SOOSAN CRANES

Telescopic & Articulated booms, Crane Augers

SOOSAN

Outstanding features

SOOSAN cranes features a remarkable lifting power and rugged durability.

Light duty cranes : 2.2 ton ~ 5 ton class

Applicable truck chassis : payload 2.5 ton~11 ton

Medium duty cranes : 6 ton ~ 7.6 ton class

Applicable truck chassis : payload 5 ton and above

Heavy duty cranes : 10 ton ~ 20 ton class

Applicable truck chassis : payload 11 ton and above

Applications and features

- Providing time-saving, cost-effective and reliable load handling solutions for construction and civil engineering, factory, oil and gas field, logistics, military logistics, mining, port and shipyard, general transport, municipalities, public utilities etc.

- Combination of telescopic boom and winch with wire rope enables easy and efficient operation for material handling even in confined a work space such as deep-underground, high-rise buildings, under bridges etc.

- Low noise, silent winch with automatic brake system.

- **Safety devices** : Pressure relief valve, over-center valve, over-winding alarm device, pilot check valves for outriggers, swing locking device etc.

- **Optional features** : JIB boom, auxiliary winch, overloading prevention device, remote controller, oil cooler etc.

Optimum design by FEM (Finite Element Method, load-stress distribution simulation) maximizes work efficiency.

Light-duty cranes ;

2.2 ton ~ 5 ton class

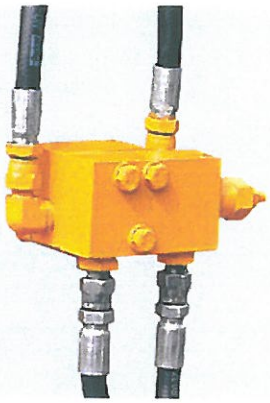
Cranes in lifting capacity from 2.5 ton to 5 ton are mounted on a small and medium sized truck chassis. Cranes in this range are compact, versatile and ideal for a variety of light duty jobs such as telecommunication facilities, billboards and signboards, streetlamps, urban environment work, public utilities etc.

Wide range of boom types for various working environments

from 3-stage to 6-stage boom with square / pentagonal / hexagonal cross-sectional profile.

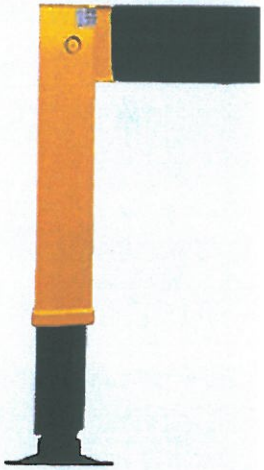
Over-center / Holding valve

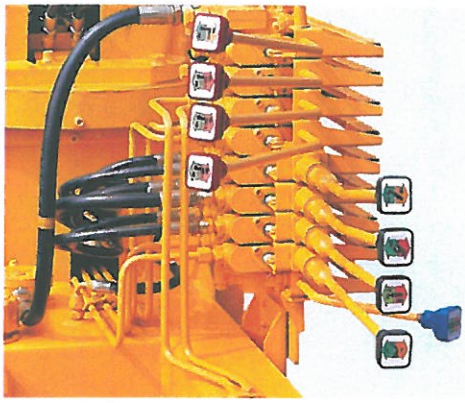
Gentrified the over center valve and holding valve for smooth and safe operation when moving the boom. Durability has been highly increased too.



Safe and stable outrigger

All models are equipped with double pilot check valves.





Main control valve

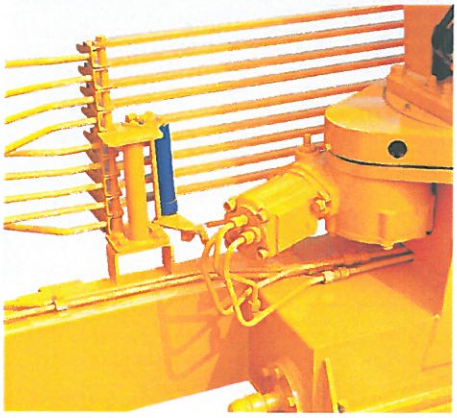
Main control valve equipped with auto-acceleration function which enhances multi-operation function.

Slewing system

Slewing reduction gear in worm gear type allows smooth swing. Implementing a low-speed and high-torque motor gives maximized efficiency.

Increased durability

Re-designed swing post and frame to decrease weight, durability and the unity of the design. The simplified piping allows easy access for easy repair and maintenance.



Silenced winch

By choosing a silenced winch, the operation noise is brought down to a minimum. The built-in mechanical automatic brake system allows safe operation.

Automatic acceleration system

Without using an acceleration lever, the speed can be controlled from idling to full-throttling, which saves fuel consumption and provides a better work efficiency.

SCS263
Lifting Capacity (kg | m)

SCS323
Lifting Capacity (kg | m)

SCS324
Lifting Capacity (kg | m)

SCS333
Lifting Capacity (kg | m)

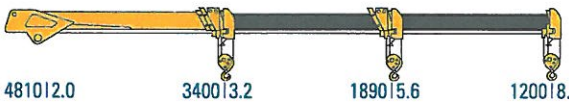
SCS334
Lifting Capacity (kg | m)

