

Control Flow **WESTECH** Product Catalog

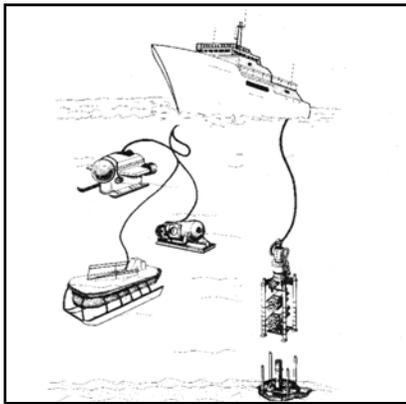


WESTECH/HMD
A Control Flow Company





Active / Passive Payload Motion Management Systems

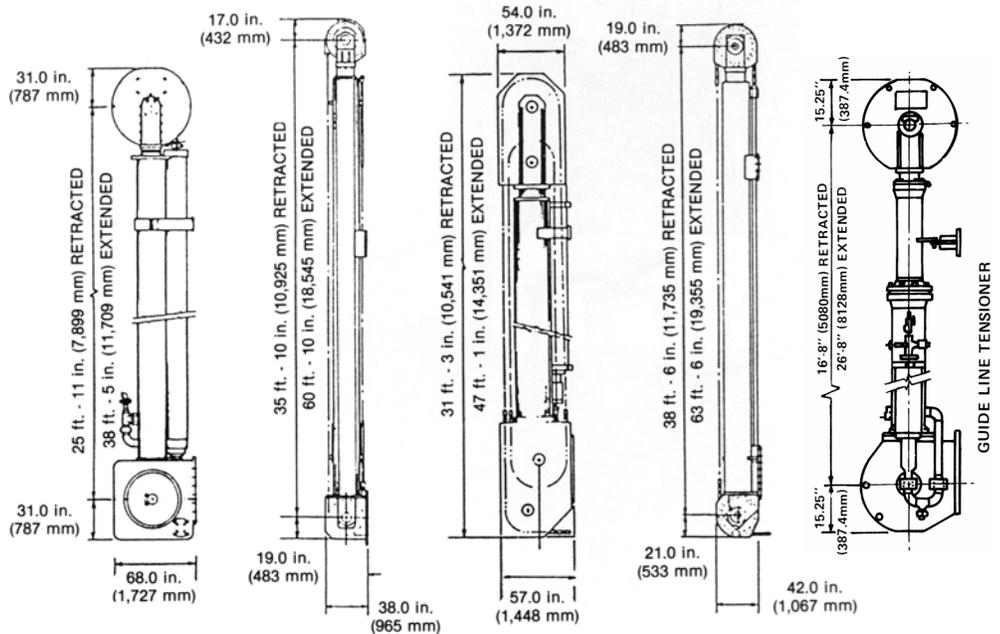
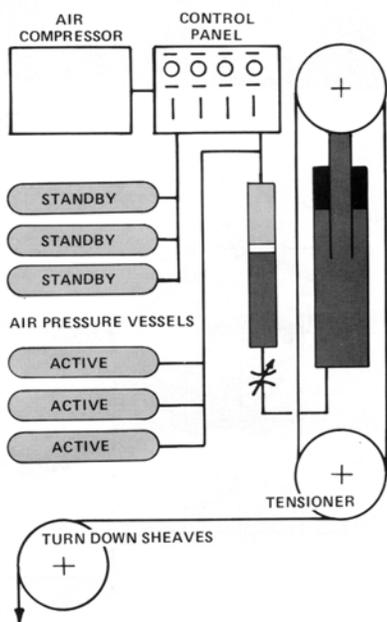


- **Widespread Applications** involving suspended payloads or sensor platforms, soft sub-sea landing / ROV docking and heave-free drill rig tensioning.
- **Systems Adaptability** permits usage with most known compensator configurations and upgrading of existing passive systems to activated systems.
- **Integrated Computer Controller** processes accelerometer and other inputs using proprietary control algorithms with user-friendly operator interface.
- **95% Or Better Heave Isolation** achieved by utilizing a controller developed position for load insensitivity, drift and accumulated error-free motion compensator performance.

