

BLAŽILCI SUNKOV / SHOCK ABSORBERS

ZNAČILNOSTI IN PREDNOSTI / CHARACTERISTICS AND ADVANTAGES



ZAKAJ UPORABLJATI BLAŽILCE SUNKOV?

Enostavna metoda za povečanje produktivnosti je povečanje hitrosti strojev oziroma zmanjšanje njihovega takta. Posledice se ponavadi kažejo v povečanem hrupu in vibracijah, poškodbah na stroju in izdelkih ter skrajšani življenjski dobi stroja. Najvažnejše pa je, da je s tem lahko ogrožena tudi varnost. Blažilci sunkov so razviti ravno z namenom reševanja teh težav. Le-ti zaustavijo ali spremenijo smer gibanja premikajočim delom nežno, tiho in varno. Idealno absorbirajo energijo in so uporabni povsod tam, kjer nastajajo udarci in sunki kot posledica gibanja

WHY DO WE NEED SHOCK ABSORBERS?

The easiest method to increase productivity is to raise machine's operation speed. However, it is often accompanied with excessive vibration and noise, damaged the machine and products and decreasing machine's life expectancy. Most importantly safety has to be sacrificed to a certain degree because large shock forces are generated. Shock absorbers are developed to provide linear deceleration and therefore solve these problems. They can stop or change direction of moving objects smoothly and quietly without compromising in safety. Shock absorbers are deal for energy absorption and are being used whenever shock forces occur.

PREDNOSTI UPORABE BLAŽILCEV SUNKOV / THE ADVANTAGES OF USING SHOCK ABSORBERS

- povečanje produktivnosti / increase in production rate
- podaljšanje življenjske dobe strojev / extending machine life
- enostavnost vgradnje / simplifying equipment design
- zmanjšanje vzdrževalnih stroškov / reduce maintenance cost
- zmanjšanje hrupa in vibracij / reducing vibrating and noise levels

SISTEM ZA VREDNOTENJE UČINKOV BLAŽENJA

Blažilci sunkov imajo široko področje uporabe v industriji. Sila, hitrost in teža se razlikujejo od primera do primera. Sistem testiranja vrednoti učinek absorbiranja energije v blažilcu. Zaradi zagotavljanja kvalitete in pričakovanega učinka blaženja se blažilci testirajo za vse mejne pogoje uporabe.

SHOCK ABSORBER PERFORMANCE EVALUATION SYSTEM

Shock absorbers are widely used in industrial fields. Impact forces, speeds and weights usually vary from application to application. A shock absorber testing system is built to evaluate the performance of energy absorption. Shock absorbers are tested for each critical application, batch of products before shipping and new model developed to ensure outstanding quality and consistent performance.

PODROČJE UPORABE / APPLICATIONS

Blažilci se uporabljajo pri strojih za brizganje plastike, robotih, pick and place manipulatorjih, manipulacijah, pnevmatičnih cilindrih, hitro tekočih vratih, pakirnih strojih, lesno obdelovalnih strojih, medicinski opremi, vojaški opremi in povsod kjer je prisotno gibanje.

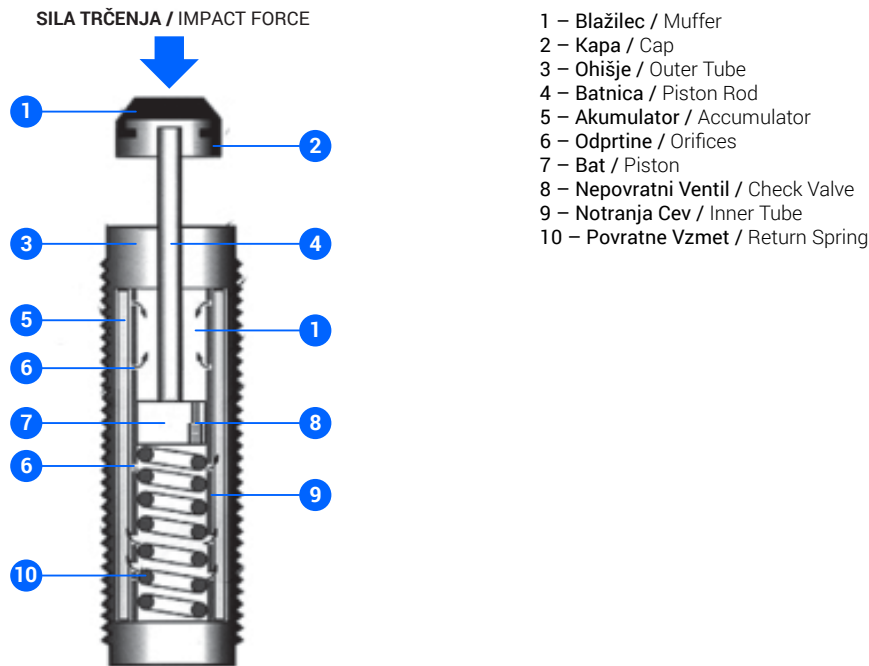
Robots for plastic injection moulding machines, pick and place robots, feeding equipment, screen print machines, conveyors, air cylinders, vibration conveyor systems, rolling doors, medical equipment, foundry industries, package machines, machine tools, medical equipment, woodworking machines, military equipment, education and automotive transfer lines.



