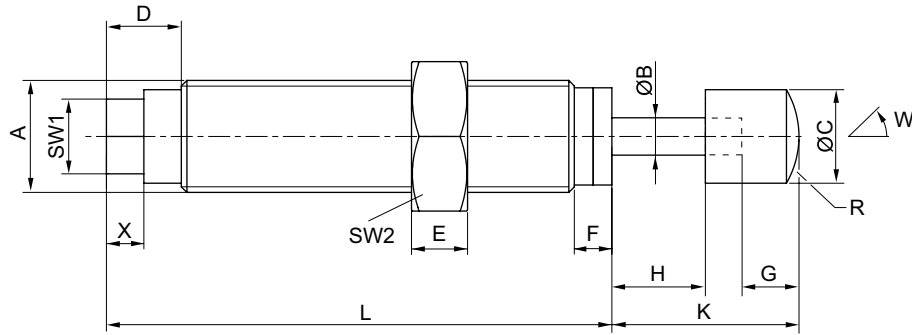
4) Stop: Polyurethane; Steel

Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm

Fig. 1



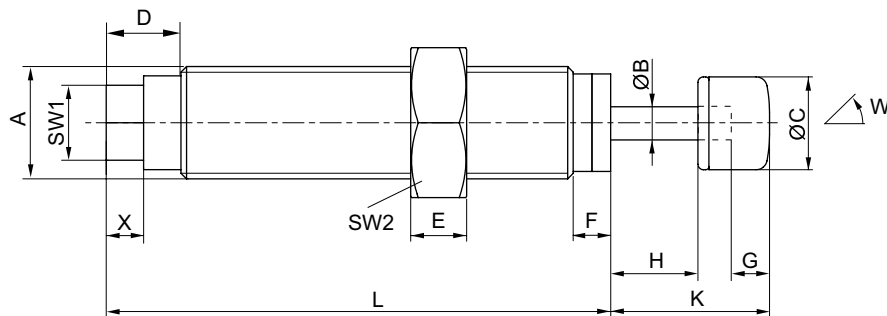
00110471\_a

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010284	SA1-MC	M6x0,5	2	5	4	3	2	2	5	10	27
R412010285	SA1-MC	M6x0,5	2	5	4	3	2	2	5	10	27

Part No.	Type	R	SW1	SW2	W [°]	X					
R412010284	SA1-MC	5	4	8	2	2					
R412010285	SA1-MC	5	4	8	2	2					

Fig. 2



00110471\_d

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010286	SA1-MC	M8x1	2.3	6.5	6	3	2.5	3	5	11.5	30
R412010287	SA1-MC	M8x1	2.3	6.5	6	3	2.5	3	5	11.5	30

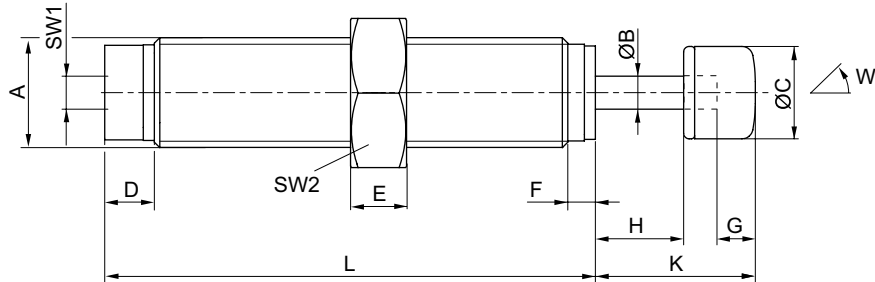
Part No.	Type	SW1	SW2	W [°]	X						
R412010286	SA1-MC	5.5	11	3	3						
R412010287	SA1-MC	5.5	11	3	3						

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm

Fig. 3



00110471\_b

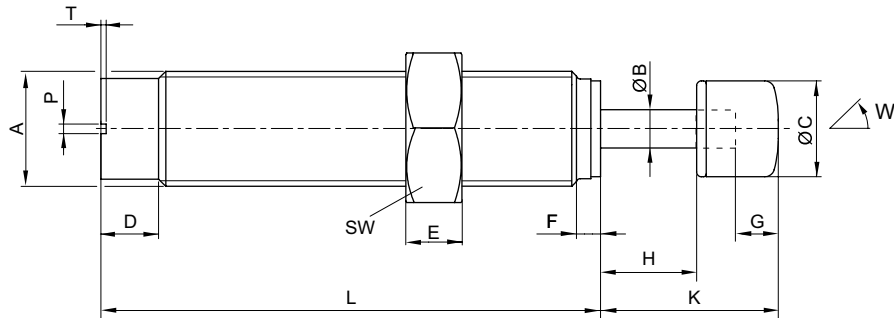
A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010288	SA1-MC	M10x1	3	8.4	4.5	3	2.5	3	8	14.5	44.5
R412010289	SA1-MC	M10x1	3	8.4	4.5	3	2.5	3	8	14.5	44.5
R412010290	SA1-MC	M10x1	3	8.4	4.5	3	2.5	3	8	14.5	44.5

Part No.	Type	SW1	SW2	W [°]
R412010288	SA1-MC	3	13	2
R412010289	SA1-MC	3	13	2
R412010290	SA1-MC	3	13	2

Fig. 4



00110471\_c

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010291	SA1-MC	M12x1	4	10	6	4	2.5	4	10	18.5	52
R412010292	SA1-MC	M12x1	4	10	6	4	2.5	4	10	18.5	52
R412010293	SA1-MC	M12x1	4	10	6	4	2.5	4	10	18.5	52

Part No.	Type	P	T	SW	W [°]
R412010291	SA1-MC	1	0.6	14	2
R412010292	SA1-MC	1	0.6	14	2
R412010293	SA1-MC	1	0.6	14	2

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm



00136592

Ambient temperature min./max. -20 °C / +80 °C  
 Impact speed, min./max. See table below  
 Medium Oil  
 Mounting Clamping flange

Materials:  
 Cylinder tube Steel, salt bath nitrocarburized  
 Piston rod Stainless steel, ground and hardened  
 Clamping flange Steel, salt bath nitrocarburized