Reliable, Low Maintenance Riser And Guide Line Tensioners



- **Proven Ram Technology** based on more than 30 years of experience in providing ram tensioners for offshore petroleum use and for the U.S. Navy.
- **Automatic Safety Arrest** limits ram velocity and physically stops ram to eliminate tensioner damage in event of wire rope failure.
- **Maintenance Simplicity** because of split ram seals which are replaceable without system disassembly or wire rope removal.
- **Operational Simplicity** for reliable riser and guide line tensioning.
- **Single And Dual Models** can provide from 80,000 to 250,000+ pounds tension.



*** 125K Single or Dual**

160K Single, 2-Part Line

160K Single, 4-Part Line

250K Single, 2-Part Line

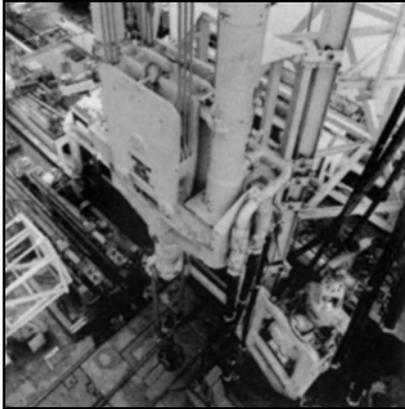
Rate Line Tension	80,000 lb (356 kN) to 250,000 lb (1,112 kN) *
Wire Line Travel	50 ft (15.2 M) or 60 ft. (18.2 M)
Wire Line Diameter	1.75 in. (44.5 mm) or 2.875 in. (73 mm)
Rate Line Tension	16,000 lb (7,257 kg)
Wire Line Travel	40 ft (12.1 M) Max.
Wire Line Diameter	.75 in. (1.9 mm)

* 80K, 100K and 150K Single or Dual also available.

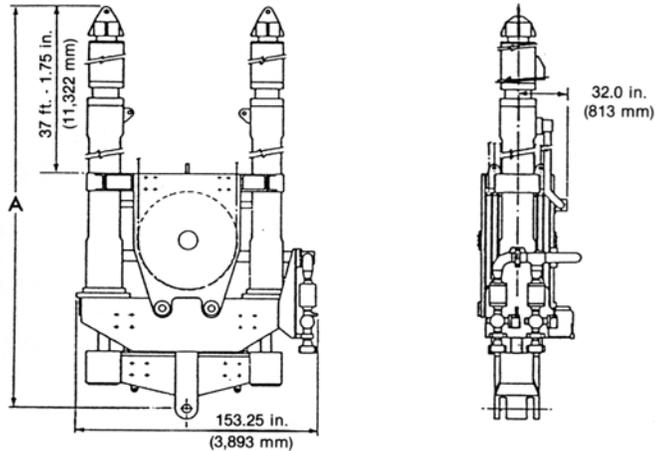
Heave Compensators



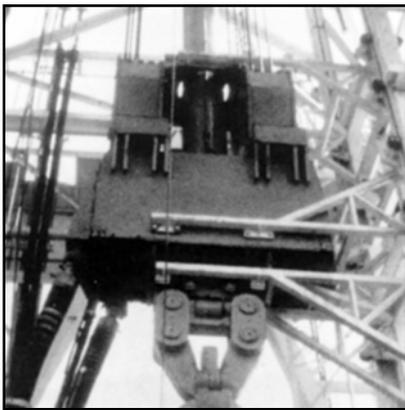
**CONTROL
FLOW
INC.**



- **High Capacity 800,000 Pound Working Capacity** and high efficiency satisfy demanding requirements.
- **Innovative Pneumatic / Hydraulic Power Combination** provides positive control and flexibility.
- **Hydraulic Lockup On Demand** in any position allows faster drilling operations.
- **Automatic Safety Arrest** limits hook velocity and prevents equipment damage in event of drill string failure.