Description		Unit	SCS 263	SCS 323	SCS 324	SCS 333	SCS 334
Capacity	Max. Lifting Capacity	ton·m	4.2	8.2	8.0	8.2	8.0
	Max. Lifting Height	m	8.0	9.5	11.8	9.6	11.9
	Max. Working Radius	m	6.2	7.4	9.7	7.4	9.7
	Max. Working Height	m	8.2	10.0	12.3	10.1	12.4
Boom	Type / Section		Penta / 3	Penta / 3	Penta / 4	Penta / 3	Penta / 4
	Extending Speed	m / sec	3.7 / 11	4.4 / 14	6.6 / 14	4.4 / 14	6.6 / 14
	Raising Speed	° / sec	1~80 / 7	1~80 / 9			
Winch	Hook Speed	m / min (Layer/Line)	17 (4/3)	17 (4/4)			
	Wire Rope	ø mm / m	ø 8 x 33m	ø 8 × 80m [6xFi(29)IWRC]			
Slewing	Slewing Range		360° Continuous				
	Slewing Speed	rpm	2				
	Type		Hydraulic motor driven, Worm and spur gear reduction				
Outrigger	Type	Front	Horizontal Manual	Fully Hydraulic			
		Rear	Option	Option			
	Max. Expanded span	m	3.12	3. 88		4.09	
Hydraulic System	Rated Flow	ℓ / min	37	50			
	Rated Pressure	kgf / cm²	200	200			
Oil Tank Capacity		ℓ	34	50			
Applicable Chassis		ton	2.5~3.5			4.5~8.0	
Option	Aux. Boom (3m, Single-stage, Folding type)						
	Aux. Boom (5m, Double-stage,Folding type)						
	Aux. Boom (4m, Single-stage,Folding type)						
	Aux. Winch (Single line pull : 800kgf)						
	Aux. Winch (Single line pull : 1500kgf)						
	Overloading Prevention Device		•	•	•	•	•
	Remote Control (Wire / Wireless)		•	•	•	•	•
	Single Line Hook (800kgf)		•	•	•	•	•
	Single Line Hook (1500kgf)						
	Single Line Hook (2000kgf)						
	Overwiding Alarm Device		•	•	•	•	•
	Top Seat						
	Rear Outrigger		Manual	Manual, Hydraulic			
	Middle Outrigger						
	Top Seat Engine Starting Device						
	Oil Cooler						
Safety Devices			Pressure relief valve for hydraulic circuit, Overcenter valve, Hydraulic swing locking system, Automatic mechanical brake for which, Pilot check valve for outriggers, Hook safety latch, Boom angle indicator with load indicator, Overwiding alarm system (Option), Overloading prevention device (Option)				

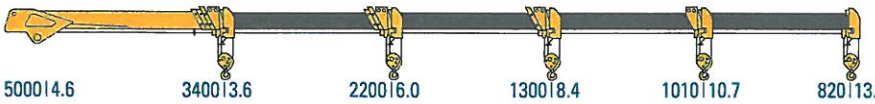
• The above specifications are subject to change without prior notice for improvement.

SCS335
Lifting Capacity (kg | m)

SCS513
Lifting Capacity (kg | m)



SCS505
Lifting Capacity (kg | m)



SCS506
Lifting Capacity (kg | m)

Description		Unit	SCS 335	SCS 513	SCS 505	SCS 506
Capacity	Max. Lifting Capacity	ton·m	7.7	11	14.1	13.9
	Max. Lifting Height	m (Aux. Boom)	14.2	10.1	15.4	17.7
	Max. Working Radius	m (Aux. Boom)	12.1	8	13.1	15.5
	Max. Working Height	m (Aux. Boom)	14.9	10.8	16.1	18.5
Boom	Type / Section		Hexa / 5	Square / 3	Hexa / 5	Hexa / 6
	Extending Speed	m / sec	8.68 / 23	4.8 / 17.5	11.8 / 22	
	Raising Speed	° / sec	1~80 / 9	1.5~75 / 10	1~80 / 11	
Winch	Hook Speed	m / min (Layer/Line)	17 (4/4)	10 (4/6)	15 (4/3)	
	Wire Rope	ø mm / m	ø 8 × 80m [6 x Fi(29)IWRC]	ø8 x 70 [6 x Fi(29)IWRC]	ø 8 × 100 mm [6xFi(29)IWRC]	
Slewing	Slewing Range		360° Continuous			
	Slewing Speed	rpm	2			
	Type		Hydraulic motor driven, Worm and spur gear reduction			
Outrigger	Type	Front	Fully hydraulic	Horizontal Manual	Fully hydraulic	Fully hydraulic
		Rear	Option	Option	Option	Option
	Max. Expanded span	m	4.09	4.0	5.3	5.3
Hydraulic System	Rated Flow	ℓ / min	50	65	66	66
	Rated Pressure	kgf / cm²	200	190	200	
Oil Tank Capacity		ℓ	50	50	90	90
Applicable Chassis		ton	4.5~8.0	5.0~11.5	4.5~11.5	
Option	Aux. Boom (3m, Single-stage, Folding type)					
	Aux. Boom (5m, Double-stage,Folding type)					
	Aux. Boom (4m, Single-stage,Folding type)					
	Aux. Winch (Single line pull : 800kgf)					
	Aux. Winch (Single line pull : 1500kgf)					
	Overloading Prevention Device		•	•	•	•
	Remote Control (Wire/Wireless)		•	•	•	•
	Single Line Hook (800kgf)		•	•	•	•
	Single Line Hook (1500kgf)					
	Single Line Hook (2000kgf)					
	Overwinding Alarm Device		•	•	•	•
	Top Seat					
	Rear Outrigger		Manual, Hydraulic	Manual	Manual, Hydraulic	
	Middle Outrigger					
	Top Seat Engine Starting Device					
	Oil Cooler					
Safety Devices			Pressure relief valve for hydraulic circuit, Overcenter valve, Hydraulic swing locking system, Automatic mechanical brake for which, Pilot check valve for outriggers, Hook safety latch, Boom angle indicator with load indicator, Overwiding alarm system (Option), Overloading prevention device (Option)			

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Medium-duty cranes ;

6 ton ~ 7.6 ton class

Lift maximum 7.6 ton and suitable for various applications in general construction and civil engineering, aerial work, electric works, port and shipyard, general transport, logistics, municipalities etc. The medium cranes can be mounted on a truck chassis with a payload of 5 ton and above.

