SDP63 to SDP160
Safety Shock Absorbers

High return forces with gas pressure accumulator

Crane installations, optimised characteristic

Energy capacity 9,100 Nm/cycle to 582,000 Nm/cycle

Stroke 50 mm to 1,200 mm

SDP63EU

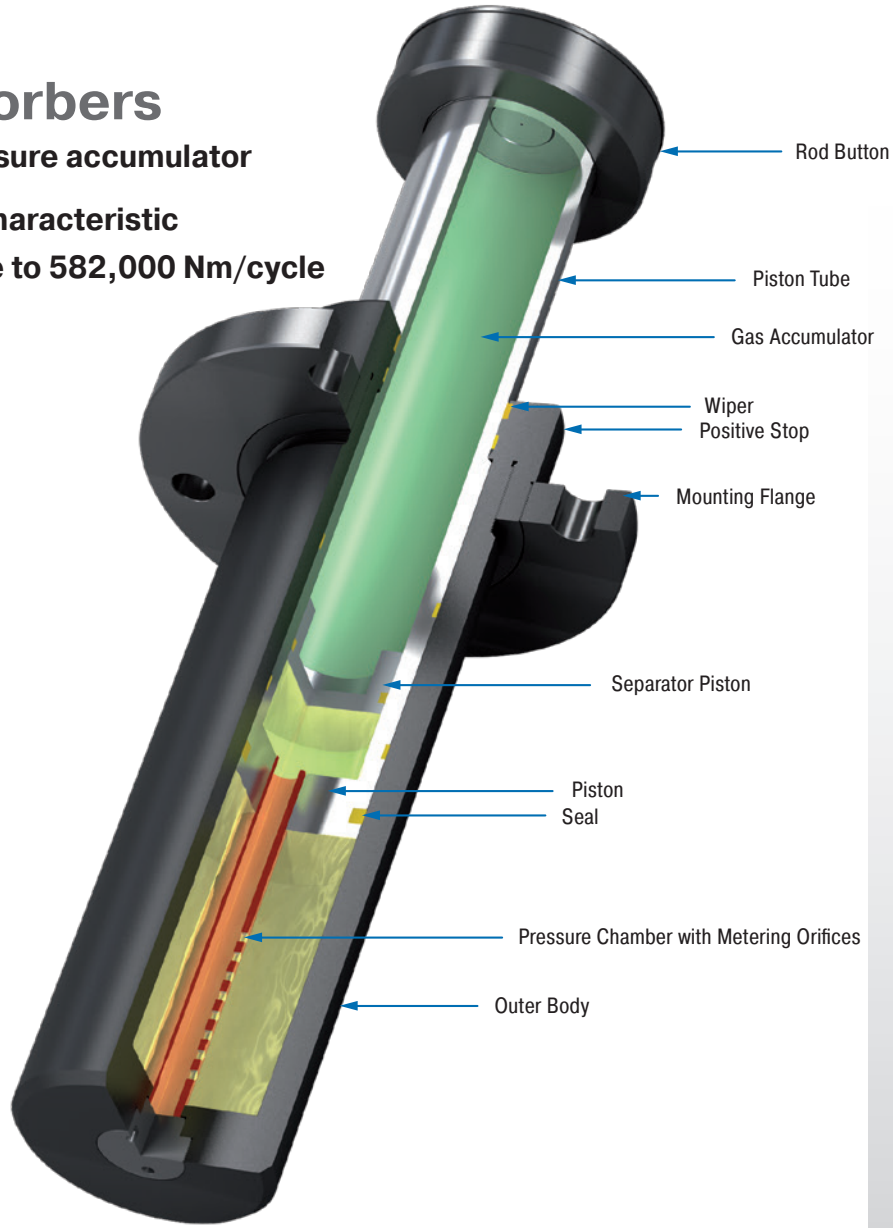
SDP80EU

SDP100EU

SDP120EU

SDP160EU

The identification numbers listed are the respective standard units of the corresponding shock absorber series. Special types can have deviating identification numbers.



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Safety Shock Absorbers SDP63 to SDP160 (crane installations, optimised characteristic)

Manual

General instructions

This manual is for the disruption-free use of the product types listed on page 1; its compliance is a prerequisite for the fulfilment of any warranty claims.