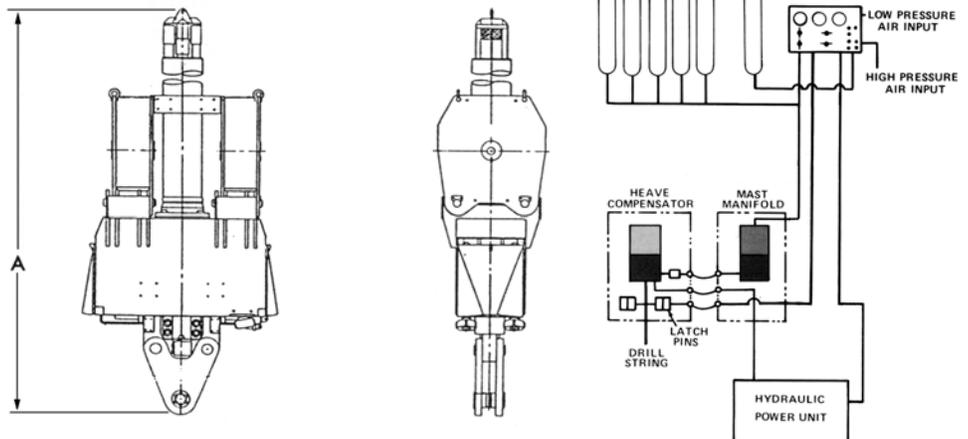


	Model HC-800-2-17-20
Working Capacity	800,000 lb (3,555 kN)
Static Load Capacity	1,600,000 lb (7,110 kN)
Stroke	20 ft (6.09 M) or 25 ft (7.62 M)
Pressure, Max	2,400 psi (16.55 MPa)
Wet Weight, (hung in derrick with rod end and traveling block)	113,150 lb (503 kN) (20 ft)
Dimension "A" Fully Retracted	51 ft (15.6 M) (20 ft)
Dimension "A" Fully Extended	71 ft (21.7 M) (20 ft)



Compact, Efficient

- **Light Weight Compensators** reduce wire line wear and minimize derrick structure.
- **More Usable Derrick Height** with single cylinder design.
- **Compact Design** features an integral traveling block.
- **Hydraulic Lockup in Any Position** allows faster, more flexible drilling operations.
- **In-Line Load Path** through a single cylinder yields lowest weight and high efficiency.



THIS EQUIPMENT IS COVERED BY THE FOLLOWING U.S. PATENT: RE29,565

	Models HC-400-16-20/ and -25	Model HC-600-25	Model HC-650-20-20 / and -25
Working Capacity	400,000 lb (1,779 kN)	600,000 lb (2,669 kN)	650,000 lb (2,891 kN)
Static Load Capacity	1,200,000 lb (5,338 kN)	1,600,000 lb (7,117 kN)	1,600,000 lb (7,117 kN)
Stroke, Max	20 ft (6.09 M) / 25 ft (7.62 M)	25 ft (7.62 M)	20 ft (6.09M) / 25 ft (7.62 M)
Pressure, Max	2,400 psi (16.55 MPa)	2,400 psi (16.55 MPa)	2,400 psi (16.55 MPa)
Wet Weight (hung in derrick with rod end and traveling block)	46,000 lb (20,865 Kg) 20 ft Stroke 48,600 lb (22,045 Kg) 25 ft Stroke	85,100 lb (38,600 Kg) 25 ft Stroke	67,000 (30,390 Kg) 20 ft Stroke 70,600 lb (32,024 Kg) 25 ft Stroke
Dimension "A" Fully Retracted	31.1 ft (9.49 M) / 36.1 ft (11.02 M)	37.8 ft (11.54 M)	32.3 ft (9.84 M) / 37.3 ft (11.37 M)
Dimension "A" Fully Extended	51.1 ft (15.59 M) / 61.1 ft (18.64 M)	62.8 ft (19.16 M)	52.3 ft (15.94 M) / 62.3 ft (18.99 M)