Slewing reduction gear

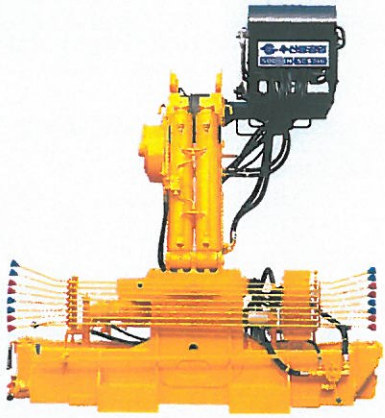
In addition to the internal automatic brake system with worm reduction gear, the locking cylinder is installed as a double safety device to prevent the boom from undesired spinning while travelling.

Double derrick cylinders

Maximized the derricking power by adopting double derrick cylinders and achieved high operating efficiency by enabling the boom angle to 80 degrees.

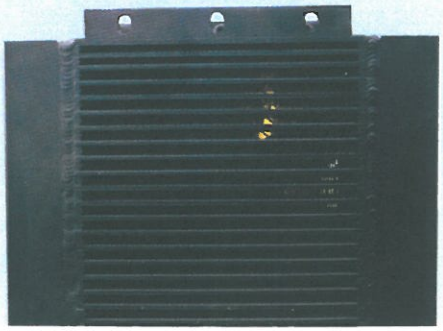
Silent line-pull winch

Low noise, silent winch with automatic internal brake installed
(SCS 263 ~ SCS 2016)
2speed winch(SCS 1015LS ~ SCS 2016)



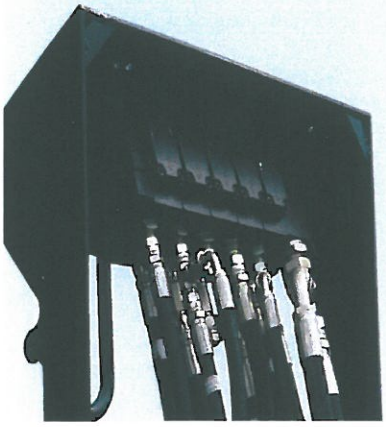
Control valve system

Danfoss's PVG-32 valves with top-seat operation type allow smoother crane operation, especially in multi-function operation.



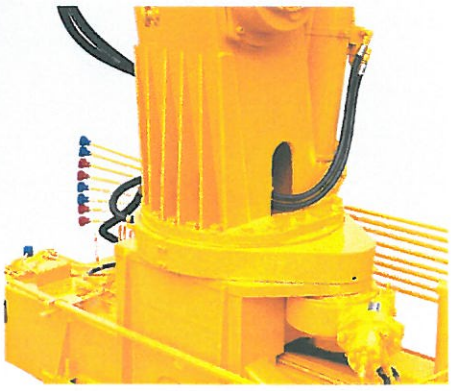
High efficient oil cooler

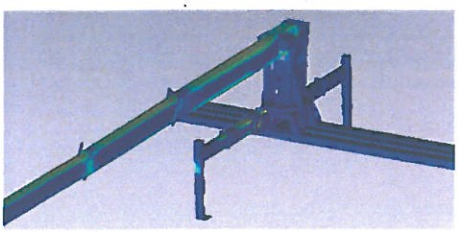
To prevent the over-heating due to the fatal damages to hydraulic components, cooler runs automatically if the oil temperature reaches a preset maximum temperature.



Reinforced body frame

The swing post has been reinforced to allow safe operation. Square box type frame structure gives durability and hardness.





Robust boom construction

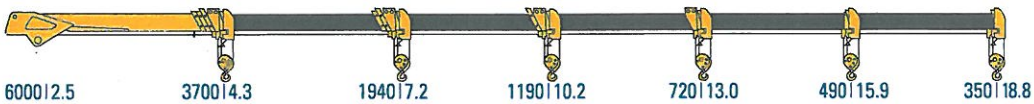
Use of a high-tensile steel(840N/㎟) and optimum design by FEM provide remarkable lifting capacities and extra-strong boom strengths.

SCS736

Lifting Capacity (kg | m)

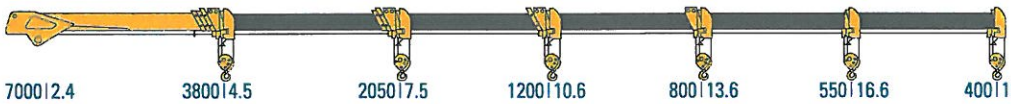
SCS736LII

Lifting Capacity (kg | m)



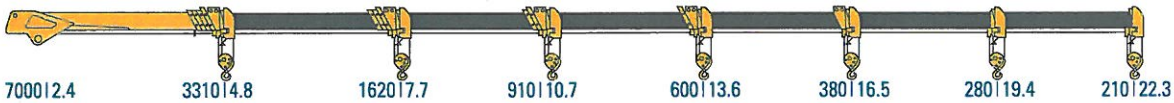
SCS746L

Lifting Capacity (kg | m)



SCS747L

Lifting Capacity (kg | m)