DELOVANJE / OPERATION

Vsi tipi blažilcev sunkov imajo enako zasnovo, ki je prikazana na sliki. Ob delovanju sile na batnico blažilca potiska bat hidravlično olje v rezervoar, zaradi česar se poveča tlak v olju. Zaradi posebno oblikovanega jedra in izvrtin v njem ostane tlak olja konstanten (in s tem sila blaženja) na vsej poti delovanja sile. Zaradi konstantne sile in s tem linearne karakteristike blažilci zaustavijo gibajoč objekt nežno in tiho. Ob koncu delovanja sile povratna vzmet vrne blažilec v izhodiščno lego batnice.

All series of shock absorbers are of such construction as shown in the following drawing. On impact the piston rod moves into the shock absorber and the hydraulic fluid is pushed into accumulator to produce resistant force. Owing to special spacing and sizing of orifices, the pressure in the inner tube remains constant throughout the entire impact stroke. By providing a linear deceleration, a shock absorber brings the impacting object to stop smoothly and quiet. At the end of the impact stroke, the return spring pushes the piston to its original position for next cycle.



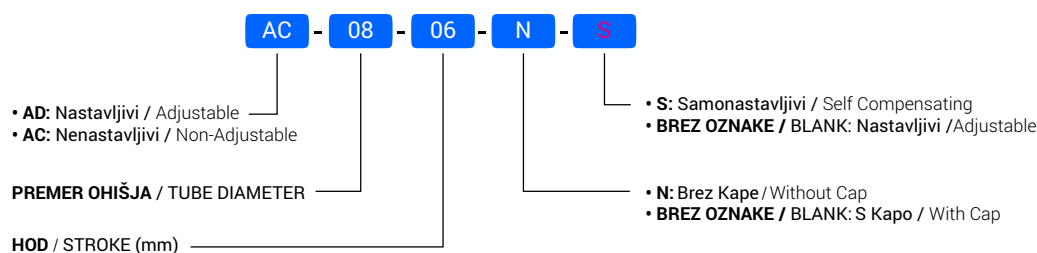
SMERNICE PRI MONTAŽI / GUIDELINES IN ASSEMBLY

1. Blažilec vgradimo tako, da je breme mehansko zaustavljeno cca 1 mm pred skrajno lego in da v skrajni legi blažilec ni polno obremenjen.
 2. Ponovna uporaba ob poškodbi ni dovoljena. Paziti je treba na poškodbe batnice in telesa blažilca.
 3. Uporabiti navojno tulko SC za omejitev hoda, če je to potrebno.
 4. Paziti na pravilno privijačenje blažilca in kota delovanja sile premikajočega se objekta.
 5. Namestiti blažilec čim bliže središču premikajočih delov.
 6. Če sta montirana 2 ali več blažilcev naj imajo le-ti enak hod.
1. Please install an 1mm (approx.) mechanical stop before the end of impact stroke and do not drive shock absorbers into their final position under full load.
 2. Reusing is prohibited after dismantling. Do not paint on the rod and threaded body.
 3. Stop collar protects shock absorbers piston from bottoming out and can be used in adjusting stroke.
 4. Please pay attention to assembly, especially on steel thickness & off-center angle.
 5. Install shock absorbers as close to the moving objects centre as possible.
 6. When installing over 2 shock absorbers, please ensure that they have the same stroke.