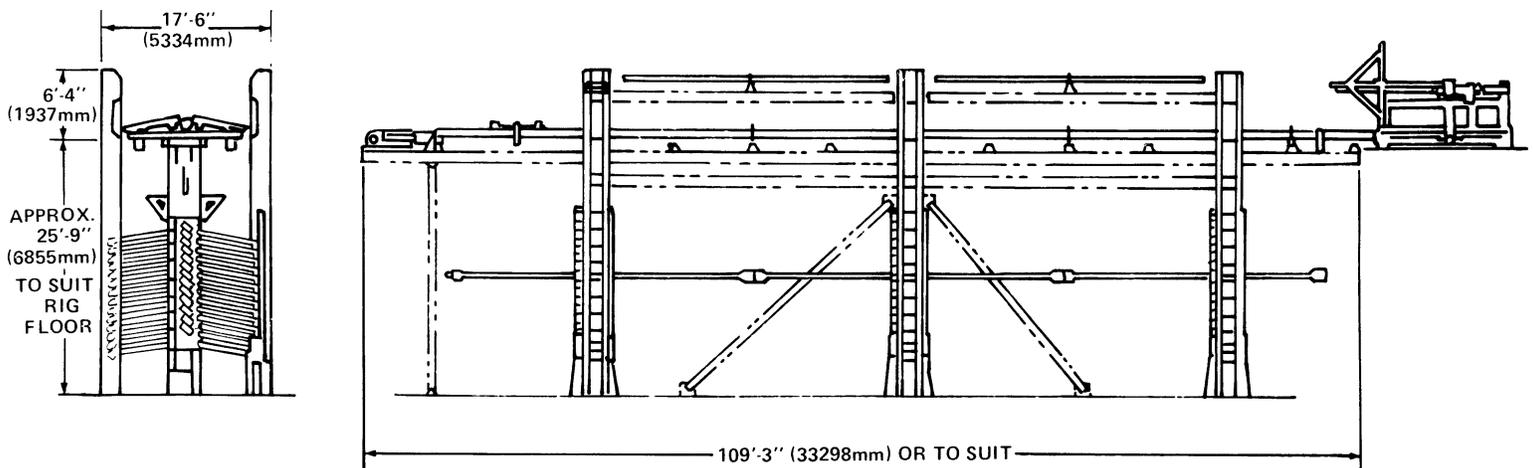


Pipemaster® Offshore Piperacker

The remotely-operated, manually-controlled Pipemaster® Offshore Piperacker improves efficiency through positive mechanical control in horizontally storing, handling and racking of tubular goods. Adaptable to drill ships, semi-submersibles and mobile self-elevating platforms, the system semi-automatically moves drill pipe, collar and riser sections to and from the rig floor for tripping operations. The Pipemaster® Offshore Piperacker provides a system that mechanically controls and handles pipe in adverse sea states.