	Type	Stroke	Effective mass	Return spring	Max. energy ab-	Max. energy ab-	Part No.
		[mm]	me min./max. [kg]	force min./max. [N]	sorption/stroke [Nm]	sorption/hour [Nm/h]	
	SA1-MC	5	0.8 / 2.8	2 / 5	1	3000	R412010294
		5	1.5 / 4	2 / 5	1	3000	R412010295
		5	0.5 / 4	2 / 5	1.5	4000	R412010296
		5	0.8 / 6	2 / 5	1.5	4000	R412010297
		8	1.3 / 5.3	3.6 / 8	10	24000	R412010298
		8	4.3 / 20	3.6 / 8	10	24000	R412010299
		8	16.5 / 47	3.6 / 8	10	24000	R412010300
		10	0.5 / 1.8	3.5 / 7	14	30000	R412010301
		10	1.5 / 7.7	3.5 / 7	14	30000	R412010302
		10	5 / 57	3.5 / 7	14	30000	<b>R412010303</b>

Part No.	impact speed min./max. [m/s]	Mounting thread	Weight [kg]	Fig.	Note	Delivery unit
R412010294	0.9 / 1.6	M6x0,5	0.02	Fig. 1	1); 3)	1
R412010295	0.7 / 1.2	M6x0,5	0.02	Fig. 1	1); 3)	
R412010296	0.9 / 2.5	M8x1	0.03	Fig. 2	2); 4)	
R412010297	0.7 / 1.9	M8x1	0.03	Fig. 2	2); 4)	
R412010298	1.9 / 3.9	M10x1	0.05	Fig. 3	2); 4)	
R412010299	1 / 2.2	M10x1	0.05	Fig. 3	2); 4)	
R412010300	0.7 / 1.1	M10x1	0.05	Fig. 3	2); 4)	
R412010301	3.5 / 5	M12x1	0.06	Fig. 4	2); 4)	
R412010302	1.9 / 4.3	M12x1	0.06	Fig. 4	2); 4)	
<b>R412010303</b>	0.7 / 2.4	M12x1	0.06	Fig. 4	2); 4)	

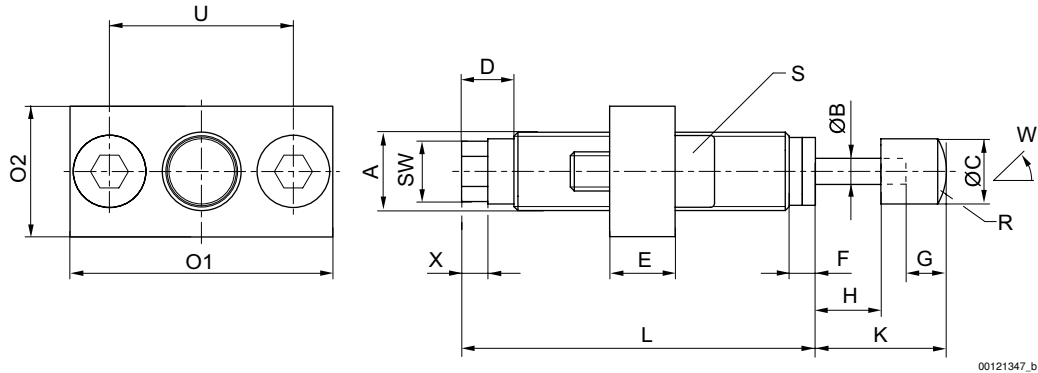
- 1) sealing for piston rod: Polyurethane  
 2) sealing for piston rod: Acrylonitrile Butadiene Rubber  
 3) Stop: Polyoxymethylene  
 4) Stop: Polyurethane; Steel

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm

Fig. 1



00121347\_b

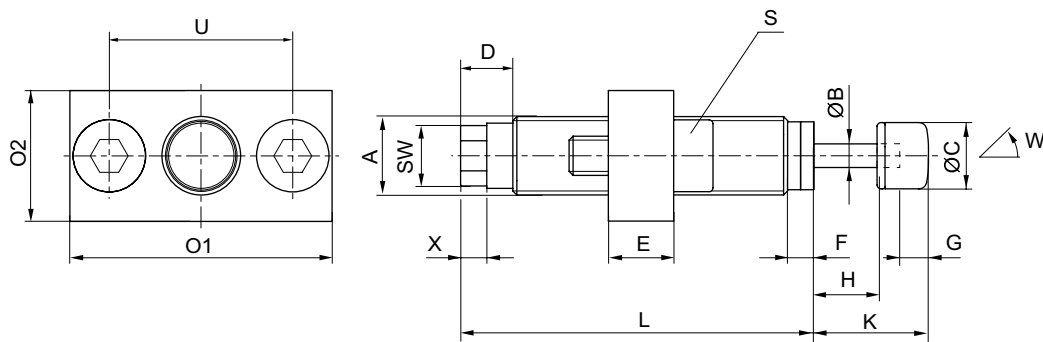
A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010294	SA1-MC	M6x0,5	2	5	4	5	2	2	5	10	27
R412010295	SA1-MC	M6x0,5	2	5	4	5	2	2	5	10	27

Part No.	Type	O1	O2	R	S	SW	U	W [°]	X		
R412010294	SA1-MC	20	10	5	M3x10	4	14	2	2		
R412010295	SA1-MC	20	10	5	M3x10	4	14	2	2		

Fig. 2



00121347\_e

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010296	SA1-MC	M8x1	2.3	6.5	6	6	2.5	3	5	11.5	30
R412010297	SA1-MC	M8x1	2.3	6.5	6	6	2.5	5	5	11.5	30

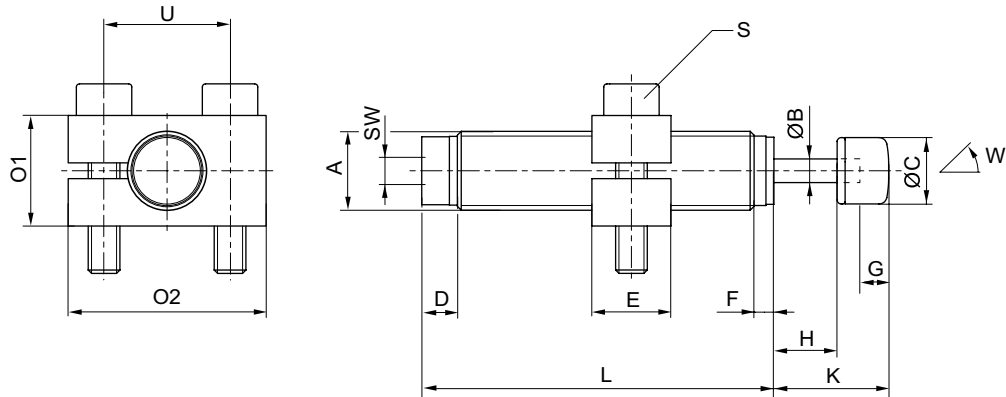
Part No.	Type	O1	O2	S	SW	U	W [°]	X			
R412010296	SA1-MC	25	15	M4x12	5.5	18	3	3			
R412010297	SA1-MC	25	15	M4x12	5.5	18	3	3			

Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M6x0,5 - M12x1 ► Max. energy absorption/stroke: 1 - 14 Nm

Fig. 3



00121347\_c

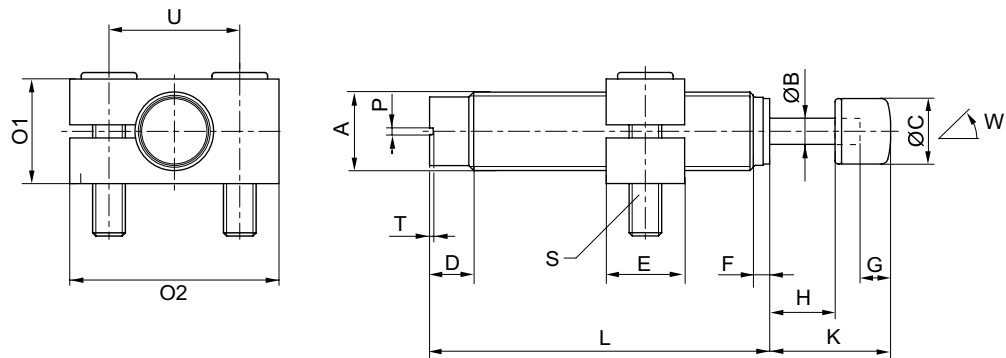
A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010298	SA1-MC	M10x1	3	8.4	4.5	10	2.5	3	8	14.5	44.5
R412010299	SA1-MC	M10x1	3	8.4	4.5	10	2.5	3	8	14.5	44.5
R412010300	SA1-MC	M10x1	3	8.4	4.5	10	2.5	3	8	14.5	44.5

Part No.	Type	O1	O2	S	SW	U	W [°]				
R412010298	SA1-MC	25	14	M4x20	3	16	2				
R412010299	SA1-MC	25	14	M4x20	3	16	2				
R412010300	SA1-MC	25	14	M4x20	3	16	2				

Fig. 4



00121347\_d

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010301	SA1-MC	M12x1	4	10	6	12	2.5	4	10	18.5	52
R412010302	SA1-MC	M12x1	4	10	6	12	2.5	4	10	18.5	52
R412010303	SA1-MC	M12x1	4	10	6	12	2.5	4	10	18.5	52

Part No.	Type	O1	O2	P	S	T	U	W [°]			
R412010301	SA1-MC	32	16	1	M5x20	0.6	20	2			
R412010302	SA1-MC	32	16	1	M5x20	0.6	20	2			
R412010303	SA1-MC	32	16	1	M5x20	0.6	20	2			

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M14x1,5 - M25x1,5 ► Max. energy absorption/stroke: 30 - 220 Nm



00136593

Ambient temperature min./max.

-20 °C / +80 °C

Impact speed, min./max.

See table below

Medium

Oil

Mounting

Lock nut

Materials:

Cylinder tube

Steel, salt bath nitrocarburized

Piston rod

Stainless steel, ground and hardened

sealing for piston rod

Acrylonitrile Butadiene Rubber

Lock nut

Steel, salt bath nitrocarburized

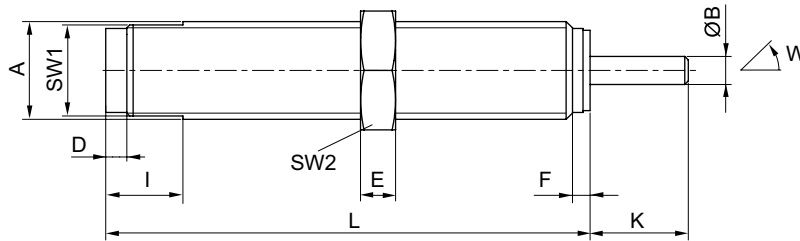
Scraper

Polyurethane

	Type	Stroke	Effective mass	Return spring	Max. energy ab-	Max. energy ab-	Part No.
		[mm]	me min./max. [kg]	force min./max. [N]	sorption/stroke [Nm]	sorption/hour [Nm/h]	
	SA1-MC	14	3.5 / 17	13 / 23	30	50000	<b>R412010304</b>
		14	9.9 / 76	13 / 23	30	50000	<b>R412010305</b>
		14	62 / 252	13 / 23	30	50000	<b>R412010306</b>
		13	7.5 / 36	12 / 23	65	52000	<b>R412010307</b>
		13	20 / 160	12 / 23	65	52000	<b>R412010308</b>
		13	130 / 610	12 / 23	65	52000	<b>R412010309</b>
		25	24 / 120	15 / 31	220	105600	<b>R412010310</b>
		25	440 / 2050	15 / 31	220	105600	<b>R412010311</b>
		25	1760 / 10800	15 / 31	220	105600	<b>R412010312</b>

Part No.	impact speed min./max. [m/s]	Mounting thread	Weight [kg]	Fig.	Delivery unit
<b>R412010304</b>	1.9 / 4.1	M14x1,5	0.05	Fig. 1	1
<b>R412010305</b>	0.9 / 2.5	M14x1,5	0.05	Fig. 1	
<b>R412010306</b>	0.5 / 1	M14x1,5	0.05	Fig. 1	
<b>R412010307</b>	1.9 / 4.2	M20x1,5	0.15	Fig. 2	
<b>R412010308</b>	0.9 / 2.6	M20x1,5	0.15	Fig. 2	
<b>R412010309</b>	0.5 / 1	M20x1,5	0.15	Fig. 2	
<b>R412010310</b>	1.9 / 4.3	M25x1,5	0.29	Fig. 2	
<b>R412010311</b>	1 / 2.5	M25x1,5	0.29	Fig. 2	
<b>R412010312</b>	0.5 / 1	M25x1,5	0.29	Fig. 2	

Fig. 1



00121346\_a

A = mounting thread

Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

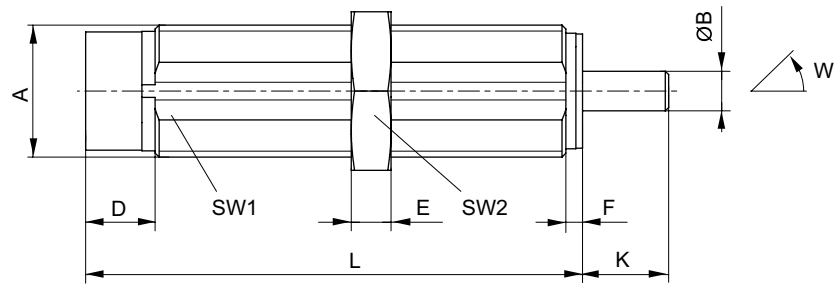
► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M14x1,5 - M25x1,5 ► Max. energy absorption/stroke: 30 - 220 Nm

