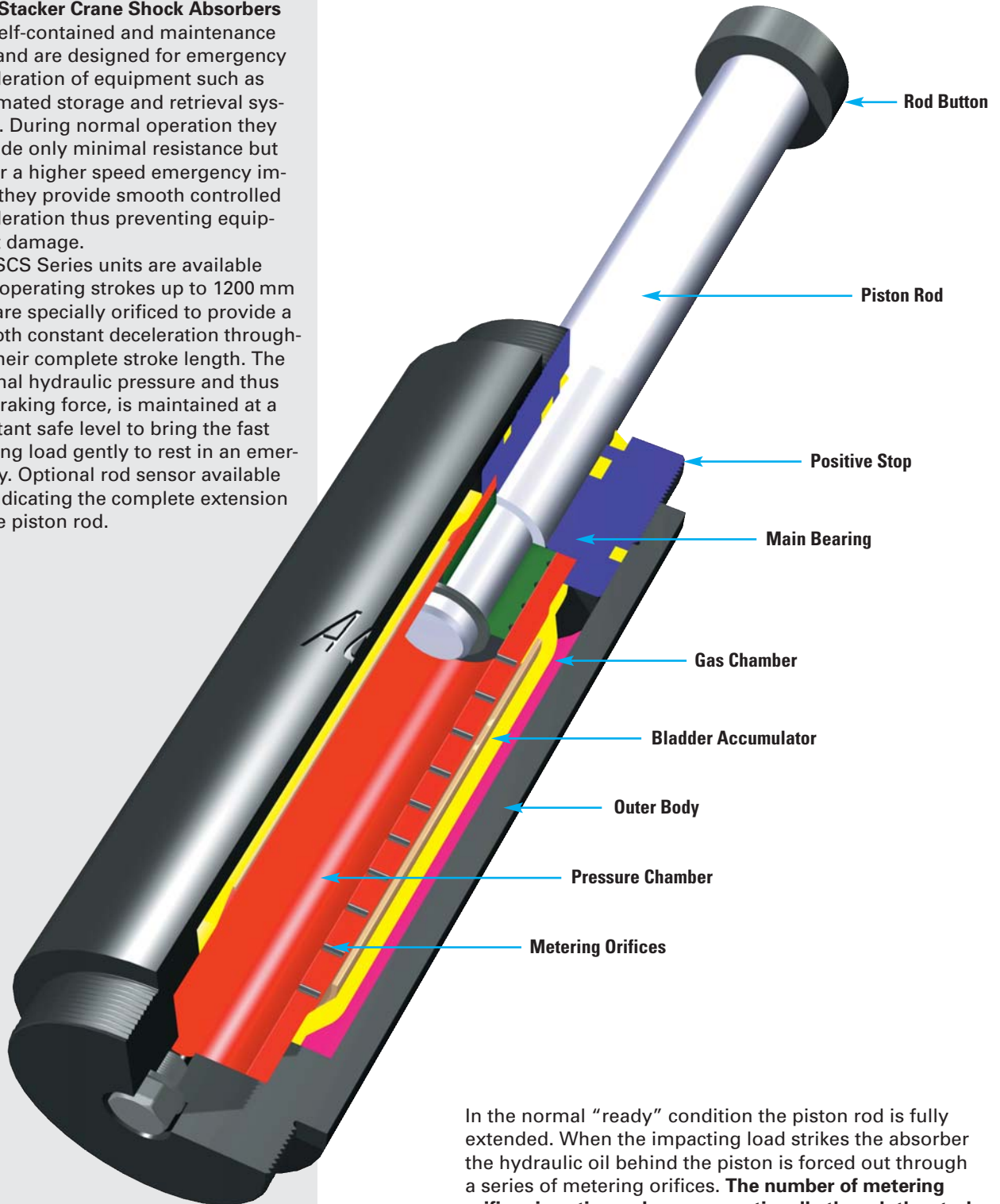


ACE Stacker Crane Shock Absorbers are self-contained and maintenance free and are designed for emergency deceleration of equipment such as automated storage and retrieval systems. During normal operation they provide only minimal resistance but under a higher speed emergency impact they provide smooth controlled deceleration thus preventing equipment damage.