Therefore, make sure to read this manual before use.

Please always maintain the specified limits from the performance table (technical data). Take into account the predominant environmental conditions and restrictions. Note the regulations of the trade association, TÜV or corresponding national, international and European regulations. Installation and commissioning only according to mounting instructions.

Safety information

WARNING

If ACE safety shock absorbers are used where a failure of the product could lead to personal injuries and/or material damage, additional safety elements must be implemented.

Free-moving masses can lead to injuries by crushing during installation of the shock absorber. Secure moving masses against inadvertent starting with suitable safety precautions before installing the shock absorbers.

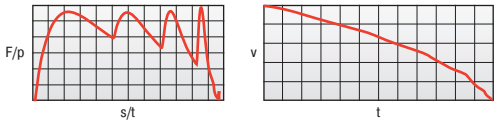
Intended use

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.

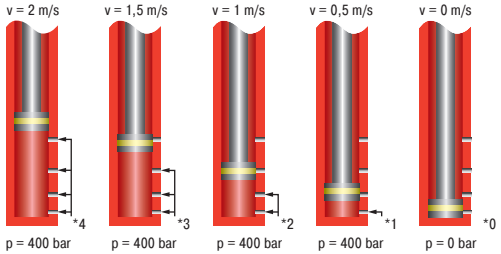
Description and function

The ACE safety shock absorbers SDP63 to SDP160 are maintenance-free, ready-to-install hydraulic components with numerous metering orifices. During the slowing down process the moving mass moves with kinetic energy and, if necessary, an additional drive energy in the axial direction of the piston rod with a defined impact velocity against the rod end button of the shock absorber. Alternatively, numerous shock absorbers can also be used in parallel. During the initiated slowing down process the piston rod is pushed into the shock absorber. The hydraulic oil located before the piston is displaced through all metering orifices at the same time. The number of effective metering openings reduces in proportion to the driven stroke. The retraction speed reduces. The dynamic pressure applied in front of the piston corresponds to the counterforce applied by the shock absorber and remains approximately constant over the entire stroke. A requirement for a constant rate of deceleration is the correct calculation of the safety shock absorber and therefore the correct selection of the right metering orifice pattern or the right hardness level of the shock absorber.

General Function



F = Force (N) p = Internal pressure (bar) s = Stroke (m)
t = Deceleration time (s) v = Velocity (m/s)



* The load velocity reduces continuously as you travel through the stroke due to the reduction in the number of metering orifices (*) in action. The internal pressure remains essentially constant and thus the Force vs. stroke curve remains linear.

Calculation and design

In order to ensure an optimum, fault-free and durable function of the safety shock absorbers they must be correctly dimensioned and designed. The following parameters must be known and used in the calculation:

- Moving mass [kg]
- Impact velocity of the mass into the shock absorber(s) [m/s]
- Additionally acting propelling force, propelling power or propelling torque [N, kW, Nm]
- Number of shock absorbers acting in parallel [n]
- Number of strokes or cycles per hour [1/h]

The correct size of the safety shock absorbers can be determined with the ACE online calculation programme at www.ace-ace.de. You can also send us the completed online form via e-mail for checking.

Or make use of our free calculation service by phoning: +49 (0)2173 - 9226-20.

WARNING

The dampers must be dimensioned in such a way that the calculated values do not exceed the maximum values of the respective performance table (technical data):

W_3 [Nm/cycle]

Effective weight me

Max. side load angle [°]

The calculation and design of the suitable safety shock absorber should be undertaken by or checked by ACE.

For a correct damping design the safety shock absorber must represent the only braking system in an emergency stop.

Delivery and storage

- After delivery please check the shock absorber for any damage.
- The shock absorber can become damaged if it falls. Carefully remove shock absorber from the packaging.
- Shock absorbers can generally be stored in any position.
- Storage in the original packaging is preferred.
- Always store shock absorbers in a dry place in order to avoid oxidation.
- The recommended maximum storage time is three years.

