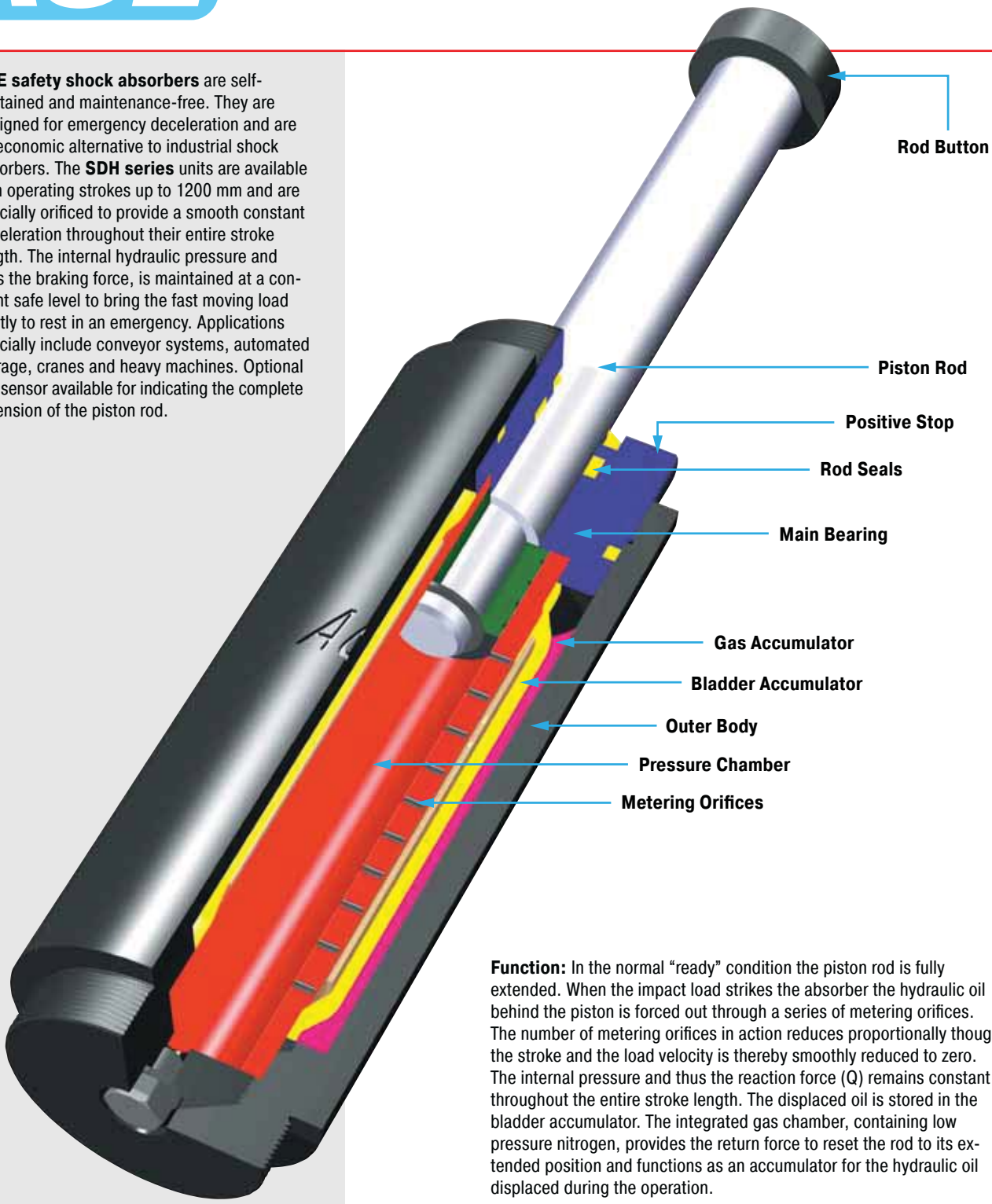
ACE safety shock absorbers are self-contained and maintenance-free. They are designed for emergency deceleration and are an economic alternative to industrial shock absorbers. The **SDH series** units are available with operating strokes up to 1200 mm and are specially orificed to provide a smooth constant deceleration throughout their entire stroke length. The internal hydraulic pressure and thus the braking force, is maintained at a constant safe level to bring the fast moving load gently to rest in an emergency. Applications specially include conveyor systems, automated storage, cranes and heavy machines. Optional rod sensor available for indicating the complete extension of the piston rod.



Function: In the normal "ready" condition the piston rod is fully extended. When the impact load strikes the absorber the hydraulic oil behind the piston is forced out through a series of metering orifices. The number of metering orifices in action reduces proportionally though the stroke and the load velocity is thereby smoothly reduced to zero. The internal pressure and thus the reaction force (Q) remains constant throughout the entire stroke length. The displaced oil is stored in the bladder accumulator. The integrated gas chamber, containing low pressure nitrogen, provides the return force to reset the rod to its extended position and functions as an accumulator for the hydraulic oil displaced during the operation.

Material: Shock absorber body: Painted steel (RAL 7024). Piston rod: Hard chrome plated.

Energy capacity W_3: At max. side load angle do not exceed 80 % of rated max. energy capacity below.

Filling pressure: Approx. 5 bar

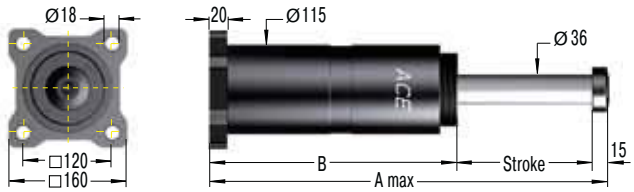
Operating temperature range: -20 °C to 60 °C

On request: Integrated rod sensor for indicating the complete extension of the piston rod. Type normally closed or normally open, option PNP or NPN switch.