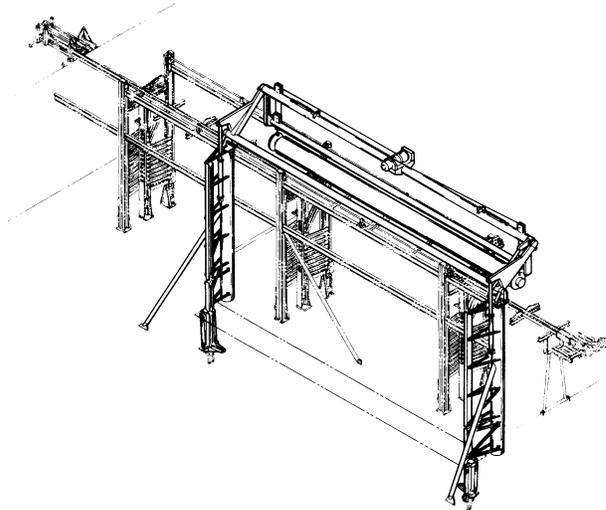
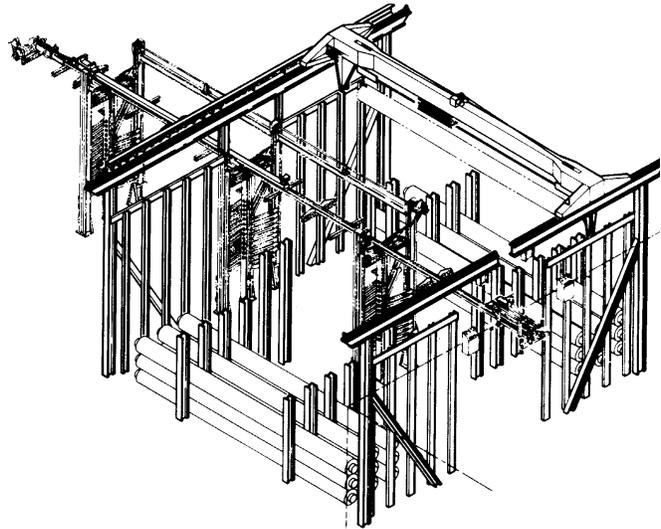
Power:	Hydraulic	50 HP
	Pneumatic	Shipboard air, 100 to 150 psi (Shipboard air, 6.9 to 10.4 bars)
Control	Electric	Shipboard electric, 64 KVA, 440/460V, 60 cycle
		Remote Manual
Speed		One 90 ft. stand per minute
Weight	230,000 lbs without interconnecting beams (104,328 Kg without interconnecting beams)	
Capacity	20,000 ft of 5 in. drill pipe with 7 in. protector stored in 90 ft stands. Adaptors for casing 8 7/8 in. to 30 in. O.D. and riser 36 1/2 in. O.D. x 50 ft. long (6,096 M of 127 mm drill pipe with 178 mm protector stored in 27 M stands. Adaptors for casing 220 mm to 760 mm O.D. and risers 7.8 M.O.D. x 15.5 M long.)	





Pipemaster® Offshore Riser and Casing Bridge Crane

When used in conjunction with the Pipemaster® offshore piperacker, the bridge crane handles marine riser and casing for drillship operations. A lift beam transfers riser or casing to the piperacker skate and track which then delivers the riser or casing to the rig floor to be handled by the elevator and drawworks and then mechanically stabbed over the well bore. While storage capacity is dependent on the ship's beam and available above and below deck area, a typical system stows 3,000 feet (912 M) of 38 inch (965 mm) diameter marine riser in 50 foot (15.2 M) lengths.

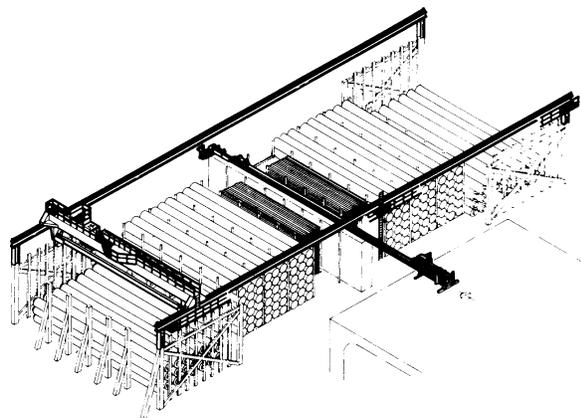


Pipemaster® Offshore Riser and Casing Swing Crane

For use in conjunction with the Pipemaster® offshore piperacker, the swing crane handles riser and casing from below-deck hold space for drillship operations. A below-deck crane moves riser or casing to a pick-up station; lift beam is attached to the riser or casing which is raised to the swing crane; the swing crane places the riser or casing on the piperacker skate and track for delivery to the rig floor. Storage capacity depends on ship's beam and available below deck hold area; a typical system stows 3,000 feet (912 M) of 38 inch (965 mm) diameter marine riser in 50 foot (15.2 M) lengths.

Pipemaster® Offshore Semi-Submersible and Jack-Up Handling System

This system is specially designed to handle single drill pipe, marine riser and casing aboard semi-submersible or jack-up platforms. This tubular goods handling system provides the mechanical means to move drill pipe, marine riser and casing from a horizontal racking area on the main deck back and forth to the rig floor. Typical system storage capacity is consistent with a 100 foot (30.5 M) long deck area.