Description		Unit	SCS 736	SCS 736L II	SCS 746L	SCS 747L
Capacity	Max. Lifting Capacity	ton·m	15.0	15.0	17.5	17.5
	Max. Lifting Height	m (Aux. Boom)	17.4 (22.4)	20.8 (25.8)	21.8 (26.8)	24.5 (29.5)
	Max. Working Radius	m (Aux. Boom)	15.4 (20.4)	18.8 (23.8)	19.6 (24.6)	22.3 (27.3)
	Max. Working Height	m (Aux. Boom)	18.1 (23.1)	21.5 (26.5)	22.6 (27.6)	25.2 (29.2)
Boom	Type / Section		Hexa / 6			Hexa / 7
	Extending Speed	m / sec	11.78 / 30	14.5 / 30	15.1 / 33	17.5 / 36
	Raising Speed	° / sec	1~76 / 15	1~76 / 15	1~80 / 12	
Winch	Hook Speed	m / min (Layer/Line)	14 (4/4)			
	Wire Rope	ø mm / m	ø10 x 120m [19 x 7 Non-rotation]		ø 10 x 120 mm	
Slewing	Slewing Range		360° Continuous			
	Slewing Speed	rpm	2			
	Type		Hydraulic motor driven, Worm and spur gear reduction			
Outrigger	Type	Front	Fully hydraulic			
		Rear	Fully hydraulic, Double box type			
	Max. Expanded span	m	5.35		5.6	
Hydraulic System	Rated Flow	ℓ / min	65			
	Rated Pressure	kgf / ㎠	200			
Oil Tank Capacity		ℓ	90		120	
Applicable Chassis		ton	5.0 and above		7.5 and above	
Option	Aux. Boom (3m, Single-stage, Folding type)		•	•	•	•
	Aux. Boom (5m, Double-stage,Folding type)		•	•	•	•
	Aux. Boom (4m, Single-stage,Folding type)					
	Aux. Winch (Single line pull : 1500kgf)		•	•	•	•
	Aux. Winch (Single line pull : 3000kgf)					
	Aux. Winch 2-speed (Single line pull : 2000kgf)					
	Aux. Winch : PD12C (Single line pull : 2700~4100kgf(high)					
	Overloading Prevention Device				•	•
	Remote Control (Wire/Wireless)				•	•
	Single Line Hook (800kgf)					
	Single Line Hook (1500kgf)		•	•	•	•
	Single Line Hook (2000kgf)		•	•		
	Overwinding Alarm Device		•	•	•	•
	Top Seat		•	•	•	•
	Rear Outrigger		•	•	•	•
	Middle Outrigger					
	Top Seat Engine Starting Device		•	•	•	•
	Oil Cooler		•	•	•	•
Safety Devices			Pressure relief valve for hydraulic circuit, Overcenter valve, Hydraulic swing locking system, Automatic mechanical brake for which, Pilot check valve for outriggers, Hook safety latch, Boom angle indicator with load indicator, Overwiding alarm system (Option), Overloading prevention device (Option)			

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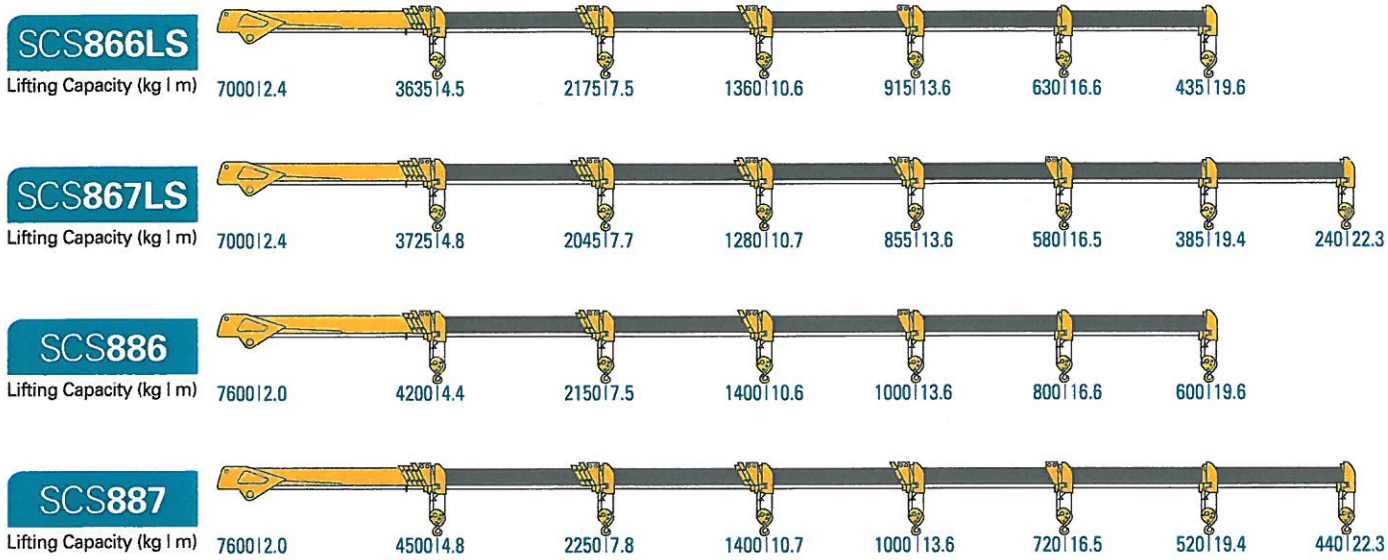


Description		Unit	SCS 866LS	SCS 867LS	SCS 886	SCS 887
Capacity	Max. Lifting Capacity	ton-m	17.5	17.5	21	21
	Max. Lifting Height	m (Aux. Boom)	21.8 (26.8)	24.5 (29.5)	21.8 (26.8)	24.5 (29.5)
	Max. Working Radius	m (Aux. Boom)	19.6 (24.6)	22.3 (27.3)	19.6 (24.6)	22.3 (27.3)
	Max. Working Height	m (Aux. Boom)	22.6 (27.6)	25.2 (30.2)	22.6 (27.6)	25.2 (30.2)
Boom	Type / Section		Hexa / 6	Hexa / 7	Hexa / 6	Hexa / 7
	Extending Speed	m / sec	15.1 / 33	17.5 / 36	15.1 / 33	17.5 / 36
	Raising Speed	° / sec	-16° ~ 79°/15			
Winch	Hook Speed	m / min (Layer/Line)	14 (4/4)			
	Wire Rope	ø mm / m	ø 10 x 120 mm			
Slewing	Slewing Range		360° Continuous			
	Slewing Speed	rpm	1.8			
	Type		Hydraulic motor driven, Worm and spur gear reduction			
Outrigger	Type	Front	Fully hydraulic, Double box type		Double box H-type	
		Rear	Fully hydraulic, Double box type			
	Max. Expanded span	m	Front : 6.0, Rear : 4.3			
Hydraulic System	Rated Flow	ℓ / min	65			
	Rated Pressure	kgf / cm²	200		210	
Oil Tank Capacity		ℓ	170			
Applicable Chassis		ton	7.5 and above			
Option	Aux. Boom (3m, Single-stage, Folding type)		•	•	•	•
	Aux. Boom (5m, Double-stage,Folding type)		•	•	•	•
	Aux. Boom (4m, Single-stage,Folding type)					
	Aux. Winch (Single line pull : 1500kgf)					
	Aux. Winch (Single line pull : 3000kgf)		•	•	•	•
	Aux. Winch 2-speed (Single line pull : 2000kgf)		•	•	•	•
	Aux. Winch : PD12C (Single line pull : 2700~4100kgf(high))					
	Overloading Prevention Device		•	•	•	•
	Remote Control (Wire/Wireless)		•	•	•	•
	Single Line Hook (800kgf)					
	Single Line Hook (1500kgf)		•	•	•	•
	Single Line Hook (2000kgf)					
	Overwinding Alarm Device		•	•	•	•
	Top Seat		STD	STD	STD	STD
	Rear Outrigger		•	•	•	•
	Middle Outrigger					
	Top Seat Engine Starting Device		•	•	•	•
	Oil Cooler		•	•	•	•