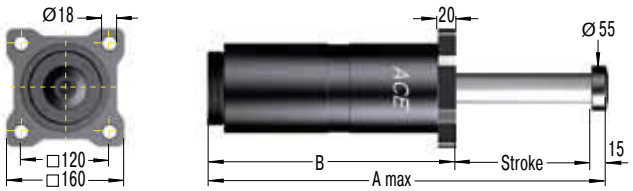
In creep speed: It is possible to use up to approx. 60 % of the buffer stroke. In creep speed conditions the shock absorber provides minimal resistance and there is no braking effect.

Issue 1.2013 Specifications subject to change

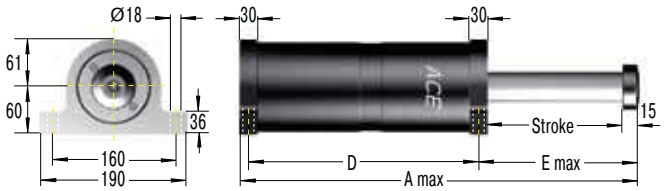
Rear Flange -R



Front Flange -F



Foot Mounting -S



Ordering Example **SDH38-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 38 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s) max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Impact velocity range: 0.9 to 4.6 m/s

Reacting force Q: At max. capacity rating = **80 kN max.**

Dimensions and Capacity Chart

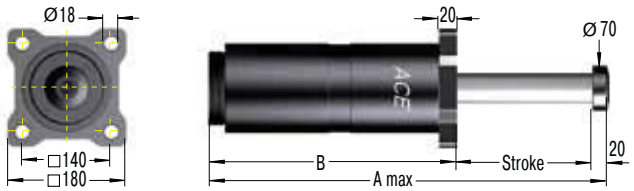
Type	Stroke mm	A max	B	D	E max	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F & S Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Mounting Style F & R Weight kg	Mounting Style S Weight kg
SDH38-50EU	50	270	204	164	84	3 600	600	700	5	4	13.5	13.7
SDH38-100EU	100	370	254	214	134	7 200	600	700	5	4	15.5	15.7
SDH38-150EU	150	470	304	264	184	10 800	600	700	4.5	3.5	17	17.2
SDH38-200EU	200	585	369	329	234	14 400	600	700	4	3	19.5	19.7
SDH38-250EU	250	685	419	379	284	18 000	600	700	3.7	2.6	21.5	21.7
SDH38-300EU	300	800	484	444	334	21 600	600	700	3.4	2.3	23.5	23.7
SDH38-350EU	350	900	534	494	384	25 200	600	700	3.2	2.1	25.5	25.7
SDH38-400EU	400	1 015	599	559	434	28 800	600	700	3	2	28	28.2
SDH38-500EU	500	1 230	714	674	534	36 000	600	700	2.8	1.8	32	32.2
SDH38-600EU	600	1 445	829	789	634	43 200	600	700	2.5	1.5	36	36.2
SDH38-700EU	700	1 660	944	904	734	50 400	600	700	2	1	40	40.2
SDH38-800EU	800	1 875	1 059	1 019	834	57 600	600	700	1.5	0.5	44	44.2

For other stroke lengths, special options (such as higher or lower impact velocity etc.), please consult ACE.

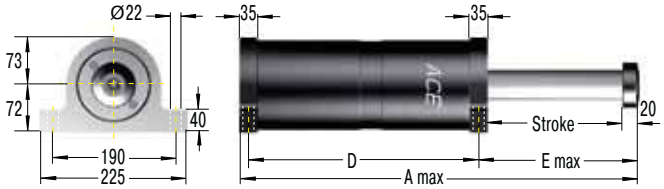
Issue 1.2013 Specifications subject to change

Rear Flange -R

Front Flange -F



Foot Mounting -S



Ordering Example **SDH50-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 50 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s) max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Impact velocity range: 0.6 to 4.6 m/s

Reacting force Q: At max. capacity rating = **160 kN max.**

Dimensions and Capacity Chart

Type	Stroke mm	A max	B	D	E max	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F & S Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Mounting Style F & R Weight kg	Mounting Style S Weight kg
SDH50-100EU	100	416	297	257	139	14 000	1 000	1 200	5	4	23.5	25
SDH50-150EU	150	516	347	307	189	21 000	1 000	1 200	4.5	3.5	26	27.5
SDH50-200EU	200	616	397	357	239	28 000	1 000	1 200	4	3	28.5	30
SDH50-250EU	250	731	462	422	289	35 000	1 000	1 200	3.7	2.6	32	33.5
SDH50-300EU	300	831	512	472	339	42 000	1 000	1 200	3.4	2.3	34.5	36
SDH50-350EU	350	931	562	522	389	49 000	1 000	1 200	3.2	2.1	37	38.5
SDH50-400EU	400	1 046	627	587	439	56 000	1 000	1 200	3	1.9	40	41.5
SDH50-500EU	500	1 261	742	702	539	70 000	1 000	1 200	2.8	1.7	46	47.5
SDH50-600EU	600	1 476	857	817	639	84 000	1 000	1 200	2.6	1.5	52	53.5
SDH50-700EU	700	1 691	972	932	739	98 000	1 000	1 200	2.4	1.3	58	59.5
SDH50-800EU	800	1 906	1 087	1 047	839	112 000	1 000	1 200	2	1	64	65.5
SDH50-1000EU	1 000	2 336	1 317	1 277	1 039	140 000	1 000	1 200	1.7	0.9	75	76.5

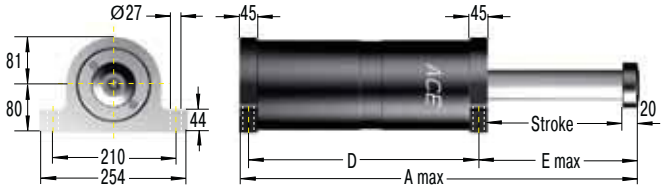
For other stroke lengths, special options (such as higher or lower impact velocity etc.), please consult ACE.