Maintenance and care

Safety shock absorbers are enclosed systems and therefore do not need special maintenance. Safety shock absorbers that are not regularly started up (e.g. emergency stop devices) are checked **at least once per year** as part of the normal safety check of the plant. Check that the return of the piston rod is in the initial position, the damper is not leaking and the mounting elements are properly secured. The piston rod must not exhibit any damage. For safety shock absorbers that are regularly operated, these checks should take place at intervals of no more than three months.

Disassembly and disposal

Take account of environmental protection (recovery of problematic substances) during disposal of the shock absorber. The SDP63 to SDP160 safety shock absorbers are filled with HLP 46. The corresponding data sheet is available on request.

The SDP63 to SDP160 safety shock absorbers are repairable. Faulty dampers can be sent to our service department for determination of the cause of failure.

Safety Shock Absorbers SDP63 (crane installations, optimised characteristic)

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the damper or on the packaging matches the respective designation on the delivery note.

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

Mounting: As required but always in such a way that the entire damper stroke is used. The dampers must always be mounted in such a way that the forces are introduced centrally over the piston rod in the damper. The maximum side load angle must not be exceeded. Safety dampers must not be exchanged from one installation site to another if the conformity of the throttle characteristic curve is not ensured.

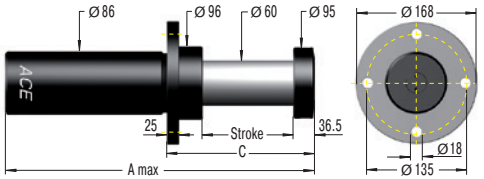
Emergency stop application: After an emergency stop, check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Regular start-up: Safety shock absorbers can be regularly started up with 100 % stroke utilisation with a creep speed of 1/10 of the max. impact velocity.

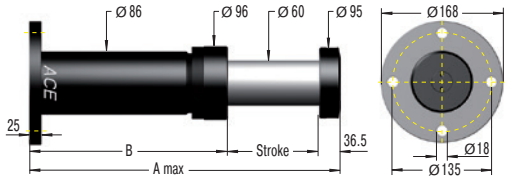
Checking: A regular check should take place at an interval of **no more than three months**.

Commissioning

SDP63-F Front Flange



SDP63-R Rear Flange



WARNING

Take particular care that the customer-specific identification number at the end of the damper designation matches the number on the delivery note. The field data to be read from the type plate, such as moving mass and maximum impact velocity, must be compared with the technical design. This ensures that the damper is the right size for its use. Otherwise you risk damaging the shock absorbers and/or machine by overstressing materials.

The gas accumulators of the SDP63 to SDP160 safety shock absorbers are filled with nitrogen ex works. The respective filling pressure (5 bar) can be found on the damper label. The dampers may only be operated with this filling pressure. A reduced filling pressure can lead to serious malfunctions.

During installation of the dampers, moving masses can lead to injuries due to inadvertent starting. Secure moving masses against inadvertent moving.

The dampers may be unsuitable for use and have an insufficient damping effect. Check the specific suitability of the dampers before installation.

If operated outside of the operating temperature range, the damper can lose its function. Operating temperature range must be maintained. Do not paint dampers due to heat emission.

Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the damper and cause it to fail. Protect or encapsulate piston rod and seal system from external materials in the surrounding area.

Damage to the piston rod surface can destroy the seal system. Do not grease, oil piston rod etc. and protect against dirt particles.

The piston rod can be torn from the damper. Do not load the piston rod with tensile stress.

Damper can tear off upon impact. Always lay out the connection structure in such a way that the maximum occurring forces can be absorbed with sufficient safety.

Safety shock absorber check after a damper impact. Check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured.