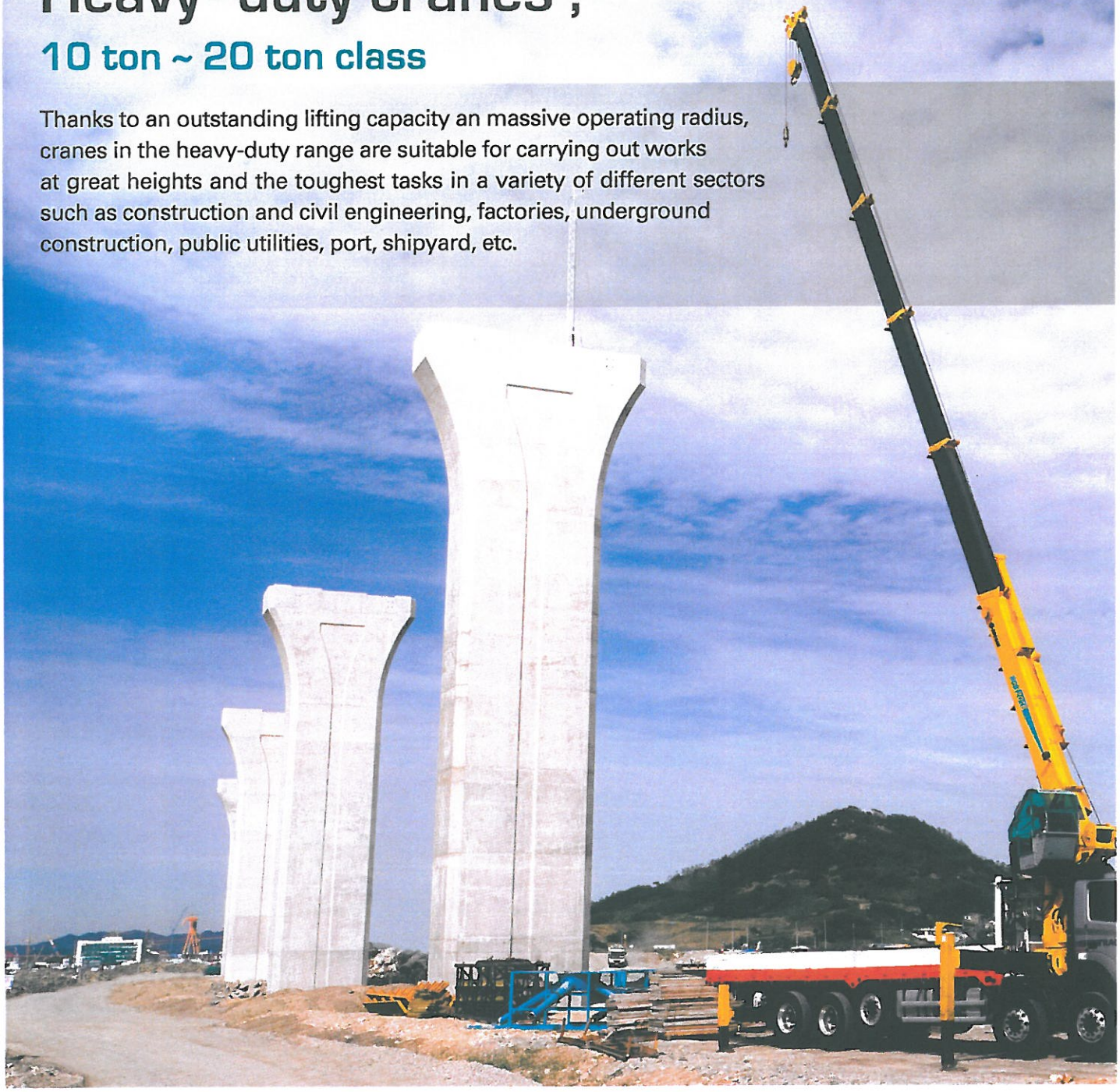
Safety Devices Pressure relief valve for hydraulic circuit, Overcenter valve, Hydraulic swing locking system, Automatic mechanical brake for which, Pilot check valve for outriggers, Hook safety latch, Boom angle indicator with load indicator, Overwiding alarm system (Option)

• The above specifications are subject to change without prior notice for improvement.

Heavy-duty cranes ;

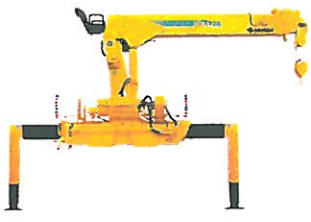
10 ton ~ 20 ton class

Thanks to an outstanding lifting capacity an massive operating radius, cranes in the heavy-duty range are suitable for carrying out works at great heights and the toughest tasks in a variety of different sectors such as construction and civil engineering, factories, underground construction, public utilities, port, shipyard, etc.