Part No.	Type	Mounting thread	ØB	D	E	F	I	K	L	SW1	SW2
R412010304	SA1-MC	M14x1,5	4	3	5	2.5	11	14	69	13	17
R412010305	SA1-MC	M14x1,5	4	3	5	2.5	11	14	69	13	17
R412010306	SA1-MC	M14x1,5	4	3	5	2.5	11	14	69	13	17

Part No.	Type	W [°]									
R412010304	SA1-MC	4									
R412010305	SA1-MC	4									
R412010306	SA1-MC	4									

Fig. 2



00121346\_b

A = mounting thread

Part No.	Type	Mounting thread	ØB	D	E	F	K	L	SW1	SW2	W [°]
R412010307	SA1-MC	M20x1,5	6	10.5	6	2.5	13	75	18	24	4
R412010308	SA1-MC	M20x1,5	6	10.5	6	2.5	13	75	18	24	4
R412010309	SA1-MC	M20x1,5	6	10.5	6	2.5	13	75	18	24	4
R412010310	SA1-MC	M25x1,5	8	9.5	8	3.5	25	108	23	30	2
R412010311	SA1-MC	M25x1,5	8	9.5	8	3.5	25	108	23	30	2
R412010312	SA1-MC	M25x1,5	8	9.5	8	3.5	25	108	23	30	2

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M14x1,5 - M25x1,5 ► Max. energy absorption/stroke: 30 - 220 Nm



00136595

Ambient temperature min./max. -20 °C / +80 °C  
 Impact speed, min./max. See table below  
 Medium Oil  
 Mounting Clamping flange

Materials:  
 Cylinder tube Steel, salt bath nitrocarburized  
 Piston rod Stainless steel, ground and hardened  
 sealing for piston rod Acrylonitrile Butadiene Rubber  
 Clamping flange Steel, salt bath nitrocarburized  
 Stop Polyoxymethylene  
 Scraper Polyurethane

	Type	Stroke	Effective mass me min./max.	Return spring force min./max.	Max. energy ab- sorption/stroke	Max. energy ab- sorption/hour	Part No.
		[mm]	[kg]	[N]	[Nm]	[Nm/h]	
	SA1-MC	14	3.5 / 17	13 / 23	30	50000	R412010313
		14	9.9 / 76	13 / 23	30	50000	R412010314
		14	62 / 252	13 / 23	30	50000	R412010315
		13	7.5 / 36	12 / 23	65	52000	R412010316
		13	20 / 160	12 / 23	65	52000	R412010317
		13	130 / 610	12 / 23	65	52000	R412010318
		25	24 / 120	15 / 31	220	105600	R412010319
		25	440 / 2050	15 / 31	220	105600	R412010320
		25	1760 / 10800	15 / 31	220	105600	R412010321

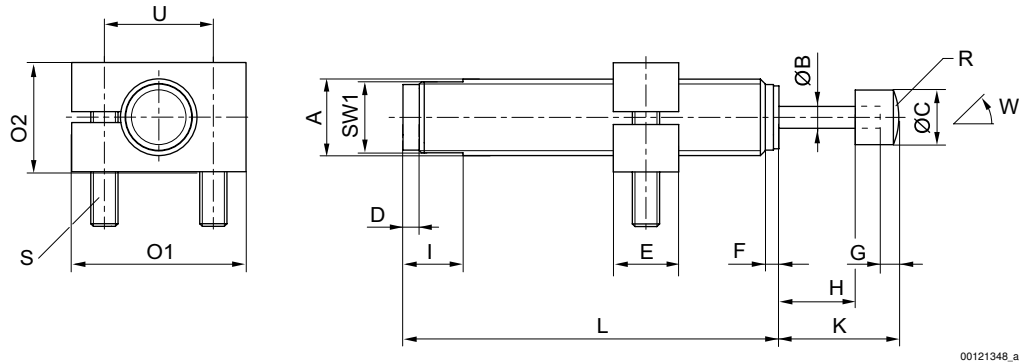
Part No.	impact speed min./max.	Mounting thread	Weight	Delivery unit
	[m/s]		[kg]	
R412010313	1.9 / 4.1	M14x1,5	0.07	1
R412010314	0.9 / 2.5	M14x1,5	0.07	
R412010315	0.5 / 1	M14x1,5	0.07	
R412010316	1.9 / 4.2	M20x1,5	0.22	
R412010317	0.9 / 2.6	M20x1,5	0.22	
R412010318	0.5 / 1	M20x1,5	0.22	
R412010319	1.9 / 4.3	M25x1,5	0.37	
R412010320	1 / 2.5	M25x1,5	0.37	
R412010321	0.5 / 1	M25x1,5	0.37	

Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M14x1,5 - M25x1,5 ► Max. energy absorption/stroke: 30 - 220 Nm

Fig. 1



00121348\_a

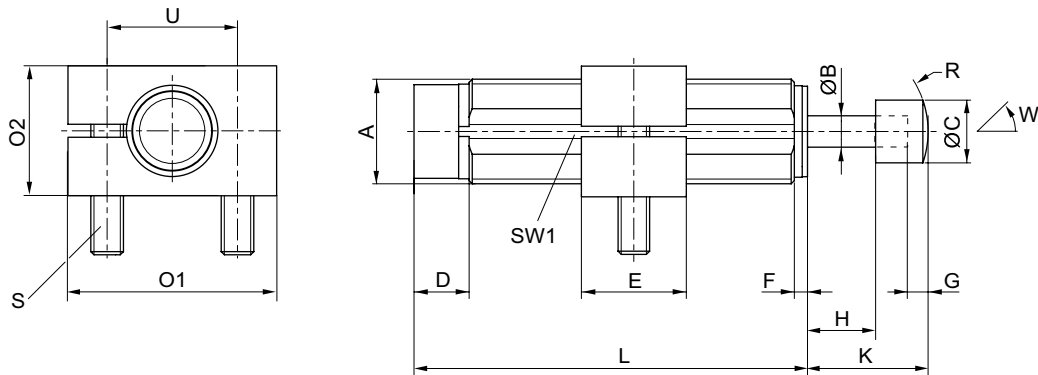
A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	I	K
R412010313	SA1-MC	M14x1,5	4	10	3	12	2.5	3.5	14	11	22
R412010314	SA1-MC	M14x1,5	4	10	3	12	2.5	3.5	14	11	22
R412010315	SA1-MC	M14x1,5	4	10	3	12	2.5	3.5	14	11	22