The SCS Series units are available with operating strokes up to 1200 mm and are specially orificed to provide a smooth constant deceleration throughout their complete 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. Optional rod sensor available for indicating the complete extension of the piston rod.

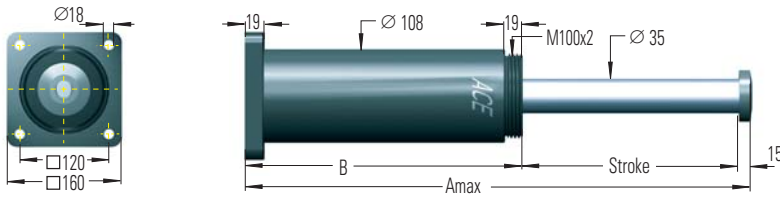


In the normal "ready" condition the piston rod is fully extended. When the impacting load strikes the absorber the hydraulic oil behind the piston is forced out through a series of metering orifices. **The number of metering orifices in action reduces proportionally though the stroke and the load velocity 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 operation.

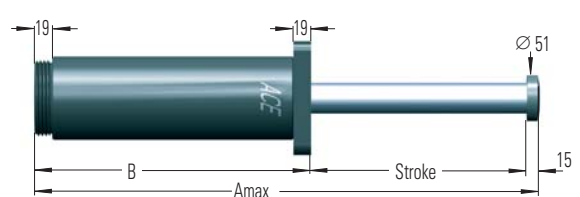


Part Number SCS-38 . . .

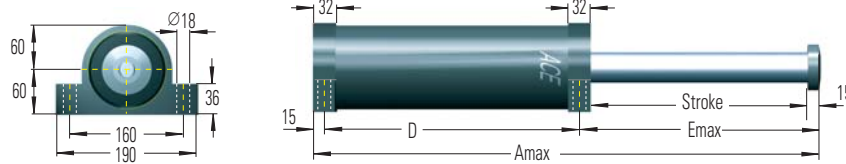
Rear Flange -R



Front Flange -F



Side Foot Mounting -S



Ordering Example

SCS-38-400-F-X

Stacker Crane Shock Absorber $\uparrow \uparrow \uparrow \uparrow$
 Bore Size \varnothing 38 mm $\uparrow \uparrow \uparrow \uparrow$
 Stroke 400 mm $\uparrow \uparrow \uparrow \uparrow$
 Mounting Style: Front Flange $\uparrow \uparrow \uparrow \uparrow$
 Identification No. (assigned by ACE) $\uparrow \uparrow \uparrow \uparrow$

Complete Details Required when Ordering:

Moving Load	m (kg)
Full Load Speed	v (m/s) max.
Creep Speed	vs (m/s) max.
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.

Technical Data

Impact velocity range v: 0.9 to 4.6 m/s.
Reaction force Q: at max. capacity rating = 80 kN max.
Energy capacity W₃: At max. side load angle do not exceed 80 % of rated max. energy capacity below.
Return force: 0.6 to 0.7 kN.
Filling pressure: approx. 2 bar.
Operating temperature range: -12°C to 66°C (For lower temperatures please consult ACE).

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.

Calculation: For further details of calculation and selection please consult ACE.

The calculation and selection of the correct ACE Stacker Crane Shock Absorber for your application should be referred to ACE for approval and assignment of unique identification number.

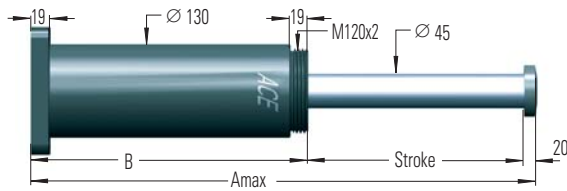
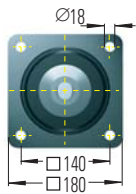
Dimensions and Capacity Chart