Performance data and dimensions

TYPES	Energy capacity Nm/cycle	Reacting force N	Return Force min. N	Return Force max. N	Stroke mm	A max. mm	B mm	C mm	Weight kg
SDP63-50EU	9,100	200,000	1,500	8,000	50	280	193.5	145	11
SDP63-75EU	13,600	200,000	1,500	10,000	75	360	248.5	170	12.5
SDP63-100EU	18,200	200,000	1,500	11,000	100	425	288.5	195	14
SDP63-150EU	27,300	200,000	1,500	15,000	150	560	373.5	245	17
SDP63-200EU	36,400	200,000	1,500	17,000	200	700	463.5	295	19
SDP63-250EU	43,200	190,000	1,500	18,000	250	840	553.5	345	21
SDP63-300EU	49,100	180,000	1,500	20,000	300	980	643.5	395	24
SDP63-400EU	54,500	150,000	1,500	20,000	400	1,265	828.5	495	29
SDP63-500EU	59,100	130,000	1,500	20,000	500	1,555	1,018.5	595	34
SDP63-600EU	60,000	110,000	1,500	20,000	600	1,840	1,203.5	695	39

In case of an existing side load angle, please consult ACE.

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact velocity and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to the system can be avoided. If the safety dampers 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 velocity) 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 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. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Safety Shock Absorbers SDP80 (crane installations, optimised characteristic)

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the damper or on the packaging matches the respective designation on the delivery note.

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

Mounting: As required but always in such a way that the entire damper stroke is used. The dampers must always be mounted in such a way that the forces are introduced centrally over the piston rod in the damper. The maximum side load angle must not be exceeded. Safety dampers must not be exchanged from one installation site to another if the conformity of the throttle characteristic curve is not ensured.

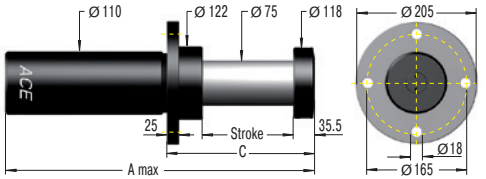
Emergency stop application: After an emergency stop, check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Regular start-up: Safety shock absorbers can be regularly started up with 100 % stroke utilisation with a creep speed of 1/10 of the max. impact velocity.

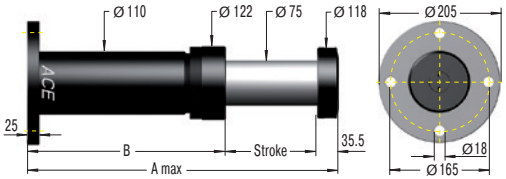
Checking: A regular check should take place at an interval of **no more than three months**.

Commissioning

SDP80-F Front Flange



SDP80-R Rear Flange



WARNING

Take particular care that the customer-specific identification number at the end of the damper designation matches the number on the delivery note. The field data to be read from the type plate, such as moving mass and maximum impact velocity, must be compared with the technical design. This ensures that the damper is the right size for its use. Otherwise you risk damaging the shock absorbers and/or machine by overstressing materials.

The gas accumulators of the SDP63 to SDP160 safety shock absorbers are filled with nitrogen ex works. The respective filling pressure (5 bar) can be found on the damper label. The dampers may only be operated with this filling pressure. A reduced filling pressure can lead to serious malfunctions.

During installation of the dampers, moving masses can lead to injuries due to inadvertent starting. Secure moving masses against inadvertent moving.

The dampers may be unsuitable for use and have an insufficient damping effect. Check the specific suitability of the dampers before installation.

If operated outside of the operating temperature range, the damper can lose its function. Operating temperature range must be maintained. Do not paint dampers due to heat emission.

Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the damper and cause it to fail. Protect or encapsulate piston rod and seal system from external materials in the surrounding area.

Damage to the piston rod surface can destroy the seal system. Do not grease, oil piston rod etc. and protect against dirt particles.

The piston rod can be torn from the damper. Do not load the piston rod with tensile stress.

Damper can tear off upon impact. Always lay out the connection structure in such a way that the maximum occurring forces can be absorbed with sufficient safety.

Safety shock absorber check after a damper impact. Check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured.

