



# SATAREM WORKOVER RIGS

## 1

## ONSHORE WORKOVER RIG

### 1.1 FREE - STANDING WORKOVER RIG

Compared with a normal work over rig, the free-standing workover rig is much more stable as its mast structure center coincides with the loading point in the same direction. It is easy to install the mast without needing to adjust the mast tilting angle or to fix the guylines after rigging up. With a much bigger operation space than the normal workover rig, it is easy to operate and control.

Compared with a normal work over rig, the free-standing workover rig has the following differences:

- (1) With an 8x8 all-wheel-drive chassis, it has a stronger moving capacity.
- (2) With an erect mast, it is easy to install, stable and reliable.
- (3) The operation platform is integrated at the rear section of the carrier, which can be moved easily.



## Specification

MODEL	ZXJ350 ( XJ20 )	ZXJ600 ( XJ30 )	ZXJ700 ( XJ40 )	ZXJ900(XJ60)
Nominal service depth ( 2 7/8" EUE tubing ) (ft)	5300	8600	11000	13000
Nominal workover depth ( 2 7/8" DP ) (ft)	3750	5000	6562	11000
Max. hook load (lbf)	81000	131600	160000	210000
Rated hook load (lbf)	45000	75000	90000	150000
Engine model	X6130	F8L413F	T-3A929 or WD615.68	C9
Engine power (hp)	233	252	282 or 303	329 ~ 375
Transmission type	Hydraulic + mechanical			
Effective height of mast (ft)	50	56	56	95/102
Drilling line diameter (in)	7/8	7/8	7/8	1
Hook speed (ft/s)	0.66 ~ 5.7	0.66 ~ 5.7	0.66 ~ 4.6	0.66 ~ 5.7
Approaching/departure angle	18° /14°	18° /14°	18° /12°	26° /16°
Min. ground clearance (in)	14	14	13	14
Max. gradient ability (%)	30	30	26	30
Min. turning diameter (ft)	92	108	108	92
Rotary table model	ZP35	ZP70	ZP70	ZP90
Traveling block model	YG35	YG70	YG70	YG90
Swivel model	SL35	SL70	SL70	SL110
Overall moving dimension (ft)	54.8 × 10 × 13.5	33.8 × 8 × 12.8	38 × 8 × 13	54.8 × 10 × 13.5
Main unit mass (lb)	44500	55200	55200	93000

## 1.2 NORMAL ONSHORE WORKOVER RIG



## Specification

MODEL	XJ350 ( XJ20 )	XJ600 ( XJ30 )	XJ700 ( XJ40 )	XJ900(XJ60)
Nominal service depth ( 2 7/8" EUE tubing ) (ft)	5200	8500	10500	13000
Nominal workover depth ( 2 7/8" DP ) (ft)	3280	5000	6562	10500
Max. hook load (lbf)	80000	130000	150000	202320
Rated hook load (lbf)	45000	65000	90000	134880
Engine model	X6130	F8L413F	T-3A929 or WD615.68	C9
Engine power (hp)	233	252	281 or 303	350
Transmission type	Hydraulic + mechanical	Hydraulic + mechanical	Hydraulic + mechanical	Hydraulic + mechanical
Traveling system	4 × 3	4 × 3	4 × 3	4 × 3
Effective height of mast (ft)	50	56	56	3395,102
Drilling line diameter (in)	7/8	7/8	7/8	1
Hook speed (ft/s)	0.66 ~ 5.7	0.66 ~ 4.6	0.66 ~ 5.7	0.66 ~ 5.7
Approaching/departure angle	18° /14°	18° /14°	18° /12°	23° /16°
Min. ground clearance (in)	14	13	13	14
Max. gradient ability (%)	30%	30%	26%	30%
Min. turning diameter (ft)	92	108	108	92
Rotary table model	ZP35	ZP70	ZP70	ZP90
Traveling block model	YG20	YG60	YG70	YG90
Swivel model	SL35	SL70	SL70	SL110
Overall moving dimension (ft)	54.8 × 8 × 13.5	33.8 × 8 × 12.8	38 × 8 × 13	54.8 × 10 × 13.5
Main unit mass (lb)	44500	55200	55200	93000