Issue 1.2013 Specifications subject to change

Rear Flange -R

Front Flange -F

Foot Mounting -S



Ordering Example **SDH63-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 63 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s) max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Impact velocity range: 0.5 to 4.6 m/s

Reacting force Q: At max. capacity rating = **210 kN max.**

Dimensions and Capacity Chart

Type	Stroke mm	A max	B	D	E max	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F & S Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Mounting Style F & R Weight kg	Mounting Style S Weight kg
SDH63-100EU	100	420	301	251	144	18 000	1 500	2 500	5	4	32	35
SDH63-150EU	150	520	351	301	194	27 000	1 500	2 500	4.5	3.5	35	38
SDH63-200EU	200	620	401	351	244	36 000	1 500	2 500	4	3	39	42
SDH63-250EU	250	720	451	401	294	45 000	1 500	2 500	3.8	2.8	43	46
SDH63-300EU	300	850	531	481	344	54 000	1 500	2 500	3.5	2.5	48	51
SDH63-350EU	350	950	581	531	394	63 000	1 500	2 500	3.3	2.3	52	55
SDH63-400EU	400	1 080	661	611	444	72 000	1 500	2 500	3	2	60	63
SDH63-500EU	500	1 280	761	711	544	90 000	1 500	2 500	2.8	1.8	68	71
SDH63-600EU	600	1 510	891	841	644	108 000	1 500	2 500	2.6	1.6	78	81
SDH63-700EU	700	1 740	1 021	971	744	126 000	1 500	2 500	2.4	1.5	88	91
SDH63-800EU	800	1 970	1 151	1 101	844	144 000	1 500	2 500	2	1.3	98	101
SDH63-1000EU	1 000	2 430	1 411	1 361	1 044	180 000	1 500	2 500	1.5	1	118	121
SDH63-1200EU	1 200	2 890	1 671	1 621	1 244	216 000	1 500	2 500	1.2	0.8	138	141

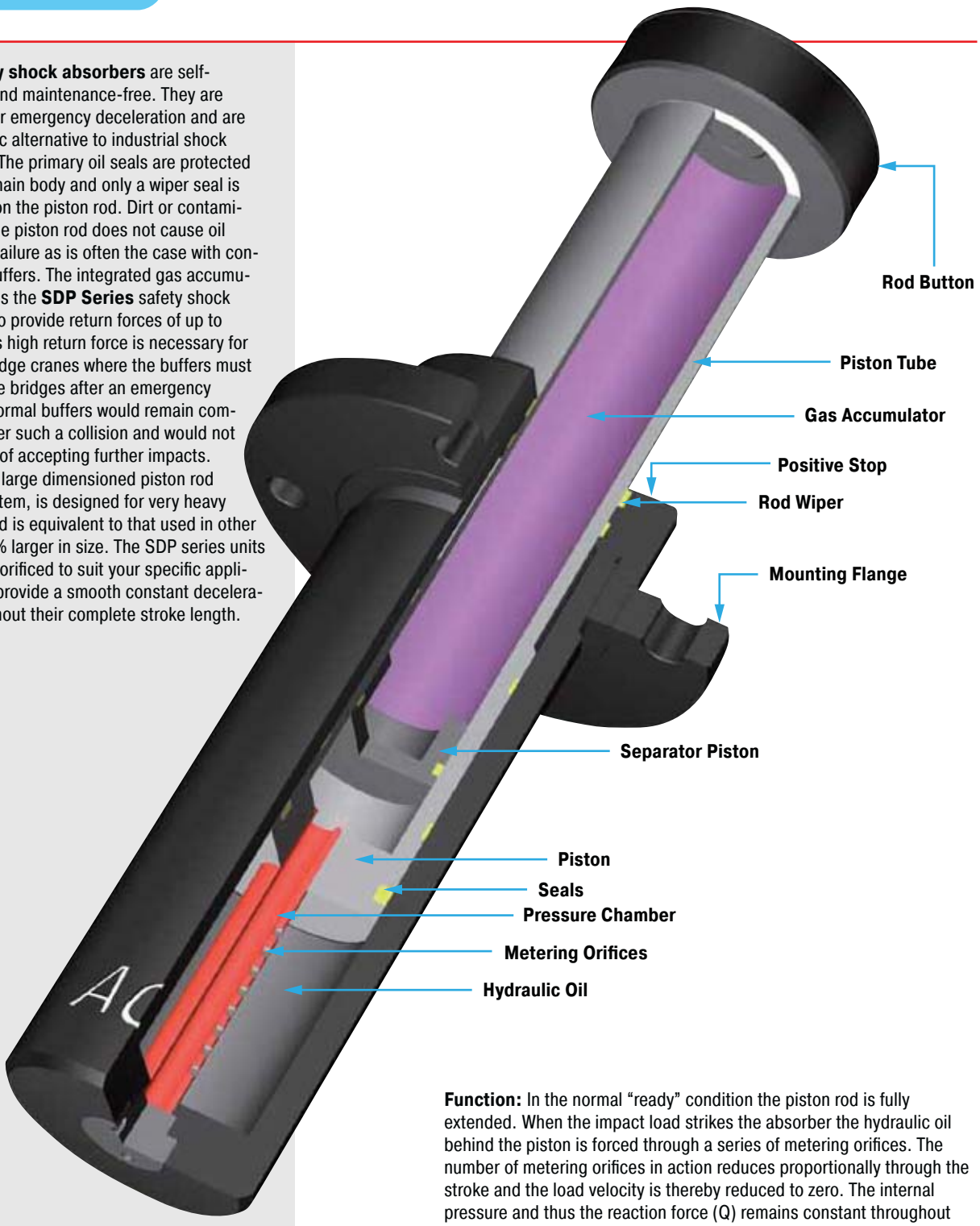
For other stroke lengths, special options (such as higher or lower impact velocity etc.), please consult ACE.