Performance data and dimensions

TYPES	Energy capacity Nm/cycle	Reacting force N	Return Force min. N	Return Force max. N	Stroke mm	A max. mm	B mm	C mm	Weight kg
SDP80-50EU	11,800	260,000	2,500	16,000	50	285	199.5	155	19
SDP80-100EU	23,600	260,000	2,500	16,000	100	440	304.5	205	23
SDP80-150EU	35,500	260,000	2,500	20,000	150	580	394.5	255	27
SDP80-200EU	47,300	260,000	2,500	20,000	200	730	494.5	305	32
SDP80-250EU	56,800	250,000	2,500	25,000	250	865	579.5	355	35
SDP80-300EU	65,500	240,000	2,500	25,000	300	1,010	674.5	405	39
SDP80-400EU	80,000	220,000	2,500	30,000	400	1,285	849.5	505	47
SDP80-500EU	90,900	200,000	2,500	30,000	500	1,575	1,039.5	605	55
SDP80-600EU	98,200	180,000	2,500	30,000	600	1,865	1,229.5	705	64
SDP80-800EU	101,800	140,000	2,500	30,000	800	2,450	1,614.5	905	80

In case of an existing side load angle, please consult ACE.

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact velocity and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to the system can be avoided. If the safety dampers 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 velocity) 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 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. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Safety Shock Absorbers SDP100 (crane installations, optimised characteristic)

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the damper or on the packaging matches the respective designation on the delivery note.

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

Mounting: As required but always in such a way that the entire damper stroke is used. The dampers must always be mounted in such a way that the forces are introduced centrally over the piston rod in the damper. The maximum side load angle must not be exceeded. Safety dampers must not be exchanged from one installation site to another if the conformity of the throttle characteristic curve is not ensured.

Emergency stop application: After an emergency stop, check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Regular start-up: Safety shock absorbers can be regularly started up with 100 % stroke utilisation with a creep speed of 1/10 of the max. impact velocity.

Checking: A regular check should take place at an interval of **no more than three months**.

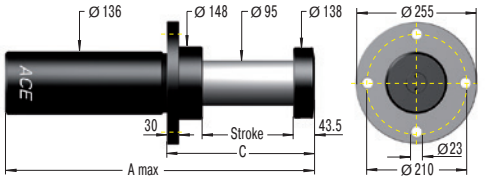
Commissioning

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact velocity and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to the system can be avoided. If the safety dampers 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 velocity) 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 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. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

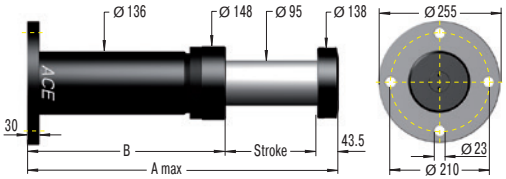
Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

SDP100-F Front Flange



SDP100-R Rear Flange



WARNING

Take particular care that the customer-specific identification number at the end of the damper designation matches the number on the delivery note. The field data to be read from the type plate, such as moving mass and maximum impact velocity, must be compared with the technical design. This ensures that the damper is the right size for its use. Otherwise you risk damaging the shock absorbers and/or machine by overstressing materials.

The gas accumulators of the SDP63 to SDP160 safety shock absorbers are filled with nitrogen ex works. The respective filling pressure (5 bar) can be found on the damper label. The dampers may only be operated with this filling pressure. A reduced filling pressure can lead to serious malfunctions.

During installation of the dampers, moving masses can lead to injuries due to inadvertent starting. Secure moving masses against inadvertent moving.

The dampers may be unsuitable for use and have an insufficient damping effect. Check the specific suitability of the dampers before installation.

If operated outside of the operating temperature range, the damper can lose its function. Operating temperature range must be maintained. Do not paint dampers due to heat emission.

Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the damper and cause it to fail. Protect or encapsulate piston rod and seal system from external materials in the surrounding area.

Damage to the piston rod surface can destroy the seal system. Do not grease, oil piston rod etc. and protect against dirt particles.

The piston rod can be torn from the damper. Do not load the piston rod with tensile stress.

Damper can tear off upon impact. Always lay out the connection structure in such a way that the maximum occurring forces can be absorbed with sufficient safety.

Safety shock absorber check after a damper impact. Check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured.