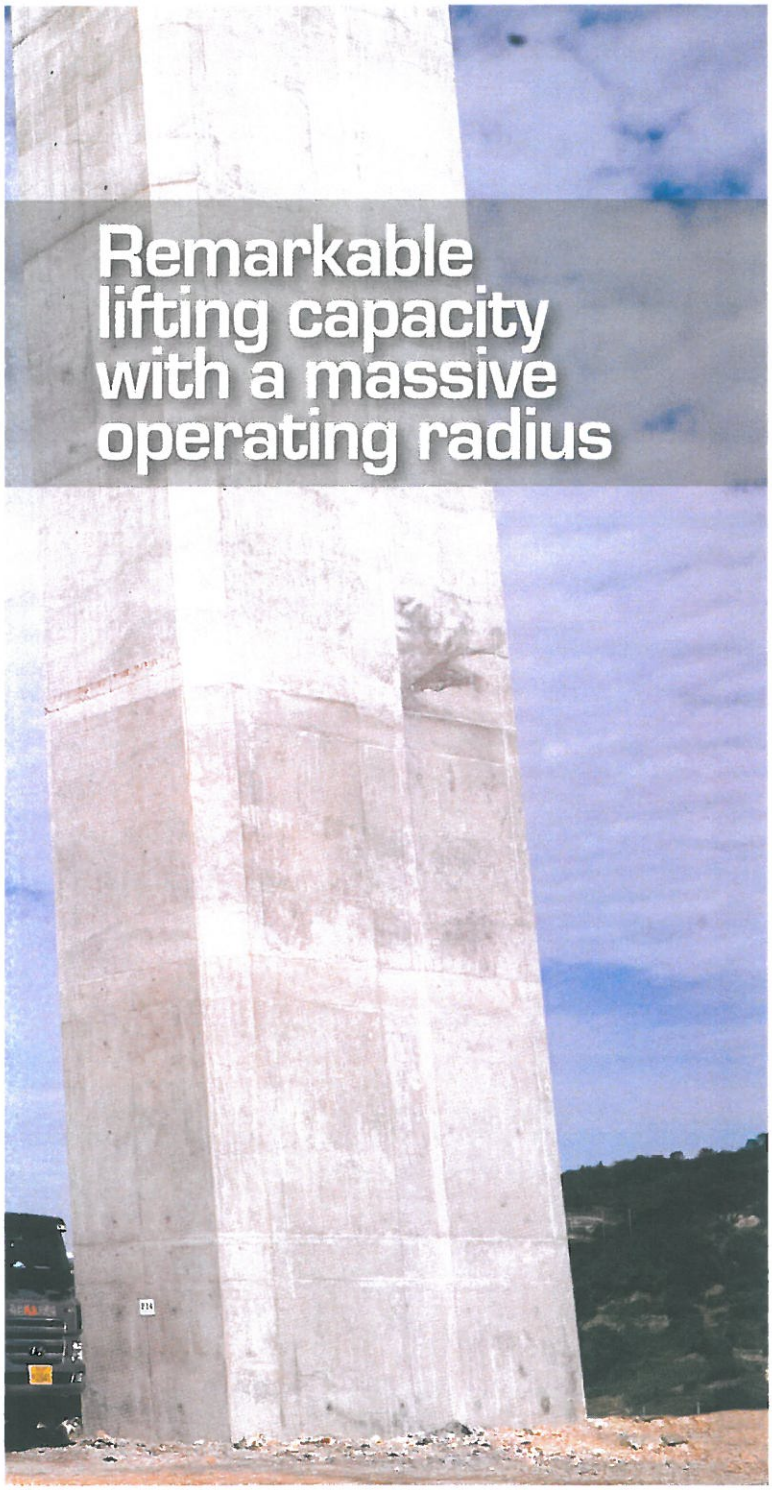
High performance 2-speed auxiliary winch (Optional)

It is consisted of 2-speed piston motor and planetary reduction gear and a built-in multi-disk brake system allows both efficiency and safe operation, as well as high precision operation.

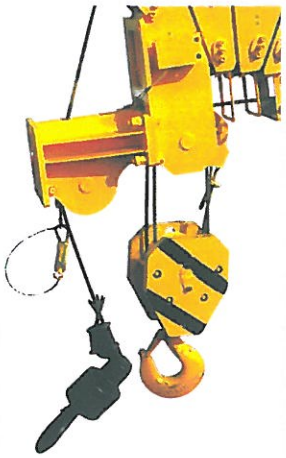


Optimized design

The optimum design through load-stress distribution simulation is analyzed by finite element method. It shows the finest performance in any environment due to an excellent lifting capacity and working radius.



Remarkable lifting capacity with a massive operating radius

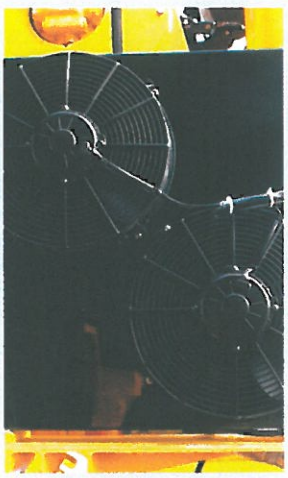


Wireless, over-winding prevention system

The cable reel type over-winding prevention system has the problem that the sheath of the cable has peel off after a certain period. Furthermore, cable that is placed on the side of boom, always carries risks that can be cut during operation.
SOOSAN's new wireless type equipment offers a smaller risk and is more convenient.