## Specification

MODEL	XJ1100(XJ80)	XJ1350(XJ100)	XJ1600(XJ120)	XJ1800(XJ150)	XJ2250(XJ180)
Nominal service depth ( 2 7/8" EUE tubing ) (ft)	18000	23000	28000		
Nominal workover depth ( 2 7/8" DP ) (ft)	15000	19000	23000	26000	29000
Drilling depth (ft) ( 4 1/2" DP )	5000	6600	8200	10000	13000
Max. hook load (lbf)	250000	300000	350000	400000	500000
Rated hook load (lbf)	180000	220000	270000	330000	400000
Engine model	C15	C15	C18	2 × C15	2 × C18
Engine power (hp)	540	540	630	2 × 540	2 × 630
Hydraulic transmission box model	S5610HR	S5610HR	S6610HR	2 × S5610HR	2 × S6610HR
Transmission type	Hydraulic + mechanical	Hydraulic +	Hydraulic +	Hydraulic +	Hydraulic +
Effective height of mast (ft)	33 102,108	35 102,108	115	118,125	118,125
Traveling system	5 × 4	5 × 4	5 × 4	5 × 4, 6 × 5	6 × 5
Drilling line diameter (in)	1"	1"	1 1/8	1 1/8 ; 1 1/4	1 1/4
Hook speed (ft/s)	0.66 ~ 3.93	0.66 ~ 4.6	0.66 ~ 4.3, 0.66 ~ 4.6	0.66 ~ 4.3/ 0.66 ~ 3.93	0.66 ~ 4.26
Chassis model/Drive ways	XD50/10 × 8	XD50/10 × 8	XD60/12 × 8	XD70/14 × 8	XD70/14 × 8
Approaching/departure angle	26° /17°	26° /18°	26° /18°	26° /18°	26° /18°
Min. ground clearance (in)	12	12	12	12	12
Max. gradient ability (%)	26%	26%	26%	26%	26%
Min. turning diameter (ft)	108	108	125	135	135
Rotary table model	ZP135	ZP135	ZP175/ZP205	ZP205/ ZP275	ZP205/ ZP275
Traveling block model	YG110	YG135	YG160	YG180	YG225
Swivel model	SL110	SL135	SL160	SL225	SL225
Overall moving dimension (ft)	61 × 10 × 14	61 × 10 × 14	67 × 10 × 15	74 × 10 × 15	74 × 10 × 15
Main unit mass (lb)	110000	120000	143000	168000	172000

## 2

## OFFSHORE DRILLING AND WORKOVER RIG

It consists of mechanical drive and electrical drive offshore drilling rig.

Main features:

By using diesel engines and a hydraulic transmission box to drive the drawworks and rotary table, the mechanical drive offshore drilling rig can achieve high transmission efficiency. The electrical drive offshore drilling rig normally uses one or several DC or AC motors to drive the drawworks. In addition, it is also equipped with a motor for operation of the auto driller; the rotary table is driven by an AC motor independently, and the mud pump is driven by one or several AC or DC motors. The system control uses MCC/SCR or MCC/VFD all-digital modules.

This rig can be moved both in longitudinal and transverse directions to meet cluster-well drilling requirements on the platform. We have taken the following requirements of convenience, safety and availability into full consideration: fire extinguishing, BOP system, mud supply, cementing supply, air supply, stream supply, and sea water and fresh water supply. It also meets the requirements of easy installation, dismantling and maintenance.

Modularization can be realized in all the following parts of the drilling rig: rig floor, drawworks, mast, basement, mud pump system, solid control system, and auxiliary system with a high level of modularization.

The drawworks uses single drum drawworks, and the main brake is a disc brake mechanism (single disc or double disc)

The derrick is tower-type or has a multi-section telescoping structure, which can be hydraulically rigged up and rigged down.

This rig has high reliability, strong wind-resistant ability and excellent seawater corrosion resistant performance. In addition, its explosion-proof capability also meets offshore drilling requirements.

Something is designed for pollutions zero-discharge.

The correlative ACS certificate, such as CCS, DNV, can be obtained according to the client's requirements.