Part No.	Type	L	O1	O2	R	S	SW1	U	W [°]
R412010313	SA1-MC	69	32	20	13	M5x25	13	20	4
R412010314	SA1-MC	69	32	20	13	M5x25	13	20	4
R412010315	SA1-MC	69	32	20	13	M2x25	13	20	4

Fig. 2



00121348\_b

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010316	SA1-MC	M20x1,5	6	12	10.5	20	2.5	4	13	23	75
R412010317	SA1-MC	M20x1,5	6	12	10.5	20	2.5	4	13	23	75
R412010318	SA1-MC	M20x1,5	6	12	10.5	20	2.5	4	13	23	75
R412010319	SA1-MC	M25x1,5	8	16	9.5	25	3.5	5	25	38	108
R412010320	SA1-MC	M25x1,5	8	16	9.5	25	3.5	5	25	38	108
R412010321	SA1-MC	M25x1,5	8	16	9.5	25	3.5	5	25	38	108

Part No.	Type	O1	O2	R	S	SW1	U	W [°]
R412010316	SA1-MC	40	25	18.5	M6x30	18	28	4

Part numbers marked in bold are available from the central warehouse in Germany, see the shopping basket for more detailed information Pneumatics catalog, online PDF, as of 2012-10-23, © Bosch Rexroth AG, subject to change

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MC**

► cushioning: self-compensating ► sealing for piston rod: Lip ring ► Mounting thread: M14x1,5 - M25x1,5 ► Max. energy absorption/stroke: 30 - 220 Nm

Part No.	Type	O1	O2	R	S	SW1	U	W [°]				
R412010317	SA1-MC	40	25	18.5	M6x30	18	28	4				
R412010318	SA1-MC	40	25	18.5	M6x30	18	28	4				
R412010319	SA1-MC	47	32	20	M6x40	23	34	2				
R412010320	SA1-MC	47	32	20	M6x40	23	34	2				
R412010321	SA1-MC	47	32	20	M6x40	23	34	2				

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MA**

► cushioning: adjustable ► sealing for piston rod: Lip ring ► Mounting thread: M12x1 - M64x2 ► Max. energy absorption/stroke: 22 - 8000 Nm



00136598

Ambient temperature min./max.

-20 °C / +80 °C

Impact speed, min./max.

See table below

Medium

Oil

Mounting

Lock nut

Materials:

Piston rod

Stainless steel, ground and hardened

sealing for piston rod

Acrylonitrile Butadiene Rubber

Stop

Steel, hardened and bronzed

	Type	Stroke	Effective mass	Return spring	Max. energy ab-	Max. energy ab-	Part No.
		[mm]	me min./max. [kg]	force min./max. [N]	sorption/stroke [Nm]	sorption/hour [Nm/h]	
	SA1-MA	12	9 / 800	2.5 / 7	22	35200	<b>R412010322</b>
		14	1.6 / 1500	13 / 23	30	50000	<b>R412010323</b>
		19	9 / 4500	12 / 23	100	76500	<b>R412010324</b>
		25	22 / 11000	15 / 31	220	105600	<b>R412010325</b>
		40	38 / 18000	11 / 20	390	175600	<b>R412010326</b>
		25	60 / 2950	30 / 50	300	120000	R412010327
		50	100 / 4000	23 / 50	500	150000	<b>R412010328</b>
		100	1000 / 62500	45 / 130	5000	350000	R412010329
		150	1250 / 105000	35 / 130	8000	400000	R412010330

Part No.	impact speed min./max. [m/s]	Mounting thread	Weight [kg]	Fig.	Note	Delivery unit
<b>R412010322</b>	0.2 / 3.5	M12x1	0.036	Fig. 1	1); 3)	1
<b>R412010323</b>	0.1 / 6	M14x1,5	0.05	Fig. 2	1); 3)	
<b>R412010324</b>	0.1 / 6	M20x1,5	0.14	Fig. 2	1); 3)	
<b>R412010325</b>	0.1 / 6	M25x1,5	0.29	Fig. 2	1); 3)	
<b>R412010326</b>	0.1 / 6	M25x1,5	0.39	Fig. 2	1); 3)	
R412010327	0.02 / 6	M33x1,5	0.45	Fig. 3, Fig. 4	2); 4)	
<b>R412010328</b>	0.02 / 6	M33x1,5	0.55	Fig. 3, Fig. 4	2); 4)	
R412010329	0.02 / 6	M64x2	3.9	Fig. 3, Fig. 4	2); 4)	
R412010330	0.02 / 6	M64x2	4.8	Fig. 3, Fig. 4	2); 4)	

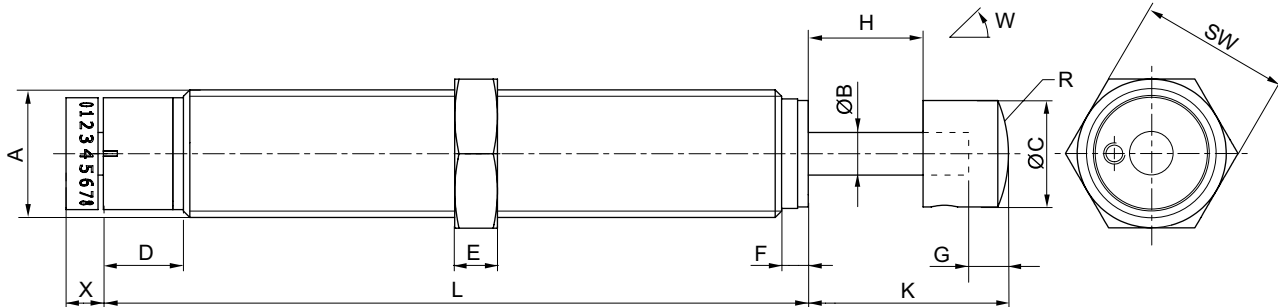
- 1) Cylinder tube: Steel, salt bath nitrocarburized
- 2) Cylinder tube: Steel, bronzed
- 3) Lock nut: Steel, salt bath nitrocarburized
- 4) Lock nut: Steel, bronzed

## Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MA**

► cushioning: adjustable ► sealing for piston rod: Lip ring ► Mounting thread: M12x1 - M64x2 ► Max. energy absorption/stroke: 22 - 8000 Nm