Issue 1.2013 Specifications subject to change

Safety Shock Absorbers SDP63 to SDP160

For Crane Installations

ACE safety shock absorbers are self-contained and maintenance-free. They are designed for emergency deceleration and are an economic alternative to industrial shock absorbers. The primary oil seals are protected inside the main body and only a wiper seal is necessary on the piston rod. Dirt or contamination on the piston rod does not cause oil leakage or failure as is often the case with conventional buffers. The integrated gas accumulator enables the **SDP Series** safety shock absorbers to provide return forces of up to 110 kN. This high return force is necessary for multiple-bridge cranes where the buffers must separate the bridges after an emergency collision. Normal buffers would remain compressed after such a collision and would not be capable of accepting further impacts. The robust, large dimensioned piston rod bearing system, is designed for very heavy duty use and is equivalent to that used in other buffers 80 % larger in size. The SDP series units are custom orificed to suit your specific application and provide a smooth constant deceleration throughout their complete stroke length.



Function: In the normal "ready" condition the piston rod is fully extended. When the impact load strikes the absorber the hydraulic oil behind the piston is forced through a series of metering orifices. The number of metering orifices in action reduces proportionally through the stroke and the load velocity is thereby reduced to zero. The internal pressure and thus the reaction force (Q) remains constant throughout the entire stroke length. The displaced oil is directed inside the piston rod where a separator piston keeps the oil and the nitrogen gas apart. The integrated gas accumulator, containing low pressure nitrogen, provides the high return force to reset the rod to its extended position and generates the high return forces to comply with crane installations.

Impact velocity range:
0.5 to 4.6 m/s

Material: Shock absorber body: Painted steel (RAL 7024). Piston rod: Hard chrome plated.

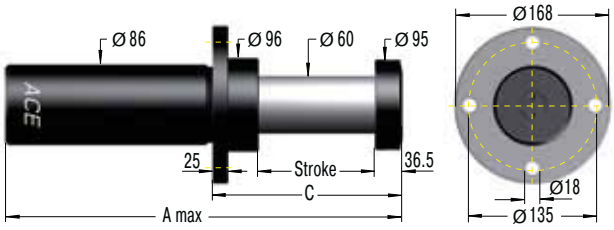
Operating temperature range:
-20 °C to 60 °C

Initial fill pressure: governs the rod return force.

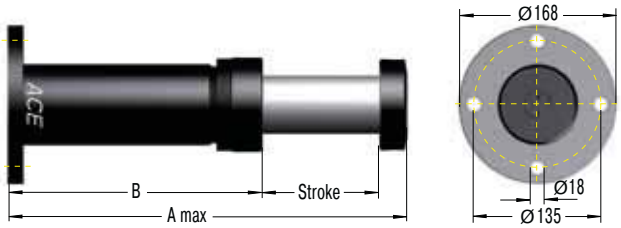
In creep speed: The shock absorber can be pushed through its stroke.

Issue 1.2013 Specifications subject to change

Front Flange -F



Rear Flange -R



Ordering Example **SDP63-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 63 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **200 kN max.**

Rod return: Nitrogen accumulator (5 bar)

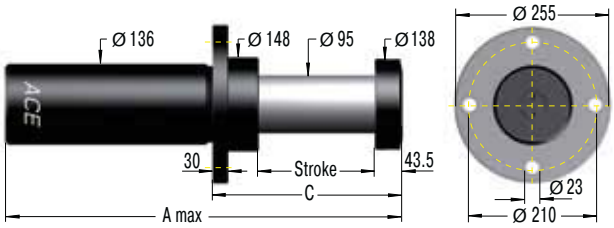
Dimensions and Capacity Chart

Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Weight kg
SDP63-50EU	50	280	193.5	145	9 100	1 500	8 000	5	4.5	11
SDP63-100EU	100	425	288.5	195	18 200	1 500	11 000	4.2	3.5	14
SDP63-150EU	150	560	373.5	245	27 300	1 500	15 000	3.2	2.4	17
SDP63-200EU	200	700	463.5	295	36 400	1 500	17 000	2.6	2	19
SDP63-250EU	250	840	553.5	345	43 200	1 500	18 000	2.4	1.8	21
SDP63-300EU	300	980	643.5	395	49 100	1 500	20 000	2.2	1.6	24
SDP63-400EU	400	1 265	828.5	495	54 500	1 500	20 000	2	1.4	29
SDP63-500EU	500	1 555	1 018.5	595	59 100	1 500	20 000	1.6	1.2	34
SDP63-600EU	600	1 840	1 203.5	695	60 000	1 500	20 000	1.4	1	39