## Specification

MODEL		HXJ90	HXJ112	HXJ112DB	HXJ112DZ	HXJ135
Structure type		Skid module type		Skid module type		Skid module type
Workover depth (ft) ( 3 1/2" DP )		8200		11500		15000
Drilling depth (ft) ( 5" DP )		5000		5900		6562
Max. hook load (lbf)		200000		250000		300000
Engine model		C13		C15		C18
Engine power (hp)		361	475	577		676 650
Transmission box model		TH35	S5610H	LDX 150		S5610H
Transmission type		Hydraulic + mechanical	Hydraulic + mechanical	VFD+ mechanical	SCR+ mechanical	Hydraulic + mechanical
Derrick structure/Height (ft)		K type/95	K type /95,102			K type /95,102, 108
Traveling system		4 × 3	5 × 4			5 × 4
Drilling line diameter (in)		1	1			1
Rotary table model		ZP90	ZP135			ZP175
Traveling block model		YG90	YG110			YG135
Swivel model		SL110	SL110			SL135
Rated power of mud pump (hp)		500	500			500
Substructure height (ft)		19	19	21		19
Working environment	Limit wind speed (knot)	107 ( without setback ) 93 ( full setback )	07 ( without setback ) 93 ( full setback )			107 ( without setback ) 93 ( full setback )
	Earthquake magnitude	8	8			8
	Temperature℃	-20 ~ +40	-20 ~ +40			-20 ~ +40
	Relative humidity	≤98%	≤98%			≤98%

## Specification

MODEL		HXJ158	HXJ158DB	HXJ158DZ	HXJ180	HXJ180DB	HXJ180DZ	HXJ225
Structure type		Skid module type			Skid module type			Skid module type
Workover depth (ft) ( 3 1/2" DP )		18000			21000			
Drilling depth (ft) ( 5" DP )		8000			9100			10000
Max. hook load (lbf)		350000			400000			500000
Engine model		C18	YZ23A	YZ47	2 × C11	YZ23	YZ47B	2 × C15
Engine power (hp)		603 ~ 804	671		2 × 361	804		2 × 475
Transmission box model		S6610H	JFD300/JS300	S6610H	2 × S5610H	JFD300/JS300		2 × S5610H
Transmission type		Hydraulic+ mechanical	VFD+ mechanical	SCR+ mechanical	Hydraulic+ mechanical	Hydraulic+ mechanical	VFD+ mechanical	SCR+ mechanical
Derrick structure/Height (ft)		K type/102、33	ower type/102、108,118		K type /108	Tower type/102、108		K type/102、108
Traveling system		5 × 4/6 × 5			5 × 4/6 × 5			5 × 4/6 × 5
Drilling line diameter (in)		1 1/8			1 1/4			1 1/4
Rotary table model		ZP175/ZP275			ZP275			ZP275
Traveling block model		YG160			YG180/ YG225			YG225
Swivel model		SL160			SL225			SL225
Rated power of mud pump (hp)		800			800/1000			1000/1300
Substructure height (ft)		19	6.56	12.13	20/21	12		20
Working environment	Limit wind speed (knot)	107 ( without setback ) 93 ( full setback )			107 ( without setback ) 93 ( full setback )			107 ( without setback ) 93 ( full setback )
	Earthquake magnitude	8			8			8
	Temperature℃	-20 ~ +40			-20 ~ +40			-20 ~ +40
	Relative humidity	≤98%			≤98%			≤98%

### 3. SPECIAL WORKOVER RIG

#### 3.1 GRID-ELECTRICITY WORKOVER RIG

The grid electricity workover rig can meet all kinds of workover operational requirements due to its safety, stability, and reliability as well as excellent technical performances. The wellsite is now completely free from exhausted gas/oil emissions, and well site noise has also been greatly reduced. We can make a new contribution to save energy in oilfields by using this kind of environmentally-friendly workover rig.





## Specification

MODEL	WXJ700 ( XJ40 )	WXJ900(XJ60)	WXJ1100(XJ80)
Nominal service depth (ft) ( 2 7/8" EUE tubing )	11000	13000	18000
Nominal workover depth (ft) ( 2 7/8" DP )	6500	11000	15000
Max. hook load (lbf)	160000	202320	260000
Rated hook load (lbf)	90000	150000	180000
Motor model	YJS355L-8	YJS450L-8	YJS450L-8
Motor power (hp)	250	300	410
Effective height of mast (ft)	56	96	102
Drilling line diameter (in)	7/8	1	1
Hook speed (ft/s)	0.66 ~ 4.6	0.66 ~ 5.7	0.66 ~ 4.6
Approaching/departure angle	18° /14°	26° /16°	26° /17°
Min. ground clearance (in)	12.24	13.4	12.24
Max. gradient ability (%)	26	30	26
Min. turning diameter (ft)	108.27	92	108.27
Rotary table model	ZP70	ZP90	ZP135
Traveling block model	YG70	YG90	YG135
Swivel model	SL70	SL110	SL135
Overall moving dimension (ft)	38 × 8 × 13	54.8 × 10 × 13.5	61 × 10 × 13.8
Main unit mass (lb)	55200	93000	111000

### 3.2 MOUNTAINOUS WORKOVER RIG

The rig unit is a small module, with the length of a single module less than 36ft, and its weight less than 33069lb. It is especially suitable for transportation and operation in mountainous areas. The box type sub-structure is convenient for transportation and lifting. The rig floor working area and height can be designed in accordance with the requirements of the end-users. The mast is a free-standing type without guy lines with a clearance height of 105ft. The multiple sections of the mast can be rigged up and rigged down telescopically in orders by horizontal hydraulic cylinders, which is particularly useful for narrow well sites due to a highly - integrated designs .