Performance data and dimensions

TYPES	Energy capacity Nm/cycle	Reacting force N	Return Force min. N	Return Force max. N	Stroke mm	A max. mm	B mm	C mm	Weight kg
SDP100-100EU	47,000	520,000	3,900	38,000	100	460	316.5	230	38
SDP100-200EU	95,000	520,000	3,900	38,000	200	750	506.5	330	53
SDP100-250EU	114,000	520,000	3,900	40,000	250	890	596.5	380	59
SDP100-300EU	131,000	500,000	3,900	40,000	300	1,035	691.5	430	66
SDP100-400EU	160,000	480,000	3,900	40,000	400	1,325	881.5	530	81
SDP100-500EU	182,000	440,000	3,900	40,000	500	1,610	1,066.5	630	93
SDP100-600EU	196,000	360,000	3,900	46,000	600	1,880	1,236.5	730	103
SDP100-800EU	218,000	300,000	3,900	46,000	800	2,450	1,606.5	930	125
SDP100-1000EU	236,000	260,000	3,900	46,000	1,000	3,020	1,976.5	1,130	160

In case of an existing side load angle, please consult ACE.

Safety Shock Absorbers SDP120 (crane installations, optimised characteristic)

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the damper or on the packaging matches the respective designation on the delivery note.

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

Mounting: As required but always in such a way that the entire damper stroke is used. The dampers must always be mounted in such a way that the forces are introduced centrally over the piston rod in the damper. The maximum side load angle must not be exceeded. Safety dampers must not be exchanged from one installation site to another if the conformity of the throttle characteristic curve is not ensured.

Emergency stop application: After an emergency stop, check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Regular start-up: Safety shock absorbers can be regularly started up with 100 % stroke utilisation with a creep speed of 1/10 of the max. impact velocity.

Checking: A regular check should take place at an interval of **no more than three months**.

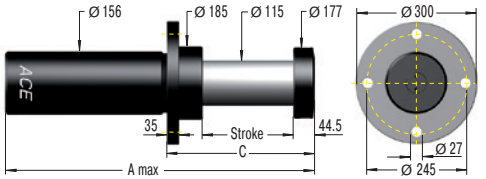
Commissioning

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact velocity and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to the system can be avoided. If the safety dampers 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 velocity) 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 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. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

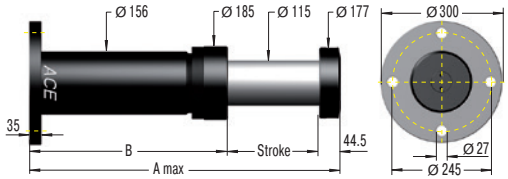
Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

SDP120-F Front Flange



SDP120-R Rear Flange



WARNING

Take particular care that the customer-specific identification number at the end of the damper designation matches the number on the delivery note. The field data to be read from the type plate, such as moving mass and maximum impact velocity, must be compared with the technical design. This ensures that the damper is the right size for its use. Otherwise you risk damaging the shock absorbers and/or machine by overstressing materials.

The gas accumulators of the SDP63 to SDP160 safety shock absorbers are filled with nitrogen ex works. The respective filling pressure (5 bar) can be found on the damper label. The dampers may only be operated with this filling pressure. A reduced filling pressure can lead to serious malfunctions.

During installation of the dampers, moving masses can lead to injuries due to inadvertent starting. Secure moving masses against inadvertent moving.

The dampers may be unsuitable for use and have an insufficient damping effect. Check the specific suitability of the dampers before installation.

If operated outside of the operating temperature range, the damper can lose its function. Operating temperature range must be maintained. Do not paint dampers due to heat emission.

Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the damper and cause it to fail. Protect or encapsulate piston rod and seal system from external materials in the surrounding area.

Damage to the piston rod surface can destroy the seal system. Do not grease, oil piston rod etc. and protect against dirt particles.

The piston rod can be torn from the damper. Do not load the piston rod with tensile stress.

Damper can tear off upon impact. Always lay out the connection structure in such a way that the maximum occurring forces can be absorbed with sufficient safety.

Safety shock absorber check after a damper impact. Check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured.