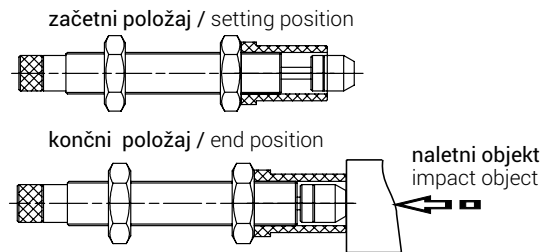
DEJAVNIKI PRI IZBIRI BLAŽILCEV SUNKOV / GUIDELINES FOR SELECTION

- smer gibanja (horizontalno, prosti pad, kroženje) / moving direction (horizontal, free fall, rotary motion)
- skupna teža bremena / total weight of impacting object
- dodatne sile (pnev. / hidr. cilindri, el. motor) / propelling force (pneumatic/hyd. cylinder, el. motorji)
- hitrost bremena / impact velocity
- predvideno število blažilcev / applicable quantity of shock absorbers in impacting direction

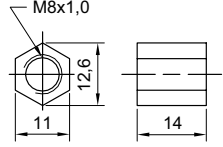
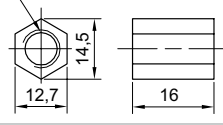
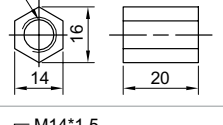

PRIMER NAROČANJA / HOW TO ORDER

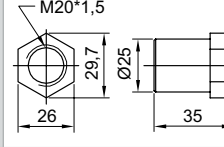
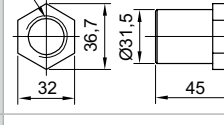
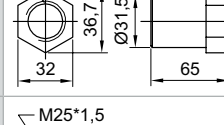
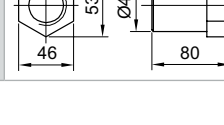


OMEJILNA TULKA – SC / STOP COLLARS – SC



- Primerna za blažilce s kapo ali brez.
- Uporablja se za nastavljanje hoda in končne omejitve
- Suitable for shock absorbers with or without cap.
- They also can be used for adjusting stroke and fixing position.

Tip Type	Dimenzije Dimensions	Uporaben za Applicable for
SC 08	M8x1,0 	AC – 0806
SC 10	M10*1,0 	AC – 1005 AC – 1007 AC – 1008
SC 12	M12*1,0 	AC – 1210
SC 14	M14*1,5 	AC – 1412 AD – 1410 AC – 1415 AD – 1415 AC – 1416 AC – 1420

Tip Type	Dimenzije Dimensions	Uporaben za Applicable for
SC 20	M20*1,5 	AC – 2015 AD – 2016 AC – 2020 AD – 2025 AC – 2030 AC – 2050
SC 25	M25*1,5 	AC – 2525 AD – 2525 AC – 2550 AD – 5230 AC – 2580 AD – 2550
SC 40	M25*1,5 	AC – 2540 AD – 2540
SC 50	M25*1,5 	AC – 3660 AD – 3625 AD – 3650

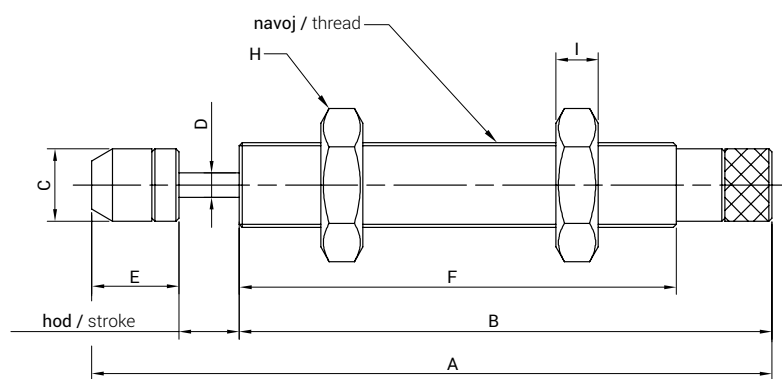
AD SERIJA – NASTAVLJIVI / AD SERIES – ADJUSTABLE