This rig uses a heavy-duty, 8x 8 all-wheel-drive chassis and has an excellent cruise performance.

## Specification

MODEL	XJ225
Workover depth (ft) (4 1/2" DP)	13000
Workover depth (ft) (4 1/2" DP)	25000
Max. hook load (lbf)	506000
Hook speed (ft/s)	0.66 ~ 4.6
Effective height of mast (ft)	105 ( clearance )
Mast type	Erective telescoping
Drill floor height (ft)	20
Engine model	C15 × 2
Engine power hp × 2	540 × 2
Hydraulic transmission box × 2	S5610HR × 2
Transmission type	Hydraulic+ mechanical
Traveling system	6 × 5
Drilling line diameter (in)	1 1/4
Traveling block model	YG225
Swivel model	SL225
Rotary table model	ZP275
Moving type	Self-propelled
Chassis model	XD40/8 × 8
Approaching/departure angle	25° / 25°
Max. gradient ability (%)	46.6
Min. turning diameter (ft)	79
Min. ground clearance (in)	12

### 3.3 SLANT-WELL WORKOVER RIG

The slant-well workover rigs can be used for service and workover operations on the slant oil, gas and water wells with a slant degree of 45° ~ 80° and well depth of less than 5000ft.

The chassis is a heavy-duty 8x4 drive chassis with a hydraulic steering system, which has a good cruise performance.

The whole unit could be moved in both longitudinal and transverse directions with a stepless adjustable function to allow the wellhead to be centralized quickly and conveniently.

The monkey board and light-duty working platform are lifted hydraulically and locked mechanically, which is safe and reliable.

These workover rigs can also be used for slant-well drillings after being equipped with a power swivel.



## Specification

MODEL	XXJ35
Max. hook load (lbf)	79000
Effective height of mast (ft)	67
Inclination angle of the mast	45° ~ 80°
Longitudinal adjustable scope (in)	24
Transverse adjustable scope (in)	10
Rotary adjustable scope	5°
Traveling system	3×2
Engine power (hp)	361
Drawworks gearshifts	4F+1R
Diameter × Length of main drum (in)	Φ 14 × 32
Diameter × Width of brake rim (in)	Φ 38 × 8.3
Max. speed (mi/h)	28
Max. gradient ability	26%
Turning diameter (ft)	92
Overall dimension (ft)	67 × 10 × 15.7
The whole unit weight (lb)	89000

### 3.4 SWAMP WORKOVER RIG

All kinds of workover rigs have corresponding swamp rigs with a self-made, cruise type chassis and special pattern big diameter tyres that are suitable for fast movement in a swamp.



## Specification

MODEL	TXJ70
Nominal service depth (ft) ( 2 7/8" EUE tubing )	11000
Nominal workover depth (ft) ( 2 7/8" DP )	8300
Max. hook load (lbf)	160000
Engine model	C9
Engine power (hp)	302
Transmission type	Hydraulic + mechanical
Carrier drive way	6×6
Water depth/mud depth (in)	31.5/11.8
Min. turning radius (ft)	44.3
Max. speed (mi/h)	25
Max. gradient capability (%)	30
The whole unit weight (lb)	58000
Overall dimension of the whole unit (ft)	50.5 × 10 × 12.5

### 3.5 DESERT WORKOVER RIG

All kinds of rigs have corresponding models suitable for the desert.

The chassis is heavy-duty 8x8 all-wheel-drive, with a hydraulic steering system, and large diameter low pressure desert tyres. The diesel engine is equipped with a sand-proof filter and the rig is installed with a sand-proof shed so as to maintain the rig's working performance and safe movement in the desert. An inner-circulated forced water cooling system can ensure the drawworks operate normally under high-temperature conditions.

The mast is a front-open, tilting and double-section telescopic type with a heavy-duty wind-proof design, and it can be hydraulically rigged up and down.