Fig. 1

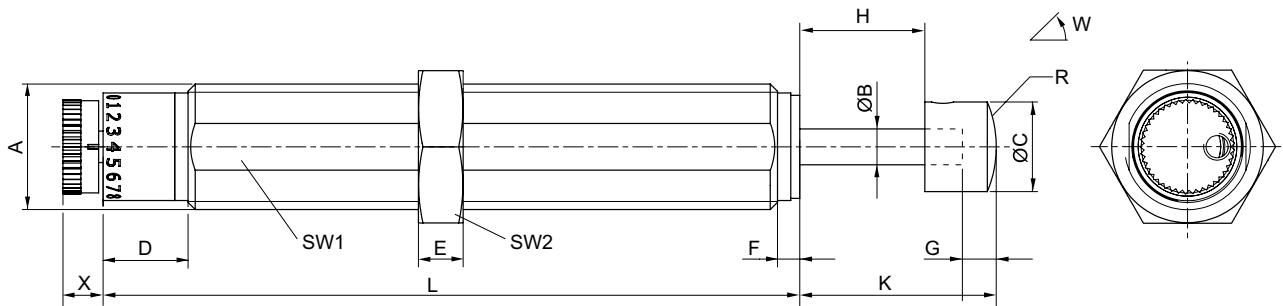


00121349\_c

A = mounting thread

Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010322	SA1-MA	M12x1	4	10	7.5	4	2.5	4	12	20	66
Part No.	Type	R	SW	W [°]	X						
R412010322	SA1-MA	13	14	3	3.5						

Fig. 2



00121349\_a

A = mounting thread

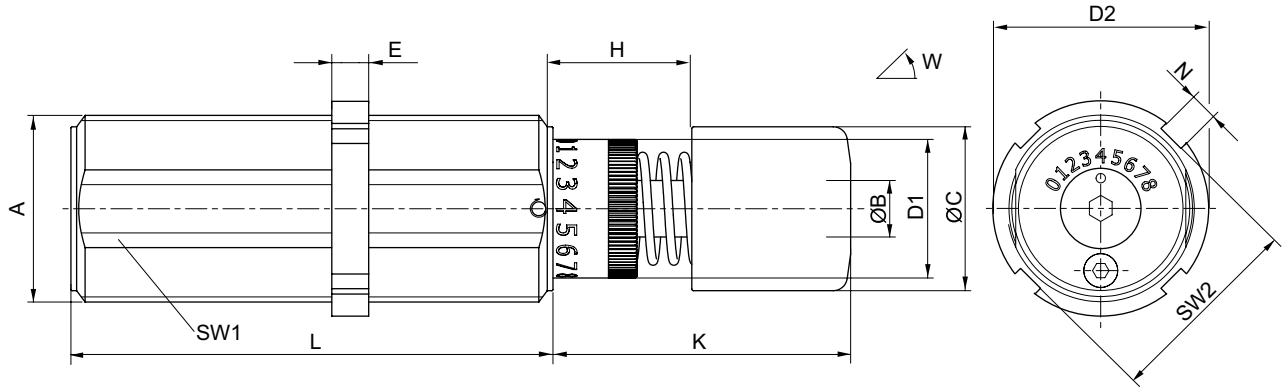
Part No.	Type	Mounting thread	ØB	ØC	D	E	F	G	H	K	L
R412010323	SA1-MA	M14x1,5	4	10	9.5	5	2.5	4	14	22	78
R412010324	SA1-MA	M20x1,5	6	16	10	6	2.5	4	19	29	88
R412010325	SA1-MA	M25x1,5	8	20	9	8	3.5	5	25	38	108
R412010326	SA1-MA	M25x1,5	8	20	9	8	3.5	5	40	53	130
Part No.	Type	R	SW1	SW2	W [°]	X					
R412010323	SA1-MA	13	13	17	5	4.5					
R412010324	SA1-MA	32.5	18	24	2	5.7					
R412010325	SA1-MA	30.3	23	30	2	8.3					
R412010326	SA1-MA	30.3	23	30	1	8					

Cylinder accessories → Shock absorbers

**Industrial shock absorber, Series SA1-MA**

► cushioning: adjustable ► sealing for piston rod: Lip ring ► Mounting thread: M12x1 - M64x2 ► Max. energy absorption/stroke: 22 - 8000 Nm

Fig. 3



A = mounting thread

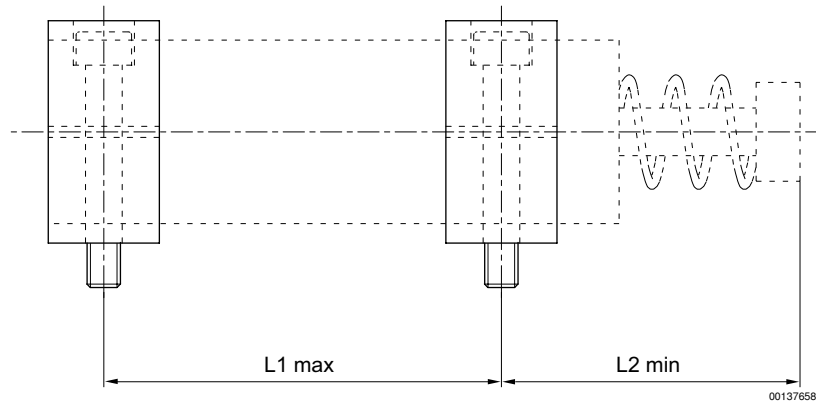
00121349\_b

Part No.	Type	Mounting thread	ØB	ØC	ØD1	ØD2	E	H	K	L	N
R412010327	SA1-MA	M33x1,5	10	29	24.5	38	6.5	25	53	85	5
R412010328	SA1-MA	M33x1,5	10	29	24.5	38	6.5	50	78	110	5
R412010329	SA1-MA	M64x2	22	59	51	74	10	100	157	179	10
R412010330	SA1-MA	M64x2	22	59	51	74	10	150	207	246	10

Part No.	Type	SW1	SW2	W [°]							
R412010327	SA1-MA	30	35	4							
R412010328	SA1-MA	30	35	3							
R412010329	SA1-MA	60	71	3							
R412010330	SA1-MA	60	71	2							

Fig. 4 - Positioning the clamping flanges



00137658

Part No.	Type	Mounting thread	L1 max	L2 min						
R412010327	SA1-MA	M33x1,5	65	63						
R412010328	SA1-MA	M33x1,5	90	88						
R412010329	SA1-MA	M64x2	154	169,5						
R412010330	SA1-MA	M64x2	221	219,5						

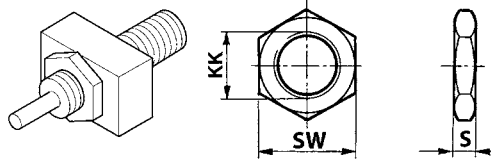
You will find further dimensions on the catalog page for clamping flanges.