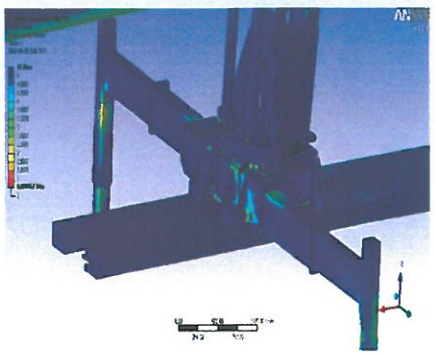
High efficient slewing reduction gear

Heavy-duty slew bearing and a high-performance planetary reduction gear increases work efficiency by giving smooth and fast operation.(SCS 2016)



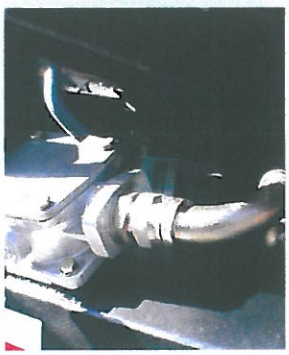
High efficient dual oil cooler

A large sized dual oil cooler maximizes hydraulic operating efficiency.



Optimization of 3D design process

By stress distribution testing, Soosan telescopic cranes which are manufactured with optimization of design comes into its own in any job site.



High quality return filter

A efficient return filter purifies the return oil and maintains a clean hydreulic system.

SCS1015LS
Lifting Capacity (kg | m)

SCS1616
Lifting Capacity (kg | m)

SCS2016
Lifting Capacity (kg | m)

Description		Unit	SCS 1015LS	SCS 1616	SCS 2016
Capacity	Max. Lifting Capacity	ton-m	36.0	53.8	65.0
	Max. Lifting Height	m (Aux. Boom)	23 (27)	30.1 (35.1)	32.2 (37.2)
	Max. Working Radius	m (Aux. Boom)	20.7 (24.9)	27.1 (32.1)	30.2 (35.2)
	Max. Working Height	m (Aux. Boom)	24.5 (28.5)	31.1 (36.1)	33.7 (38.7)
Boom	Type / Section		HEXA / 5	HEXA / 6	
	Extending Speed	m / sec	15.1 / 40	20.4 / 45	21.5 / 55
	Raising Speed	° / sec	0~81 / 20	-12~+80 / 40	-11~+80 / 30
Winch	Hook Speed	m / min (Layer/Line)	low:13, high:23 (4/4)	low:9.2, high:16 (4/4)	
	Wire Rope	ø mm / m	ø 14 x 100m	ø14 x 120m	
Slewing	Slewing Range		360° Continuous		
	Slewing Speed	rpm	2	1.8~2.0	1.8
	Type		Hydraulic motor driven, Worm and planetary gear reduction		Hydraulic motor driven, planetary gear reduction
Outrigger	Type	Front	Fully hydraulic (2 section)		
		Rear	Fully hydraulic, Double box type		
	Max. Expanded span	m	6.18	7.4	
Hydraulic System	Rated Flow	ℓ / min	100 x 100		
	Rated Pressure	kgf / cm²	210		
Oil Tank Capacity		ℓ	250	270	
Applicable Chassis		ton	11.0 and above	19.0 and above (4-wheel steering)	25.0 and above (4-wheel steering)
Option	Aux. Boom (3m, Single-stage, Folding type)				
	Aux. Boom (5m, Double-stage,Folding type)				
	Aux. Boom (4m, Single-stage,Folding type)		•	•	•
	Aux. Winch 2-speed (Single line pull : 3000kgf)		•	•	•
	Aux. Winch : BG8 (Single line pull : 2.2~3.2ton)		•	•	•
	Aux. Winch : PD12C (Single line pull : 2700~4100kgf(High))		•	•	•
	Overloading Prevention Device		•	•	•
	Remote Control (Wire/Wireless)		•	•	•
	Single Line Hook (800kgf)				
	Single Line Hook (1500kgf)				
	Single Line Hook (2000kgf)		•	•	•
	Overwiding Alarm Device		•	•	•
	Top Seat		STD	STD	STD
	Rear Outrigger		•	•	•
	Middle Outrigger				
	Top Seat Engine Starting Device		•	•	•
	Oil Cooler		•	•	•
Safety Devices			Pressure relief valve for hydraulic circuit, Overcenter valve, Hydraulic swing locking system, Automatic mechanical brake for which, Pilot check valve for outriggers, Hook safety latch, Boom angle indicator with load indicator, Overwiding alarm system (Option), Overloading prevention device (Option)		

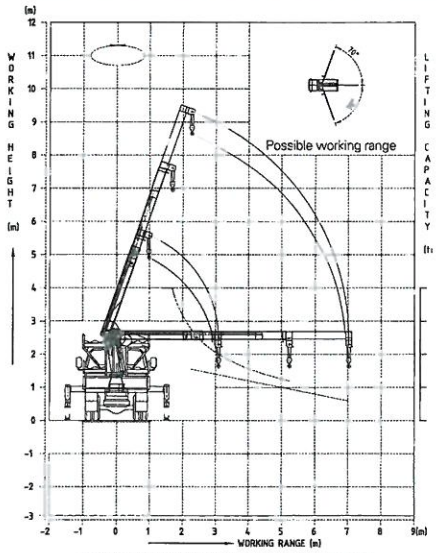
• The above specifications are subject to change without prior notice for improvement.

Soosan crane auger

- Multifunctional equipment for carrying, installing or removal of utility poles, electric and telecommunication facilities.
- Foundation work and material handling for general construction, civil engineering, public utilities etc.
- Combination of crane and powerful auger.
- High efficient spur reduction gear.
- Powerful, high-speed winch.
- Pentagonal 3-stage, high tensile steel boom.
- Easy to operate.