	Swing Crane	Bridge Crane	Semi-Submersible and Jack-Up Handling System
Power	Hydraulic	Electric	Electric
Control	Remote Manual	Remote Manual	Remote Manual
Speed, riser or casing	One section every 3 to 4 minutes	One section every 3 to 4 minutes	One section every 3 to 4 minutes
Weight, includes guide rails, excludes support structure	37,000 lbs (16,783 Kg)	80,000 lbs (36,288 Kg)	90,000 lbs (40,823 Kg)
Length	16 ft (4,876 mm) or to suit	66 ft (20,117 mm) or to suit	100 ft (25,400 mm) or to suit
Width	61 ft (19,174 mm)	64 ft (19,507 mm)	64 ft (19,507 mm)
Height	42 ft (12,801 mm) or as required	43 ft (13,106 mm) or as required	43 ft (13,106 mm) or as required



Pipemaster® Pipe Tensioners



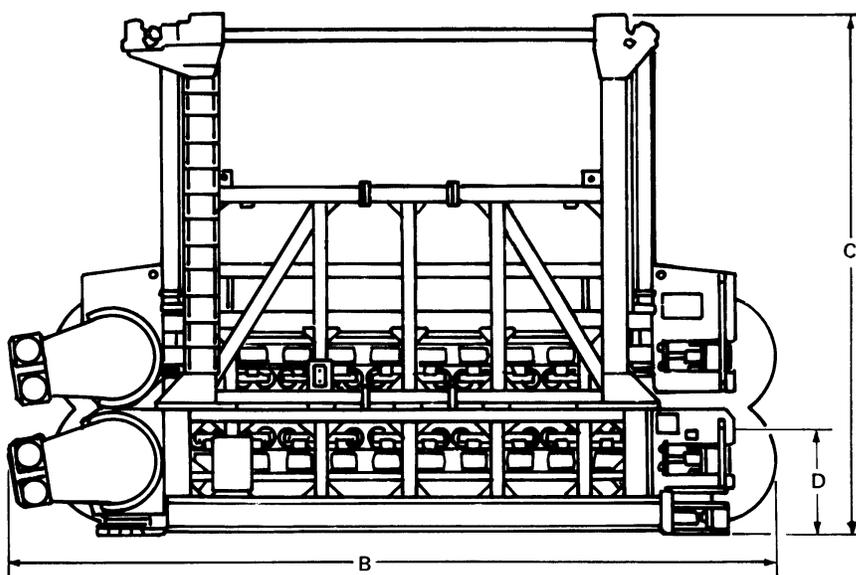
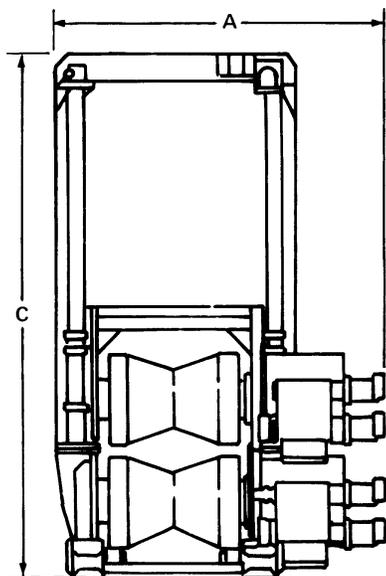
Pipemaster® Pipe Tensioners are track-type tension systems capable of holding back on the pipeline, using essentially constant tension characteristics. Pipe Tensioners absorb the curvature of the pipeline and accommodate nominal changes in coating diameter. Available drives include electrohydraulic or diesel-hydraulic power units. Control is by solid state integrated electronic circuitry with independent, identical electronic or hydraulic backup control. All parameters in the speed/tension curve are adjustable by easily accessible knobs on the control console.

Single Pipemaster® Pipe Tensioners can be arranged in multiple tandem units to obtain higher tension when required. Welding or other work stations may be located between tandem units depending on barge installation. Pipe Tensioners can be supplied for locating on port or starboard ramp as well as for barge center slot operation.