## Cylinder accessories → Shock absorbers

**Series SA1**  
 Accessories

**Lock nut**

▶ for SA1-MC



00131840

00120153

Part No.	KK	For series	S	SW	Material	Surface	Weight	Delivery quantity [Piece]		
							[kg]			
R412010359	M6x0,5	SA1-MC	3	8	Steel	salt bath nitrocarburized	0.001	5		
R412010360	M8x1	SA1-MC	3	11	Steel	salt bath nitrocarburized	0.002	5		
<b>R412010361</b>	M10x1	SA1-MC	3	13	Steel	salt bath nitrocarburized	0.002	5		
<b>R412010362</b>	M12x1	SA1-MC	4	14	Steel	salt bath nitrocarburized	0.002	5		
<b>R412010363</b>	M14x1,5	SA1-MC	5	17	Steel	salt bath nitrocarburized	0.005	5		
R412010364	M20x1,5	SA1-MC	6	24	Steel	salt bath nitrocarburized	0.011	5		
<b>R412010365</b>	M25x1,5	SA1-MC	8	30	Steel	salt bath nitrocarburized	0.023	5		

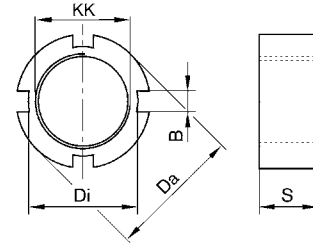
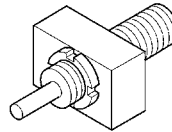
Cylinder accessories → Shock absorbers

**Series SA1**  
Accessories

**Groove nut**  
► for SA1-MA



0013600



00121350

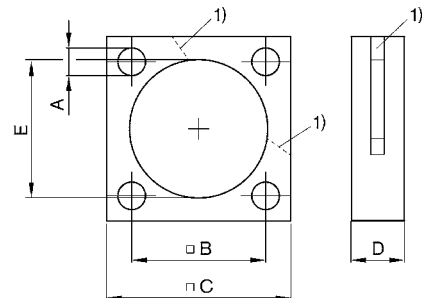
Part No.	KK	For series	Da	Di	B	S	Material	Surface	Weight	Delivery quantity [Piece]
									[kg]	
R412010331	M33x1,5	SA1-MA	38	35	5	6.5	Steel	bronzed	0.02	2
R412010332	M64x2	SA1-MA	74	71	10	10	Steel	bronzed	0.1	1

**Flange mounting**  
► for SA1-MC



00136001

1) Clamping slot



00121352

Part No.	For series	A	B	C	D	E	Material	Surface	Weight [kg]
R412010333	SA1-MC	6.6	32	45	12	M33x1,5	Steel	bronzed	0.1
R412010334	SA1-MC	11	58	80	16	M64x2	Steel	bronzed	0.4

Part No.	For series	Delivery quantity [Piece]							
R412010333	SA1-MC	1							
R412010334	SA1-MC	1							

## Cylinder accessories → Shock absorbers

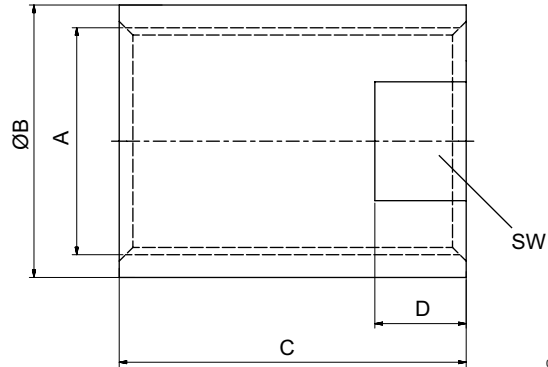
**Series SA1**  
 Accessories

**Stop sleeve**

▶ for SA1-MC



00136602



00112458\_a

Part No.	For series	A	ØB	C	D	SW	Material	Weight [kg]
R412010335	SA1-MC	M8x1	11	12	-	-	Steel salt bath nitrocarburized	0.005
R412010336	SA1-MC	M10x1	14	15	-	-	Steel salt bath nitrocarburized	0.01
<b>R412010337</b>	SA1-MC	M12x1	16	20	-	-	Steel salt bath nitrocarburized	0.02
<b>R412010338</b>	SA1-MC	M14x1,5	18	20	6	15	Steel salt bath nitrocarburized	0.02
<b>R412010339</b>	SA1-MC	M20x1,5	25	35	8	22	Steel salt bath nitrocarburized	0.06
R412010340	SA1-MC	M25x1,5	30	38	10	30	Steel salt bath nitrocarburized	0.14

Part No.	Delivery quantity [Piece]										
R412010335	2										
R412010336	2										
<b>R412010337</b>	2										
<b>R412010338</b>	2										
<b>R412010339</b>	2										
R412010340	2										

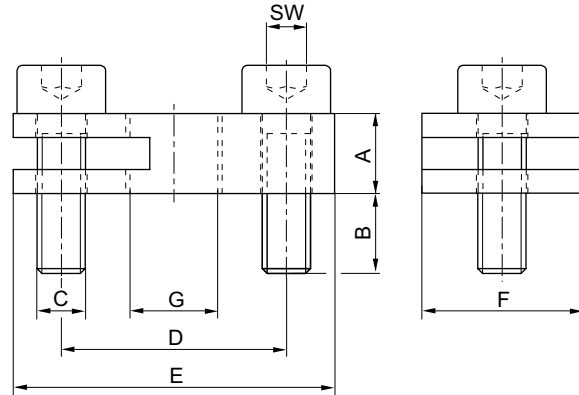
Cylinder accessories → Shock absorbers

**Series SA1**  
Accessories

**Clamping flange**  
► for SA1-MC



00136603



00121353\_a

Part No.	For series	A	B	C	D	E	F	G	SW	Clamping flange
R412010341	SA1-MC	5	5	M3x10	14	20	10	M6x0,5	2,5	Steel, salt bath nitrocarburized
R412010342	SA1-MC	6	6	M4x12	18	25	15	M8x1	3	Steel, salt bath nitrocarburized