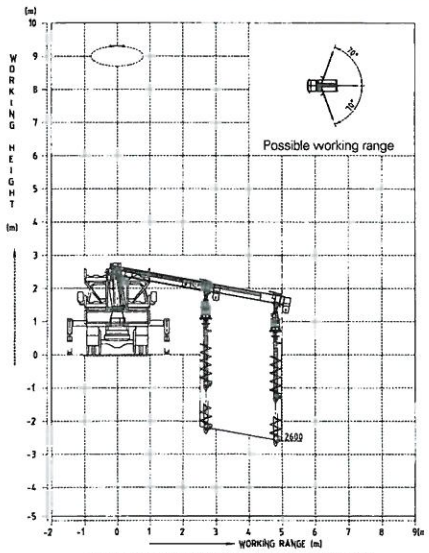
Model		SAC 2501
Applicable truck chassis (payload)	ton	3.5 ton and above
Digging diameter	mm	350
Drilling depth	m	1.3 (Max 2.6 with built-in extension shaft)
Auger torque	Kg.m	300
Max lifting capacity	-	2.1 ton at 1.5m
Max working radius	m	7
Max working height	m	9.5
Rated flow	ℓ /min	37
Rated pressure	bar	200
Boom		
Cross section profile		Square
Number of boom stage		3
Slewing		360° continuous

SCREW WORKING RANGE



** WITH THE CONDITION OF FULLY EXTENDED OUTRIGGER.

CRANE WORKING RANGE



** WITH THE CONDITION OF FULLY EXTENDED OUTRIGGER.

Soosan articulated boom type cranes

Combination of versatile boom geometry and hydraulic attachments such as orange grapples, brick-stone grapples, pallet forks makes the crane ideal for various material handling jobs including waste and scrap recycling, military logistics, public utilities etc.

Model		SK 11000P	SK 11000LP	SK 13000
Applicable truck chassis (payload)	ton	4.5 ton and above	4.5 ton and above	8 ton and above
Max lifting capacity	ton	4.7 tons at 2.3m	4.2 tons at 2.5m	5.6 tons at 2.5m
Max working radius	m	7.6	8.0	8.6
Max working height	m	10.5	11	12.3
Rated flow	ℓ/min	50	50	63
Rated pressure	bar	250	250	240
Boom type		2-articulated + 2-telescopic	2-articulated + 2-telescopic	2-articulated + 2-telescopic
Swing angle	° (degrees)	410	410	410

Stationary base(Pedestal cranes)

Applications and features

- Providing customized load handling solutions for power plants, fishing boats, barges, ports, shipyards, oil and gas fileds, railroad maintenance, factories, waste and scrap recycling, etc.
- Lifting capacities from 2.2 tons up to 20 tons.

* All models of SCS & SK Series cranes are available for stationary base.

[Well-testing in oil fields]

Option

Jib

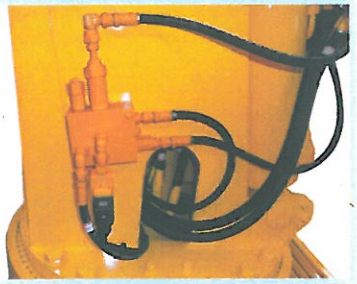
Auxiliary boom for increasing the working range.

Auxiliary winch

Auxiliary winches make work efficiently in various working conditions.

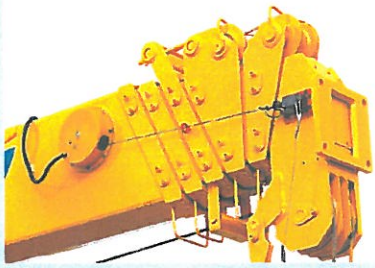
Radio remote controller

Proportional remote control system enables accurate operation at a safe distance.



Overloading prevention device

This safety device automatically stops winch hoisting, boom extension and boom elevation, when the load exceeds the overload limits.

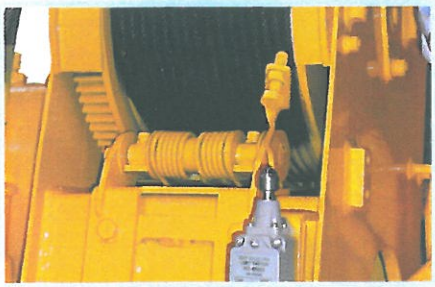


Overwinding prevention device

This safety device automatically stops winch hoisting, boom extension and boom elevation, when the hook block approaches the boom head.

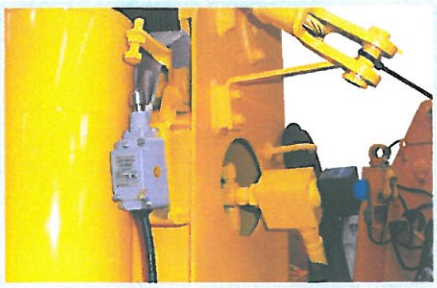
Slewing locking system

* Light duty - By self locking system with worm gear
* Medium duty - By self locking system with worm gear and an external locking cylinder
* Heavy duty - By self locking system with worm gear and internal locking cylinder



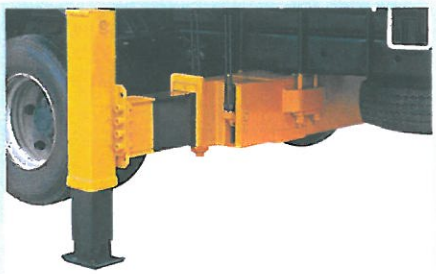
Wire rope retaining roller

In order to prevent a wire from getting twisted or uncoiling when a wire is touched by the ground or payload, a retaining roller is installed in the wire drum.



Uncoiling limiter for winch cable

In order to prevent dangerous situations like the falling of a wire or payload, an uncoiling limiter is installed in the wire drum, and It makes automatically a wire stop before entirely coming loose from the wire drum.



Rear outrigger

For a wide-working range and better stability on an uneven or sloping ground.

* Safety package is consisted of overloading prevention system, over winding alarm device, braking system in the slewing mechanism, wire rope retaining roller, temperature sensor, filter pollution intensity indicator, uncoiling limited for winch cable, inclinometer