The drill floor is twin-body telescopic type or parallelogram structure, both of which are convenient for installation and transportation.

#### Specification

MODEL	SXJ160
Nominal service depth (ft) ( 2 7/8" EUE tubing )	28000
Nominal workover depth (ft) ( 3" DP )	18000
Drilling depth (ft) ( 4 1/2" DP )	6500
Max. hook load (lbf)	360000
Engine model	C18
Engine power (hp)	631
Hydraulic transmission box model	S6610HR
Transmission type	Hydraulic + mechanical
Effective height of mast (ft)	115
Traveling system	6 × 5
Drilling line diameter (in)	1 1/8
Hook speed (ft/s)	0.66 ~ 3.9
Chassis model/Drive ways	SXD60/8 × 8
Approaching /departure angle	30° /20°
Min. ground clearance (in)	14.57
Max. gradient ability (%)	30
Min. turning diameter (ft)	164
Rotary table model	ZP175
Traveling block model	YG160
Swivel model	SL160
Overall moving dimension (ft)	61 × 10 × 15.7
Main unit mass (lb)	130071
Accessories mass (lb)	44500

### 3.6 COLD WEATHER WORKOVER RIG

All kinds of workover rigs have corresponding cold weather types that are suitable for the severe cold of oilfields in Russia, Canada and other regions.

Performance parameters:

Working ambient temperature:  $-45$  degrees  $\sim +35$  degrees

Storage temperature:  $-60$  degrees

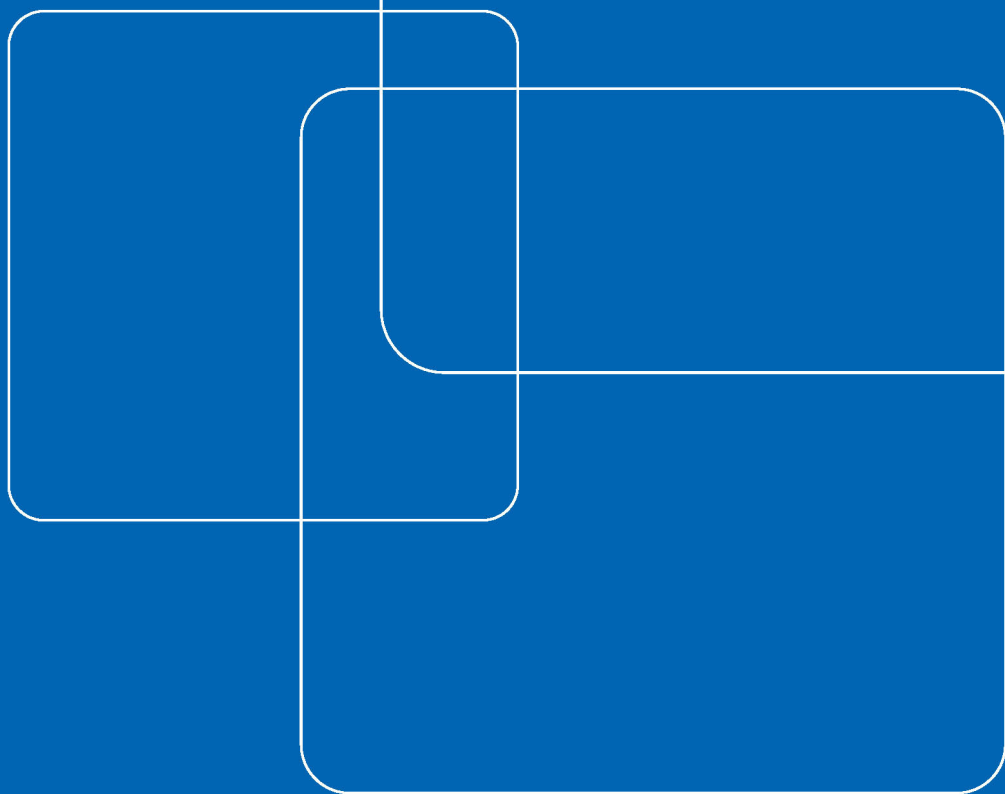
The main load supporting parts use cryogenic materials that have passed low temperature welding assessments.

The traveling system uses special materials and special process measures to ensure good working performance under cold weather conditions.

The hydraulic lines, air lines, cables, valves and oils that we selected have a cold weather performance. Electrical heating system or steam heating system is used for the transmission box, oil tank or water tank.

Special wind-proof, heat preservation and heating measures have been adopted for the workover rig.





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