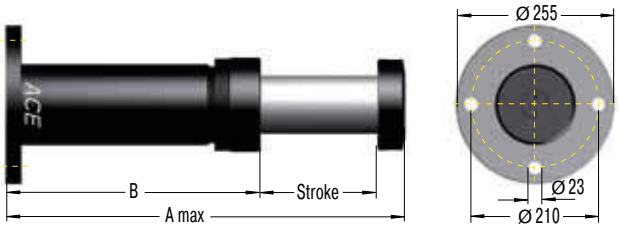
Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

Issue 1.2013 Specifications subject to change

Front Flange -F



Rear Flange -R



Ordering Example **SDP100-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 100 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **500 kN max.**

Rod return: Nitrogen accumulator (5 bar)

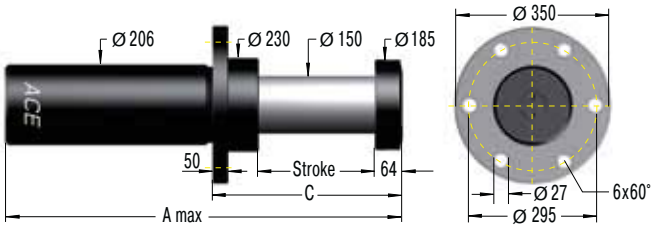
Dimensions and Capacity Chart

Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Weight kg
SDP100-100EU	100	460	316.5	230	47 000	3 900	38 000	5	4.5	38
SDP100-200EU	200	750	506.5	330	95 000	3 900	38 000	4.5	4	53
SDP100-250EU	250	890	596.5	380	114 000	3 900	40 000	4	3.5	59
SDP100-300EU	300	1 035	691.5	430	131 000	3 900	40 000	3.5	3	66
SDP100-400EU	400	1 325	881.5	530	160 000	3 900	40 000	2.5	2	81
SDP100-500EU	500	1 610	1 066.5	630	182 000	3 900	40 000	2	1.7	93
SDP100-600EU	600	1 880	1 236.5	730	196 000	3 900	46 000	1.7	1.5	103
SDP100-800EU	800	2 450	1 606.5	930	218 000	3 900	46 000	1.3	1	125

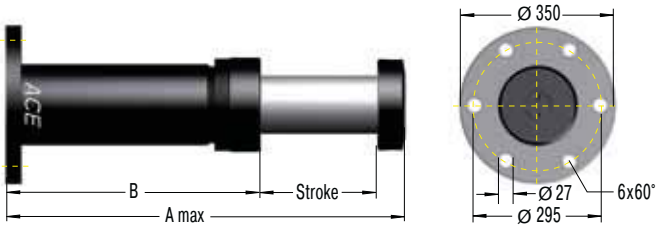
Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

Issue 1.2013 Specifications subject to change

Front Flange -F



Rear Flange -R



Ordering Example **SDP160-400EU-F-XXXXX**

Safety Shock Absorber
Bore Size Ø 160 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **1000 kN max.**

Rod return: Nitrogen accumulator (5 bar)