Model Part Number	Stroke mm	A	B	D	E	Max. Energy Capacity per Cycle		Max. Side Load Angle Mounting Style		Weight kg Mounting Style	
						W ₃	max. kNm	F & S	R	F & R	S
SCS-38-50	50	270	205	175	80	3.6		5	4	12	13
SCS-38-100	100	370	255	225	132	7.2		5	4	14	15
SCS-38-150	150	470	305	275	180	10.8		5	4	16	17
SCS-38-200	200	570	355	325	230	14.4		5	4	18	19
SCS-38-250	250	670	405	375	280	18		4.7	3.7	20	21
SCS-38-300	300	785	470	440	330	21.6		3.9	2.9	22	23
SCS-38-350	350	885	520	490	380	25.2		3.4	2.4	24	25
SCS-38-400	400	1000	585	555	430	28.8		3	2	26	27
SCS-38-500	500	1215	700	670	530	36		2.4	1.4	30	31
SCS-38-600	600	1430	815	785	630	43.2		1.9	0.9	34	35
SCS-38-700	700	1645	930	900	730	50.4		1.6	0.6	38	39
SCS-38-800	800	1860	1045	1015	830	57.6		1.3	0.3	43	44

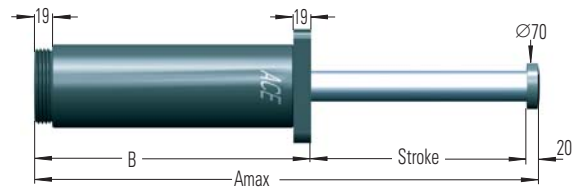
For other stroke lengths, special options (such as higher or lower impact velocity etc.), please consult ACE.

Part Number SCS-50 . . .

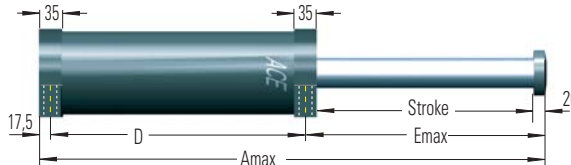
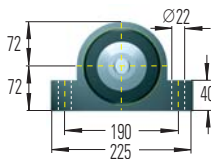
Rear Flange -R



Front Flange -F



Side Foot Mounting -S



68

Ordering Example

SCS-50-400-F-X

Stacker Crane Shock Absorber
 Bore Size ϕ 50 mm
 Stroke 400 mm
 Mounting Style: Front Flange
 Identification No. (assigned by ACE)

Complete Details Required when Ordering:

Moving Load m (kg)
 Full Load Speed v (m/s) max.
 Creep Speed v_s (m/s) max.
 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.

Technical Data

- Impact velocity range v :** 0.6 to 4.6 m/s.
- Reaction force Q :** At max. capacity rating = 160 kN max.
- Energy capacity W_3 :** At max side load angle do not exceed 80 % of rated max.energy capacity below.
- Return force:** 1.0 to 1.2 kN.
- Filling pressure:** Approx. 2 bar.
- Operating temperature range:** -12°C to 66°C. (For lower temperatures please consult ACE).

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.

Calculation: For further details of calculation and selection please consult ACE.

The calculation and selection of the correct ACE Stacker Crane Shock Absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Dimensions and Capacity Chart

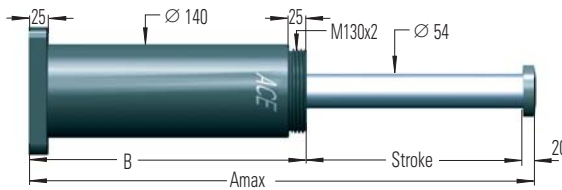
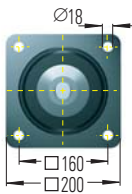
Model Part Number	Stroke mm	Dimensions (mm)				Max. Energy Capacity per Cycle		Max. Side Load Angle		Weight kg	
		A	B	D	E	W_3	max. kNm	Mounting Style F & S	Mounting Style R	Mounting Style F & R	Mounting Style S
SCS-50-100	100	390	270	235	138	14		5	4	22	23
SCS-50-150	150	490	320	285	188	21		5	4	25	26
SCS-50-200	200	590	370	335	238	28		5	4	27	28
SCS-50-250	250	690	420	385	288	35		4.5	3.5	30	31
SCS-50-300	300	805	485	450	338	42		3.8	2.8	33	34
SCS-50-350	350	905	535	500	388	49		3.3	2.3	35	37
SCS-50-400	400	1020	600	565	438	56		2.9	1.9	38	40
SCS-50-500	500	1235	715	680	538	70		2.3	1.3	44	45
SCS-50-600	600	1450	830	795	638	84		1.9	0.9	50	51
SCS-50-700	700	1665	945	910	738	98		1.6	0.6	55	57
SCS-50-800	800	1880	1060	1025	838	112		1.3	0.3	61	63
SCS-50-1000	1000	2310	1290	1255	1038	140		1	-	72	74