Delovna temperatura -10 ~ +80 °C
Working Temperature

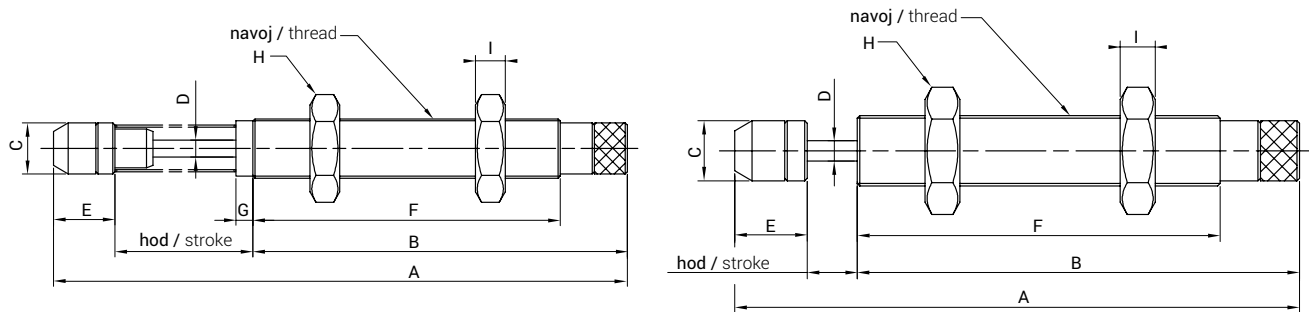


Tip Type	Hod [mm] Stroke [mm]	Max. Nm za ciklus (Et) Max. Nm per cycle (Et)	Max. Nm na uro (Etc) Max. Nm per hour (Etc)	Max. možna masa (Me) [kg] Max. effective mass (Me) [kg]	Max. naletna hitrost (v) [m/s] Max. impact speed (v) [m/s]
AD – 1410 N	10	20	25,000	80	3,0
AD – 1410	10	20	25,000	80	3,0
AD – 1415 N	15	22	25,000	120	3,0
AD – 1415	15	22	25,000	120	3,0
AD – 2016 CN	16	25	30,000	200	3,5
AD – 2016 C	16	25	30,000	200	3,5
AD – 2025 N	25	39	30,000	312	3,5
AD – 2025	25	39	30,000	312	3,5
AD – 2525 N	25	85	54,000	400	3,5
AD – 2525	25	85	54,000	400	3,5
AD – 2540	40	100	80,000	700	3,5
AD – 3625	25	150	81,000	1400	3,0
AD – 3650	50	300	100,000	1400	3,0
AD – 4225	25	260	125,000	3000	3,5
AD – 4250	50	500	150,000	4000	4,5
AD – 4275	75	750	180,000	6000	4,5

AD 1410 – AD 2025



Tip Type	Teža [g] Weight [g]	Navoj Thread	Hod Stroke	A	B	C	D	E	F	H	I
AD – 1410 N	84	M14x1,5	10	-	88,5	-	4	-	72,5	19	6
AD – 1410	90	M14x1,5	10	109,0	88,5	12,0	4	10,5	72,5	19	6
AD – 1415 N	90	M14x1,5	15	-	88,5	-	4	-	72,5	19	6
AD – 1415	90	M14x1,5	15	117,8	88,5	12,0	4	14,3	72,5	19	6
AD – 2016 N	222	M20x1,5	16	-	117	-	6	-	101	26	7
AD – 2016	230	M20x1,5	16	148,8	117	17,8	6	15,8	101	26	7
AD – 2025 N	232	M20x1,5	25	-	117	-	6	-	101	26	7
AD – 2025	240	M20x1,5	25	160	117	17,8	6	15,8	101	26	7