	LPT 40	LPT 80	LPT 100	LPT 150
Tension, max	40,000 lbs (18,144 Kg)	80,000 lbs (32,287 Kg)	100,000 lbs (43,350 Kg)	120,000 lbs (54,431 Kg)
Rated In-Haul / Payout	66 fpm / 66 fpm (20 mpm / 20 mpm)	80 fpm / 80 fpm (24 mpm / 24 mpm)	120 fpm / 120 fpm (37 mpm / 37 mpm)	90 fpm / 100 fpm (27 mpm / 30 mpm)
Optional* In-Haul / Payout	160 fpm / 160 fpm (49 mpm / 49 mpm)	200 fpm / 200 fpm (61 mpm / 61 mpm)	200 fpm / 200 fpm (61 mpm / 61 mpm)	180 fpm / 200 fpm (55 mpm / 61 mpm)
Pipe size, O.D. diameter rated	6 in.-30 in. (152 mm-762 mm)	8 in.-48 in. (203 mm-1,219 mm)	8 in.-48 in. (203 mm-1,219 mm)	8 in.-48 in. (203 mm-1,219 mm)
max**	50 in. (1,270 mm)	72 in. (1,829 mm)	72 in. (1,829 mm)	72 in. (1,829 mm)

* Speeds above those rated available on special order.

** Pipe sizes larger than rated diameter can be handled by changing pad type and pressure points. Engineering evaluation and approval required.



	A	B	C	D***	Weight****
LPT 40	124 in. (3,149 mm)	264 in. (6,706 mm)	168 in. (4,267 mm)	66 in. (1,676 mm)	110,000 lbs (49,895 Kg)
LPT 80-1.5	164 in. (4,165 mm)	322 in. (8,191 mm)	247 in. (6,273 mm)	59 in. (1,498 mm)	186,800 lbs (84,730 Kg)
LPT 100-1.5	164 in. (4,165 mm)	364 in. (9,233 mm)	247 in. (6,273 mm)	59 in. (1,498 mm)	204,500 lbs (92,760 Kg)
LPT 150-1.5	176 in. (4,470 mm)	337 in. (8,559 mm)	247 in. (6,273 mm)	59 in. (1,498 mm)	206,000 lbs (93,440 Kg)

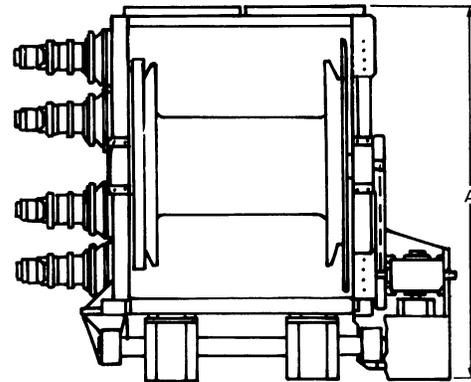
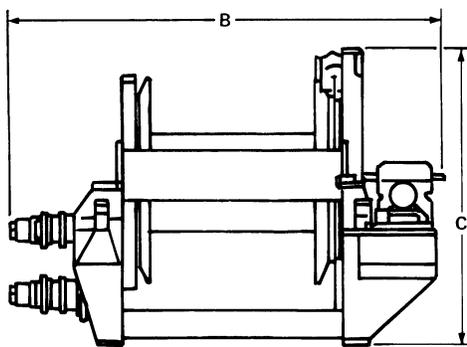
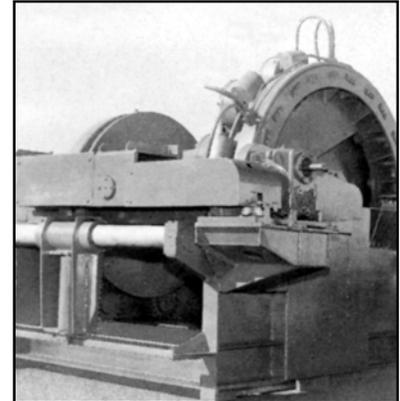
Abandonment and Recovery/Land Piperacker