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

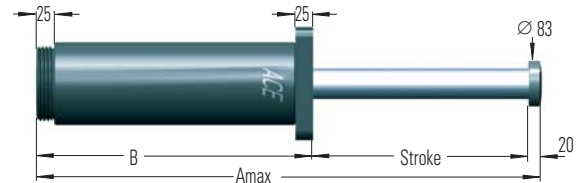
Issue 4. 2006 Specifications subject to change

Part Number SCS-63 . . .

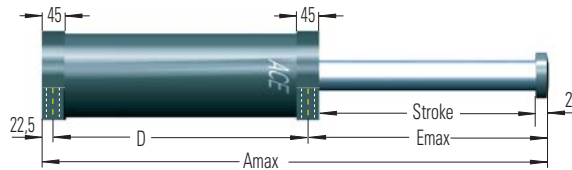
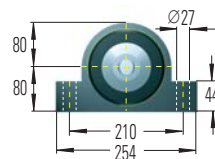
Rear Flange -R



Front Flange -F



Side Foot Mounting -S



Ordering Example

SCS-63-400-F-X

Stacker Crane Shock Absorber
 Bore Size \varnothing 63 mm
 Stroke 400 mm
 Mounting Style: Front Flange
 Identification No. (assigned by ACE)

Complete Details Required when Ordering:

Moving Load m (kg)
 Full Load Speed v (m/s) max.
 Creep Speed vs (m/s) max.
 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.

Technical Data

Impact velocity range v : 0.5 to 4.6 m/s.
Reaction force Q : At max capacity rating = 210 kN max.
Energy capacity W_3 : at max. side load angle do not exceed 80% of rated max. energy capacity below.
Return force: 1.5 to 2.5 kN.
Filling pressure: Approx. 2 bar.
Operating temperature range: -12°C to +66°C.
 (For lower temperatures please consult ACE).

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.

Calculation: For further details of calculation and selection please consult ACE.

The calculation and selection of the correct ACE Stacker Crane Shock Absorber for your application should be referred to ACE for approval and assignment of unique identification number.

Dimensions and Capacity Chart

Model Part Number	Stroke mm	A	B	D	E	Max. Energy Capacity per Cycle		Max. Side Load Angle		Weight kg	
						W_3	max. kNm	Mounting Style F & S	Mounting Style R	Mounting Style F & R	Mounting Style S
SCS-63-100	100	405	285	240	143	18		5	4	29	32
SCS-63-150	150	505	335	290	193	27		5	4	32	35
SCS-63-200	200	605	385	340	243	36		5	4	35	38
SCS-63-250	250	705	435	390	293	45		5	4	38	42
SCS-63-300	300	805	485	440	343	54		5	4	41	45
SCS-63-350	350	925	555	510	393	63		5	4	45	49
SCS-63-400	400	1025	605	560	443	72		5	4	48	52
SCS-63-500	500	1245	725	680	543	90		4.2	3.2	55	60
SCS-63-600	600	1445	825	780	643	108		3.4	2.4	62	66
SCS-63-700	700	1665	945	900	746	126		2.9	1.9	69	73
SCS-63-800	800	1865	1045	1000	843	144		2.5	1.5	75	79
SCS-63-1000	1000	2285	1265	1220	1043	180		1.9	0.9	89	93
SCS-63-1200	1200	2705	1485	1440	1243	216		1.4	0.4	102	106

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