Performance data and dimensions

TYPES	Energy capacity Nm/cycle	Reacting force N	Return Force min. N	Return Force max. N	Stroke mm	A max. mm	B mm	C mm	Weight kg
SDP120-100EU	64,000	700,000	5,600	35,000	100	460	315.5	249	58
SDP120-200EU	127,000	700,000	5,600	70,000	200	750	505.5	355	72
SDP120-400EU	236,000	650,000	5,600	75,000	400	1,325	880.5	555	99
SDP120-600EU	300,000	550,000	5,600	75,000	600	1,880	1,235.5	755	125
SDP120-800EU	327,000	450,000	5,600	75,000	800	2,450	1,605.5	955	160
SDP120-1000EU	364,000	400,000	5,600	75,000	1,000	3,020	1,975.5	1,155	192
SDP120-1200EU	436,000	400,000	5,600	75,000	1,200	3,590	2,345.5	1,355	225

In case of an existing side load angle, please consult ACE.

Safety Shock Absorbers SDP160 (crane installations, optimised characteristic)

Mounting instructions and mounting accessories

Installation instructions

Before installation and use check whether the identification number on the damper or on the packaging matches the respective designation on the delivery note.

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

Mounting: As required but always in such a way that the entire damper stroke is used. The dampers must always be mounted in such a way that the forces are introduced centrally over the piston rod in the damper. The maximum side load angle must not be exceeded. Safety dampers must not be exchanged from one installation site to another if the conformity of the throttle characteristic curve is not ensured.

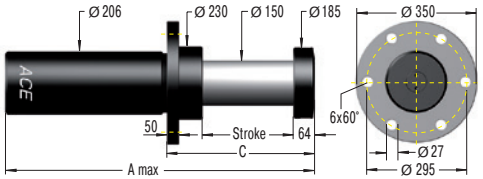
Emergency stop application: After an emergency stop, check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Regular start-up: Safety shock absorbers can be regularly started up with 100 % stroke utilisation with a creep speed of 1/10 of the max. impact velocity.

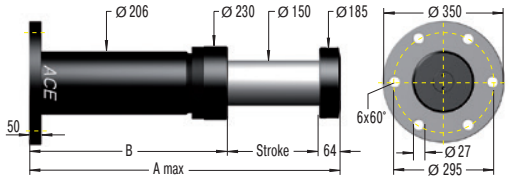
Checking: A regular check should take place at an interval of **no more than three months**.

Commissioning

SDP160-F Front Flange



SDP160-R Rear Flange



WARNING

Take particular care that the customer-specific identification number at the end of the damper designation matches the number on the delivery note. The field data to be read from the type plate, such as moving mass and maximum impact velocity, must be compared with the technical design. This ensures that the damper is the right size for its use. Otherwise you risk damaging the shock absorbers and/or machine by overstressing materials.

The gas accumulators of the SDP63 to SDP160 safety shock absorbers are filled with nitrogen ex works. The respective filling pressure (5 bar) can be found on the damper label. The dampers may only be operated with this filling pressure. A reduced filling pressure can lead to serious malfunctions.

During installation of the dampers, moving masses can lead to injuries due to inadvertent starting. Secure moving masses against inadvertent moving.

The dampers may be unsuitable for use and have an insufficient damping effect. Check the specific suitability of the dampers before installation.

If operated outside of the operating temperature range, the damper can lose its function. Operating temperature range must be maintained. Do not paint dampers due to heat emission.

Fluids, gases and dirt particles in the surrounding area can attack or destroy the seal system of the damper and cause it to fail. Protect or encapsulate piston rod and seal system from external materials in the surrounding area.

Damage to the piston rod surface can destroy the seal system. Do not grease, oil piston rod etc. and protect against dirt particles.

The piston rod can be torn from the damper. Do not load the piston rod with tensile stress.

Damper can tear off upon impact. Always lay out the connection structure in such a way that the maximum occurring forces can be absorbed with sufficient safety.

Safety shock absorber check after a damper impact. Check that the piston rod returns to the initial position, the damper is not leaking and the mounting elements are properly secured.