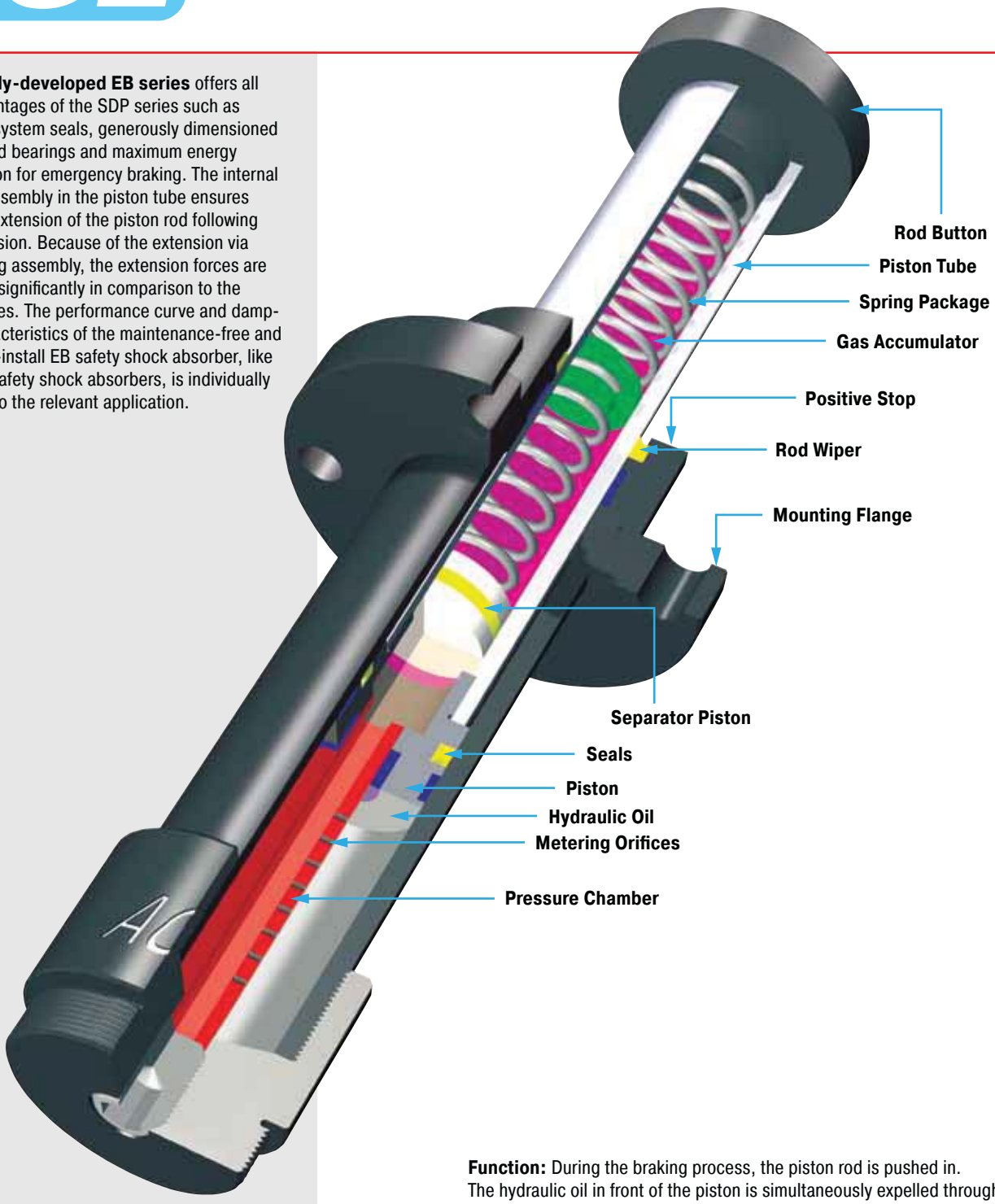
Dimensions and Capacity Chart

Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	Min. Return Force N	Max. Return Force N	Mounting Style F Max. Side Load Angle °	Mounting Style R Max. Side Load Angle °	Weight kg
SDP160-200EU	200	860	596	440	182 000	1 000	80 000	6	5	105
SDP160-400EU	400	1 485	1 021	640	345 000	1 000	80 000	5	4	165
SDP160-500EU	500	1 765	1 201	740	409 000	1 000	90 000	4.5	3.5	195
SDP160-600EU	600	2 065	1 401	840	469 000	1 000	95 000	4	3	230
SDP160-800EU	800	2 660	1 796	1 040	545 000	1 000	100 000	3	2	290
SDP160-1000EU	1000	3 225	2 161	1 240	545 000	1 000	110 000	2.3	1.3	350
SDP160-1200EU	1200	3 815	2 551	1 440	545 000	1 000	110 000	1.7	0.8	410
SDP160-1600EU	1600	4 995	3 331	1 840	582 000	1 000	110 000	1.5	0.6	530

Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

Issue 1.2013 Specifications subject to change

The **newly-developed EB series** offers all the advantages of the SDP series such as internal system seals, generously dimensioned piston rod bearings and maximum energy absorption for emergency braking. The internal spring assembly in the piston tube ensures reliable extension of the piston rod following compression. Because of the extension via the spring assembly, the extension forces are reduced significantly in comparison to the SDP series. The performance curve and damping characteristics of the maintenance-free and ready-to-install EB safety shock absorber, like all ACE safety shock absorbers, is individually tailored to the relevant application.



Function: During the braking process, the piston rod is pushed in. The hydraulic oil in front of the piston is simultaneously expelled through all orifice openings. The number of orifice openings in effect reduces in proportion to the stroke movement. The retraction speed is reduced. The back-pressure created in front of the piston, and therefore the reaction force (Q), remain constant during the complete stroke. The oil volume displaced by the piston rod is compensated for by the separating piston. The piston rod is extended again by the spring assembly in the piston tube.

Impact velocity range:
0.5 to 4.6 m/s

Material: Steel body with black oxide finish. Piston rod hard chrome plated.

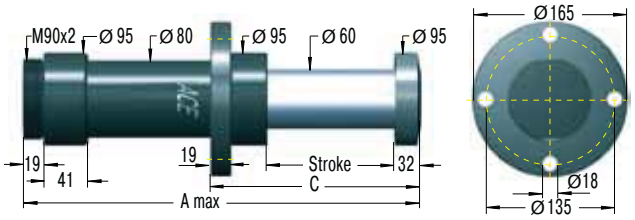
Operating temperature range:
-12 °C to 66 °C

Initial fill pressure: governs the rod return force.

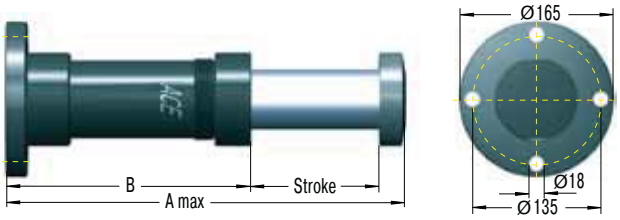
In creep speed: The shock absorber can be pushed through its stroke.

Issue 1.2013 Specifications subject to change

Front Flange -F



Rear Flange -R



Ordering Example **EB63-400EU-F-X**

Safety Shock Absorber
Bore Size Ø 63 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **187 kN max.**

Rod return: Nitrogen accumulator (0.55 bar to 1.03 bar) combined with return spring

Dimensions and Capacity Chart

Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	[1] Effective Weight me me min. kg	me max. kg	Min. Return Force N	Max. Return Force N	Max. Side Load Angle °	Weight kg
EB63-100EU	100	420	288	192	16 000	1 510	128 000	700	6 900	3.5	13.7
EB63-200EU	200	700	468	292	32 000	3 020	256 000	770	9 300	3	16.7
EB63-300EU	300	980	648	392	48 000	4 540	384 000	830	10 600	2.5	21.8
EB63-400EU	400	1 260	828	492	64 000	6 050	512 000	600	11 100	2	25.8
EB63-500EU	500	1 540	1 008	592	80 000	7 560	640 000	670	12 000	1.5	29.8

[1] The correct effective weight range for your application will be calculated by ACE and should fall within this band.

Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

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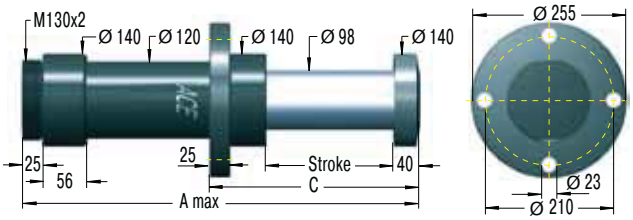
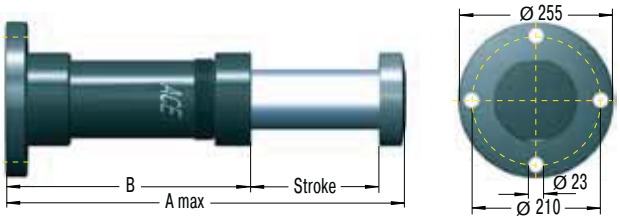
Front Flange -F



Rear Flange -R



Ordering Example **EB100-400EU-F-X**

Safety Shock Absorber
Bore Size Ø 100 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **467 kN max.**

Rod return: Nitrogen accumulator (0.55 bar to 1.03 bar) combined with return spring

Dimensions and Capacity Chart

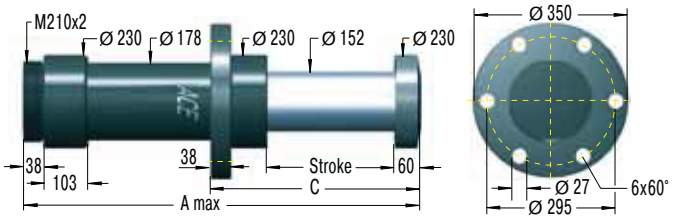
Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	[1] Effective Weight me me min. kg	me max. kg	Min. Return Force N	Max. Return Force N	Max. Side Load Angle °	Weight kg
EB100-200EU	200	735	495	320	80 000	7 560	640 000	1 200	8 900	4	42.5
EB100-300EU	300	1 005	665	420	120 000	11 340	960 000	950	14 100	3.5	50.8
EB100-400EU	400	1 275	835	520	160 000	15 120	1 280 000	1 190	18 200	3	59.1
EB100-500EU	500	1 545	1 005	620	200 000	18 900	1 600 000	930	20 800	2.5	68.5
EB100-600EU	600	1 815	1 175	720	240 000	22 680	1 920 000	1 170	23 300	2	76.8

[1] The correct effective weight range for your application will be calculated by ACE and should fall within this band.

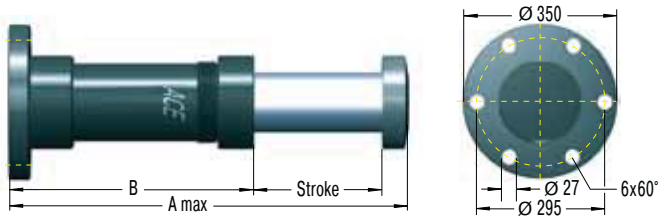
Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

Issue 1.2013 Specifications subject to change

Front Flange -F



Rear Flange -R



Ordering Example **EB160-400EU-F-X**

Safety Shock Absorber
Bore Size Ø 160 mm
Stroke 400 mm
EU Compliant
Mounting Style: Front Flange
Identification No. assigned by ACE

Please indicate identification no. in case of replacement order

Complete Details Required when Ordering

Moving load	m	(kg)
Impact velocity range	v	(m/s)max.
Creep speed	vs	(m/s)
Motor power	P	(kW)
Stall torque factor	ST	(normal 2.5)
Number of absorbers in parallel	n	

or technical data according to formulae and calculations on page 13 to 15.

The calculation and selection of the correct ACE safety shock absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Technical Data

Reacting force Q: At max. capacity rating = **700 kN max.**

Rod return: Nitrogen accumulator (0.55 bar to 1.03 bar) combined with return spring

Dimensions and Capacity Chart

Type	Stroke mm	A max	B	C	Max. Energy Capacity W_3 Nm/Cycle	[1] Effective Weight me me min. kg	me max. kg	Min. Return Force N	Max. Return Force N	Max. Side Load Angle °	Weight kg
EB160-400EU	400	1 400	940	600	240 000	22 700	1 920 000	1 870	18 100	4	155.6
EB160-600EU	600	2 000	1 340	800	360 000	34 000	2 880 000	2 100	18 800	3	189
EB160-800EU	800	2 600	1 740	1 000	480 000	45 400	3 840 000	2 400	19 500	2	222.3

[1] The correct effective weight range for your application will be calculated by ACE and should fall within this band.

Special options: Special oils, special flanges, additional corrosion protection etc. available on request.

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Permitted Use

ACE safety shock absorbers are machine elements to brake moving masses in a defined end position in emergency stop situations for axial forces. The safety shock absorbers are not designed for regular operational usage.

Calculation of safety shock absorbers

The calculation of safety shock absorbers should generally be performed or checked by ACE.

Deceleration Properties

The orifice sizing and drill pattern in the pressure chamber are individually designed for each safety shock absorber. The respective absorption characteristic is optimised corresponding to the maximum mass that occurs in the emergency stop and the impact speed. Correspondingly, each safety shock absorber is given an individual identification number.