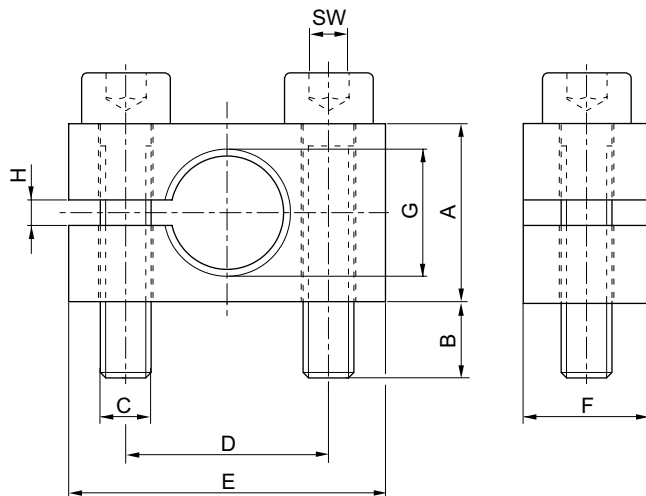
Part No.	For series	Screws	Weight [kg]	Delivery quantity [Piece]						
R412010341	SA1-MC	Steel, galvanized	0.01	1						
R412010342	SA1-MC	Steel, galvanized	0.02	1						

Scope of delivery: clamping flange and 2 screws ISO 4762

**Clamping flange**  
► for SA1-MC



00136604



00121353\_b

## Cylinder accessories → Shock absorbers

## Series SA1

### Accessories

Part No.	For series	A	B	C	D	E	F	G	H	SW
R412010343	SA1-MC	14	6	M4x20	16	25	10	M10x1	2	3
<b>R412010344</b>	SA1-MC	16	8	M5x20	20	32	12	M12x1	2	4
<b>R412010345</b>	SA1-MC	20	10	M5x25	20	32	12	M14x1,5	2	4
R412010346	SA1-MC	25	11	M6x30	28	40	20	M20x1,5	2	5
<b>R412010347</b>	SA1-MC	32	14	M6x40	34	47	25	M25x1,5	2	5

Part No.	For series	Clamping flange	Screws	Weight [kg]	Delivery quantity [Piece]				
R412010343	SA1-MC	Steel, salt bath nitrocarburized	Steel, galvanized	0.025	1				
<b>R412010344</b>	SA1-MC	Steel, salt bath nitrocarburized	Steel, galvanized	0.04	1				
<b>R412010345</b>	SA1-MC	Steel, salt bath nitrocarburized	Steel, galvanized	0.05	1				
R412010346	SA1-MC	Steel, salt bath nitrocarburized	Steel, galvanized	0.12	1				
<b>R412010347</b>	SA1-MC	Steel, salt bath nitrocarburized	Steel, galvanized	0.21	1				

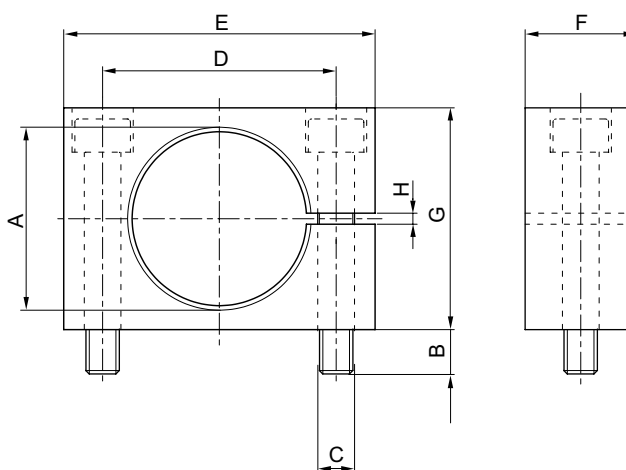
Scope of delivery: clamping flange and 2 screws ISO 4762

## Clamping flange

► for SA1-MA-33, SA1-MA-64



00136605



00110480\_a

Part No.	For series	A	B	C	D	E	F	G	H	Clamping flange
R412010348	SA1-MA-33	M33x1,5	8	M6x40	42	56	20	40	2	Steel, salt bath nitrocarburized
R412010349	SA1-MA-64	M64x2	12	M10x80	78	100	25	80	2	Steel, salt bath nitrocarburized

Cylinder accessories → Shock absorbers

**Series SA1**  
Accessories

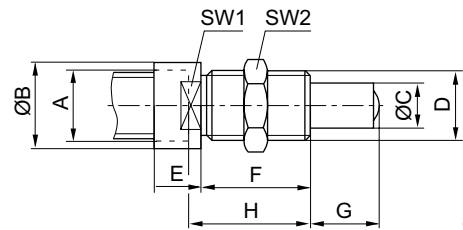
Part No.	For series	Screws	Weight [kg]	Delivery quantity [Piece]						
R412010348	SA1-MA-33	Steel, galvanized	0.45	1						
R412010349	SA1-MA-64	Steel, galvanized	1.9	1						

Scope of delivery: 1 assembly consisting of 2 clamping flanges and 4 screws ISO 4762  
Observe the catalog page for the shock absorber for positioning the clamping flanges.

**Side load adapter**  
► for SA1-MC



00136606



00110478

Part No.	For series	A	ØB	ØC	D	E	F	G	H	SW1	SW2
R412010353	SA1-MC	M14x1,5	18	8	M14x1,5	8	20	14	24	16	11
R412010354	SA1-MC	M20x1,5	24	12	M20x1,5	9	20	13	25	22	13
R412010355	SA1-MC	M25x1,5	30	16	M25x1,5	13	38	25	41	27	14

Part No.	Stop sleeve	Piston	Nut	Weight [kg]	Delivery quantity [Piece]					
R412010353	Steel, bronzed	Stainless steel hardened	Steel, salt bath nitrocarburized	0.04	1					
R412010354	Steel, bronzed	Stainless steel hardened	Steel, salt bath nitrocarburized	0.08	1					
R412010355	Steel, bronzed	Stainless steel hardened	Steel, salt bath nitrocarburized	0.2	1					

Scope of delivery: side load adapter and counter nut  
Use only with SA1-MC series without stop head M14x15 - M25x1.5

## Cylinder accessories → Shock absorbers

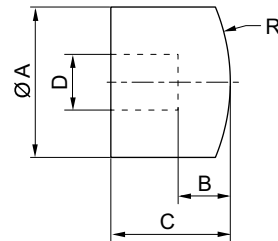
**Series SA1**  
 Accessories

**Stop head**

▶ for SA1-MC



00136607



00110479\_a

Part No.	For series	ØA	B	C	D 1)	R	Material	Weight [kg]	Delivery quantity [Piece]
<b>R412010356</b>	SA1-MC	10	3.5	8	4	13	Polyoxymethylene	0.001	5
R412010357	SA1-MC	12	4	10	6	18.5	Polyoxymethylene	0.001	5
R412010358	SA1-MC	16	5	13	8	20	Polyoxymethylene	0.003	5

1) Rod diameter

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