**CONTROL
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Pipemaster® Abandonment and Recovery Winch Systems

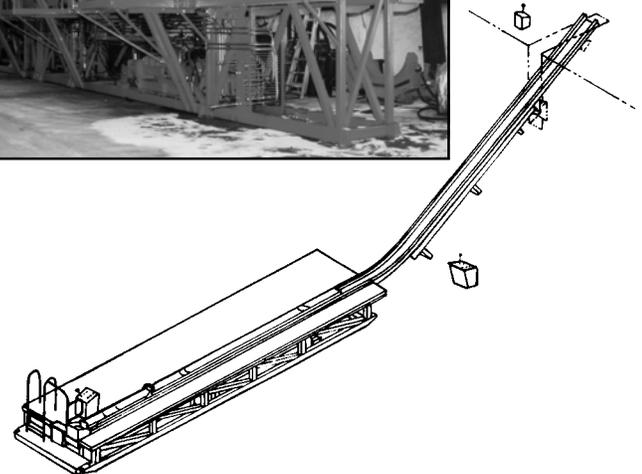
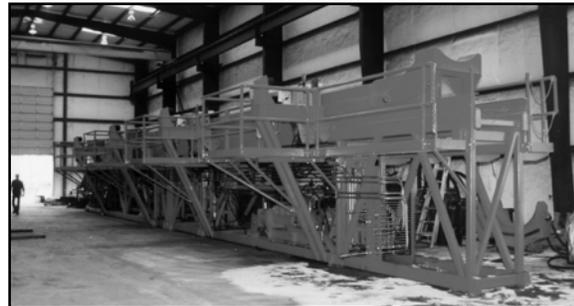
The Pipemaster® Abandonment and Recovery Winch Systems are designed for increased control during lowering of pipe for abandonment from lay barge to sea bottom. Controls and power supply integrate with Pipemaster® Pipe Tensioner systems for smooth load transfer of the highly tensioned pipeline from one system to the other. Load transfer is accomplished in automatic tension mode, compensating for barge and pipe movement induced by heavy seas. This synchronized transfer can be accomplished in about fifteen seconds, the approximate period of a single wave, under full control of the operator. System redundancy is designed into the Pipemaster® Abandonment and Recovery Winch System providing for complete control backup.



	A	B	C	Weight**
ARW 200	151 in. (3.81 M)	170 in. (4.32 M)	120 in. (3.05 M)	70,000 lbs (31,750 Kg)
ARW 300	180 in. (4.57 M)	214 in. (5.44 M)	146 in. (3.71 M)	116,000 lbs (52,668 Kg)

Pipemaster® Land Piperacker

Based on the highly successful design of the offshore piperacker, WesTech/HMD's Pipemaster® Land Piperacker is, similarly, remotely operated for positive mechanical control of drill pipe and casing. This system incorporates a unique elevator to raise pipe from the horizontal racks to ramp arms where transverse rollers position the pipe longitudinally and indexers control the movement of the pipe to the skate. The Pipemaster® Land Piperacker moves drill pipe and casing semi-automatically from the racking area to and from the rig floor for drilling and "laydown" operations. The system can be housed in an enclosure for work in the arctic, or skid mounted between standard pipe racks and supplied without elevating mechanism for use in less hostile climates.



Power	Hydraulic Electric	50 HP 64 KVA, 440/460V, 60 cycle	Capacity	Drill pipe: Casing:	Singles up to 45 ft (13.7 M) and 6,000 lbs (2,720 Kg) Up to 14 in. (356 mm) diameter and 9 5/8 in. (244 mm) diameter with thermocase. With adapters handles 20 in. (508 mm) diameter maximum; up to 45 ft (13.7 M) length maximum.
Control		Remote manual			
Speed		One cycle per minute			
Weight		36,000 lbs (16,330 Kg)			
Width		11 ft 4 in. (3,454 mm)			
Length		87 ft (26,518 mm) or to suit rig			
Height		29 ft (8,839 mm) or to suit rig			