Model Code

For types SCS33 to 64, the individual five-digit identification numbers can be taken from the last digits of the shock absorber model code shown on the label. Example: SCS33-50EU-1XXXX. For type series SDH38 to SDH63, SDP63 to SDP160 and EB63 to EB160, the identification number is a five digit number. Example: SDH38-100EU-F-XXXXX. In addition to the model code, the label also shows the authorised maximum impact velocity and maximum authorised impact mass for the unit.

Mounting

To mount the shock absorber, we recommend the use of original ACE mounting accessories shown in catalogue. The mounting of each shock absorber must be exactly positioned so that the reaction force (Q) can be adequately transmitted into the mounting structure. ACE recommends installation via the front flange -F mounting style that ensures the maximum protection against buckling. The damper must be mounted so that the moving loads are decelerated with the least possible side loading to the piston rod. The maximum permissable side load angles are detailed in our current catalogue.The entire stroke length must be used for deceleration because only using part of the stroke can lead to overstressing and damage to the unit.

Mounting style **front flange -F**

Safety Shock Absorber SDH

Safety Shock Absorber SDP

Environmental Requirements

The permissible temperature range for each shock absorber type can be found in our current catalogue.
CAUTION: Usage outside the specified temperature range can lead to premature breakdown and damage of of the shock absorbers which can then result in severe system damage or machine failures.

Trouble free operation outdoors or in damp environments is only warranted if the dampers are coated with a specific corrosion protection finish.

Initial Start-Up Checks

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact speeds and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to your system can be avoided. If the shock absorbers were selected on calculated data that does not correspond to the maximum possible loading (i.e. selection based on drive power being switched off or at reduced impact speed) then these restricted impact conditions must not be exceeded during initial testing or subsequent use of the system. Otherwise you risk damaging the shock absorbers and/or your machine by overstressing materials. After the initial trial check that the piston rod fully extends again and that there are no signs of oil leakage. Also check that the mounting hardware is still securely tightened. You need to satisfy yourself that no damage has occurred to the piston rod, the body, or the mounting hardware.

Fixed Mechanical Stop

Safety shock absorbers do not need an external stop as a stroke limiter. The stroke of the safety absorber is limited by the stop of the impact head on the shock absorber. For types SCS33 to SCS64, the fixed stop point is achieved with the integrated stop collar.

What Needs to be Checked after a Full Load Impact?

Safety shock absorbers that were originally checked only at reduced speed or load need to be checked again after a full load impact (i.e. emergency use) has occurred. Check that the piston rod fully extends to its full out position, that there are no signs of oil leakage and that the mounting hardware is still securely fixed. You need to satisfy yourself that no damage has occurred to the piston rod, the body, or the mounting hardware. If no damage has occurred, the safety shock absorber can be put back into normal operation (see **initial start-up**).

Maintenance

Safety shock absorbers are sealed systems and do not need special maintenance. Safety shock absorbers that are not used regularly (i.e. that are intended for emergency stop systems) should be checked within the normal time frame for safety checks, but **at least once a year**. At this time special attention must be paid to checking that the piston rod resets to its fully extended position, that there is no oil leakage and that the mounting brackets are still secure and undamaged. The piston rod must not show any signs of damage. Safety shock absorbers that are **in use regularly** should be checked **every three months**.

Repair Notice

If any damage to the shock absorber is detected or if there are any doubts as to the proper functioning of the unit please send the unit for service to ACE. Alternatively contact your local ACE office for further advice.

Detailed information on the above listed points can be taken from the corresponding operating and assembly instructions.

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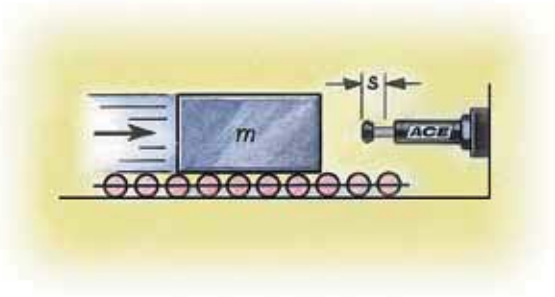


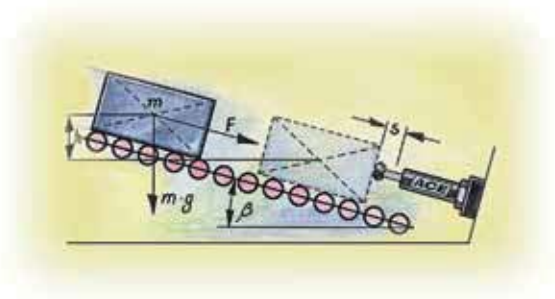
Controlled emergency stop

ACE safety shock absorbers protect precision assembly jigs for the aircraft industry.

The basic mount of this coordinate measuring machine for the production of parts in the aircraft industry is made of granite and must not be damaged. To avoid damage from operating errors or mishandling, all movement axes were equipped with safety shock absorbers of the type **SCS45-50EU**.

If the turntables malfunction the safety shock absorbers decelerate the loads before expensive damage can occur to the granite measuring tables.

Optimally protected turntable



Downhill security

ACE safety shock absorbers defy the forces of nature.

In order to efficiently protect against falling rocks, a net is put through its paces under realistic conditions. Large sized **SDH80-500EU-F** type safety shock absorbers with additional crash sleeves safeguard the high durability of the test construction. These models provide the necessary reserves for energy absorption – especially with regard to the supporting forces which must be considered during the very high collision speed imposed on a stone transportation car.

Complete protection on a test facility

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