Performance data and dimensions

TYPES	Energy capacity Nm/cycle	Reacting force N	Return Force min. N	Return Force max. N	Stroke mm	A max. mm	B mm	C mm	Weight kg
SDP160-200EU	182,000	1,000,000	1,000	80,000	200	860	596	440	105
SDP160-400EU	345,000	950,000	1,000	80,000	400	1,485	1,021	640	165
SDP160-500EU	409,000	900,000	1,000	90,000	500	1,765	1,201	740	195
SDP160-600EU	469,000	860,000	1,000	95,000	600	2,065	1,401	840	230
SDP160-800EU	545,000	750,000	1,000	100,000	800	2,660	1,796	1,040	290
SDP160-1000EU	545,000	600,000	1,000	110,000	1,000	3,225	2,161	1,240	350
SDP160-1200EU	545,000	500,000	1,000	110,000	1,200	3,815	2,551	1,440	410
SDP160-1600EU	582,000	400,000	1,000	110,000	1,600	4,995	3,331	1,840	530

In case of an existing side load angle, please consult ACE.

First impacts on the shock absorber should only be tried after correctly mounting and with reduced impact velocity and – if possible – with reduced load. Differences between calculated and actual operating data can then be detected early on, and damage to the system can be avoided. If the safety dampers 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 velocity) 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 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. Make sure that no damage has occurred to the piston rod, the body, or the mounting hardware.

Packaging disposal

Please dispose of the transportation packaging in an environmentally-friendly manner. Recycling packaging materials saves raw materials and reduces waste. The packaging materials do not contain any prohibited materials.

Safety Shock Absorbers SDP63 to SDP160 (crane installations, optimised characteristic)

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Warranty

Fundamentally, all modifications to the product by third parties lead to exclusion from the warranty.

Obvious defects must be reported to the vendor in writing immediately after delivery, no later than one week, but in any case before processing or installation, otherwise the assertion of a warranty claim is excluded. A timely dispatch is sufficient to keep the term.

The vendor is to be given an opportunity to check on site. If the complaint is justified the vendor offers warranty by repair or replacement at its own discretion. If the rectification fails, the buyer may choose to demand reduction of payment or cancellation of the contract. If there is only a minor lack of conformity, particularly with only minor defects, the buyer nevertheless has a right of withdrawal.

If, after failed rectification, the buyer chooses to cancel the contract due to a defect of title or material defect, they are not entitled to additionally claim for damages.

If, after failed fulfilment, the buyer chooses compensation, the goods remain with the buyer, if this is reasonable. The compensation is limited to the difference between the purchase price and the value of the defective item. This does not apply if the vendor maliciously causes the breach of contract.

The quality of the goods is only considered as agreed upon with the product description of the vendor. Public statements, claims or advertising of the manufacturer do not represent an additional contractual specification of quality of the goods.

If the buyer receives defective mounting instructions, the buyer is only obligated to deliver defect-free mounting instructions and only if the defect to the mounting instructions prevents proper mounting.

The warranty period is two years and begins upon completion. Exchange and return of custom products are fundamentally excluded. The factory conditions of the manufacturing factory apply to parts not manufactured and processed by the vendor, which can be viewed by the orderer at the vendor at any time. Construction and installation parts are delivered according to the present standard of engineering.

Service life

In general, safety dampers are machine elements that are designed for emergency stop applications.

Safety shock absorbers can be started up with 100 % stroke utilisation with a creep speed of 1/10 of the maximum impact velocity. The propelling force must be greater than the return force.

Starting at creep speed subjects the sealing elements of the safety dampers to wear. The wear of seals is largely dependent upon the operating conditions and the respective application and its operating parameters.

Technical data

Energy capacity: 9,100 Nm/cycle to 582,000 Nm/cycle
Impact velocity range: 0.5 m/s to 4.6 m/s. Other speeds on request.
Reacting force: At max. energy capacity = 110 kN to 1,000 kN
Operating temperature range: -20 °C to +60 °C. Other temperatures on request.
Mounting: in any position
Positive stop: integrated
Material: Outer body: Painted steel;
Rod end button: Steel with black oxide finish and hardened
Piston tube: Hard chrome plated steel
Piston rod seal: NBR
Damping medium: HLP 46
Filling pressure: Approx. 5 bar. Rod return by integrated nitrogen accumulator.
Application field: Shelf storage systems, Heavy load appliances
Note: The damper can be retracted at creep speed. No dynamic pressure builds up and there is no damping effect.
On request: Special oils, special flanges, additional corrosion protection etc.