AD 2525 – AD 4275


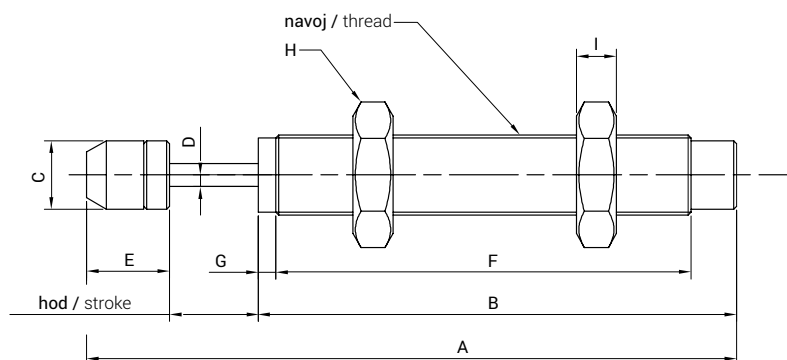
Tip Type	Teža [g] Weight [g]	Navoj Thread	Hod Stroke	A	B	C	D	E	F	G	H	I
AD – 2525 N	335	M25x1,5	25	-	117,5	-	8	-	101,0	-	32	9
AD – 2525	350	M25x1,5	25	162,0	117,5	22	8	19,5	101,0	-	32	9
AD – 2540	455	M25x1,5	40	221,3	144,5	22	8	36,8	117,0	10	32	9
AD – 3625	955	M36x1,5	25	184,0	133,0	35,5	10	26,0	103,0	10	46	15
AD – 3650	1100	M36x1,5	20	247,0	171,0	35,5	10	26,0	134,0	17	46	15
AD – 4225	1280	M42x1,5	25	186,5	127,5	44,5	12	34,0	88,0	28,5	50	15
AD – 4250	1490	M42x1,5	50	241,0	157,0	44,5	12	34,0	117,5	28,5	50	15
AD – 4275	1710	M42x1,5	75	301,5	187,5	44,5	12	39,0	148,0	28,5	50	15

AC SERIJA – SAMONASTAVLJIVI / AC SERIES – SELF COMPENSATING

Delovna temperatura -10 ~ + 80 °C
 Working Temperature



Tip Type	Hod [mm] Stroke [mm]	Max. Nm za ciklus (Et) Max. Nm per cycle (Et)	Max. Nm na uro (Etc) Max. Nm per hour (Etc)	Max. možna masa (Me) [kg] Max. effective mass (Me) [kg]	Max. naletna hitrost (v) [m/s] Max. impact speed (v) [m/s]
AC-0806-S N	6	3	7,000	6	0,3-2,5
AC-0806-S	6	3	7,000	6	0,3-2,5
AC-1007-S N	7	6	12,400	12	0,3-3,5
AC-1007-S	7	6	12,400	12	0,3-3,5
AC-1210-S N	10	12	22,500	22	0,3-4,0
AC-1210-S	10	12	22,500	22	0,3-4,0
AC-1412-S N	12	20	33,000	40	0,3-5,0
AC-1412-S	12	20	33,000	40	0,3-5,0
AC-2015-S N	15	59	38,000	120	0,3-5,0
AC-2015-S	15	59	38,000	120	0,3-5,0
AC-2525-S N	25	80	60,000	180	0,3-5,0
AC-2525-S	25	80	60,000	180	0,3-5,0
AC-2725-S N	25	147	72,000	270	0,3-5,0
AC-2725-S	25	147	72,000	270	0,3-5,0



Tip Type	Teža [g] Weight [g]	Navoj Thread	A	B	C	D	E	F	G	H	I
AC-0806-S N	15	M8x1,0	-	40,6	-	2,9	-	33,6	2	11	3
AC-0806-S	17	M8x1,0	55,35	40,6	6,6	2,9	8,75	33,6	2	11	3
AC-1007-S N	25	M10x1,0	-	47	-	3	-	39,0	3	12,7	3
AC-1007-S	28	M10x1,0	62,6	47	8,6	3	8,6	39,0	3	12,7	3
AC-1210-S N	29	M12x1,0	-	52,5	-	3	-	44,0	3	14	4
AC-1210-S	32	M12x1,0	71,3	52,5	10,3	3	8,8	44,0	3	14	4
AC-1412-S N	65	M14x1,5	-	67	-	4	-	58,0	4	19	5
AC-1412-S	70	M14x1,5	89,5	67	12,0	4	10,5	58,0	4	19	5
AC-2015-S N	150	M20x1,5	-	73	-	6	-	62,0	4	26	7
AC-2015-S	160	M20x1,5	103,8	73	17,8	6	15,8	62,0	4	26	7
AC-2525-S N	280	M25x1,5	-	92	-	8	-	82,0	-	32	9
AC-2525-S	295	M25x1,5	136,0	92	22	8	19,0	82,0	-	32	9
AC-2725-S N	360	M27x1,5	-	99	-	8	-	86,0	5	32	6,5
AC-2725-S	375	M27x1,5	143,0	99	22	8	19,0	86,0	5	32	6,5