

## COUNTERWEIGHTS

MODEL	mm* (in*)	WEIGHT <sup>+50kg (110lb)</sup> <sub>-0 kg (0lb)</sub>
E2.00XM & E2.50XM E2.50XM, (E50XM & E50XM <sub>2</sub> ) E3.00XM	700 mm (27.6 in) 847 mm (33.3 in) 1015 mm (40.0 in)	544 kg (1200 lb)
(E45XM & E45XM <sub>2</sub> ) (E55XM, E55XM <sub>2</sub> ) & E2.50XM, (E65XM, E65XM <sub>2</sub> ), E3.00XM E3.20XM & (N30XMH, N30XMH <sub>2</sub> )	700 mm (27.6 in) 847 mm (33.3 in) 1015 mm (40.0 in)	770 kg (1700 lb)
(E50XM, E50XM <sub>2</sub> ) & E2.50XM (E60XM, E60XM <sub>2</sub> ) & E3.00XM,	700 mm (27.6 in) 847 mm (33.3 in)	976 kg (2150 lb)
J2.00XM & J2.50XM (J40XM, J40XM <sub>2</sub> & J50XM, J50XM <sub>2</sub> ) J2.50XM & J3.00XM (J50XM, J50XM <sub>2</sub> & J60XM, J60XM <sub>2</sub> )	717 mm (28.2 in) 861 mm (33.9 in)	678 kg (1495 lb)
J3.20XM & (J65XM, J65XM <sub>2</sub> )	861 mm (33.9 in)	749 kg (1650 lb)
* approximate battery compartment lengths (identifies frame size)		

## HYDRAULIC SYSTEM

ITEM	SPECIFICATION
RELIEF PRESSURE, LIFT SYSTEM E2.00-3.20XM, (E45-65XM, E45-65XM <sub>2</sub> ) And (N30XMH, N30XMH <sub>2</sub> ) J2.00-3.20XM, (J40-65XM, J40-65XM <sub>2</sub> )	21.7 ± 0.7MPa (3100 ± 100 psi)  21.0 ± 0.7 MPa (3000 ± 100 psi)
RELIEF PRESSURE, TILT SYSTEM With Auxiliary Relief Valve Without Auxiliary Relief Valve	15.75 ± 0.7 MPa (2250 ± 100 psi) 21.7 ± 0.7MPa (3100 ± 100 psi)
RELIEF PRESSURE, AUXILIARY	15.75 ± 0.7 MPa (2250 ± 100 psi)
RELIEF PRESSURE, STEERING SYSTEM	8620 ± 345KPa (1250 ± 50psi)
* Oil temperature 54 to 66°C (130 to 150°F).	

This section is for the following models:  
E2.00XM, E2.50XM(SHORT), E2.50XM, E3.00XM(SHORT), E3.00XM, E3.20XM  
E45XM, E45XM(SHORT), E50XM, E50XM(SHORT), E55XM, E60XM, E65XM  
E45XM<sub>2</sub>, E45XM<sub>2</sub>(SHORT), E50XM<sub>2</sub>, E50XM<sub>2</sub>(SHORT), E55XM<sub>2</sub>, E60XM<sub>2</sub>, E65XM<sub>2</sub>  
N30XMH, N30XMH<sub>2</sub>  
J2.00XM, J2.50XM, J2.50XM(SHORT), J3.00XM, J3.20XM  
J40XM, J50XM, J50XM(SHORT), J60XM, J65XM  
J40XM<sub>2</sub>, J50XM<sub>2</sub>, J50XM<sub>2</sub>(SHORT), J60XM<sub>2</sub>, J65XM<sub>2</sub>

## WHEELS AND TIRES

ITEM	SPECIFICATION
Torque - Wheel Nuts, Drive Tires	237 - 305 N.m (175 - 225 lb <sub>f</sub> ft)
Torque - Wheel Nuts, Steering Tires	34 N.m (25 lb <sub>f</sub> ft)
E2.00-3.00XM (E45-65XM, E45-65XM <sub>2</sub> And N30XMH, N30XMH <sub>2</sub> )	
Drive Tires, Size Standard	21 x 7 x 15*
Drive Tires, Size Optional	21 x 8 x 15*
Steering Tires, Size Standard	16 x 5 x 10.5*
Steering Tires, Size Optional	16 x 6 x 10.5*
J2.00-3.20XM (J40-65XM, J40-65XM <sub>2</sub> )	
Drive Tires, Size Pneumatic	23 x 10-12 16 Ply
Drive Tires, Size Pneumatic Shaped Solid	23 x 10-12/8.0
Steering Tires, Size Pneumatic	18 x 7.00 x 8.00 16 Ply
Steering Tires, Size Pneumatic Shaped Solid	18 x 7.00-8 /4.33
*Smooth, lug tread; standard & non-marking, electric compound and for <u>all models</u> , smooth polyurethane.	

## BATTERY SPECIFICATIONS - E2.00-3.20XM (E45-65XM, E45-65XM<sub>2</sub>, N30XMH, N30XMH<sub>2</sub>)

MODEL	MIN. COMPARTMENT SIZE LENGTH x WIDTH	BATTERY SIZE MINIMUM/MAXIMUM		WEIGHT	
		LENGTH	WIDTH	MINIMUM	MAXIMUM
E2.00XM, E2.50XM*	695 x 987 mm 27.4 x 38.8 in	978/983 mm 38.5 / 38.7 in	681/691 mm 26.8 / 27.2 in	985 kg 2169 lb	1453 kg 3200 lb
E45-50XM, (E45-50XM <sub>2</sub> )*				1044 kg 2300 lb	1498 kg 3300 lb
E2.50XM, E3.00XM*	842 x 987 mm 33.2 x 38.8 in		800/838 mm 31.5 / 33.0 in	1317 kg 2900 lb	1771 kg 3900 lb
(E45-60XM, E45-60XM <sub>2</sub> )*					
E3.00-3.20XM (E65XM, E65XM <sub>2</sub> )	1010 x 987 mm 39.8 x 38.8 in		1001/1006 mm 39.4 / 39.6 in	1553 kg 3420 lb	1998 kg 4400 lb
(N30XMH, N30XMH <sub>2</sub> )					

\*Short Wheelbase

612 mm (24.1 inch) = maximum height for batteries with a cover.

579 mm (22.8 inch) = maximum height for batteries without a cover.

The tolerances of the battery compartment are 3 and -0 mm (0.117 and -0 inch). The battery size column shows the size range that will permit the battery to still fit into a battery compartment.

The battery compartment length is front-to-back. Width is side-to-side. The "length" dimension of the battery must fit within the battery compartment side-to-side dimension with a clearance of 13 mm (0 to 0.5 inch) maximum. Battery width must fit within the battery compartment front-to-back dimension.

### **WARNING**

**The battery must fit the battery compartment so that the battery restraint system will operate correctly. Use only batteries with the correct length shown in the table above. Adjust the spacer plate and side spacers to prevent the battery from moving more than 0.5 inch forward or backward.**

## BATTERY SPECIFICATIONS - J2.00-3.20XM (J40-65XM, J40-65XM<sub>2</sub>)

MODEL	MIN. COMPART- MENT SIZE LENGTH x WIDTH	BATTERY SIZE MINIMUM/MAXIMUM		MAXIMUM WEIGHT
		LENGTH	WIDTH	
J2.00-2.50XM*- 72/80V	712 x 986 mm 28.0 x 40.6 in	982 mm 38.7 in	690 mm 27.2 in	1776 kg 3916 lb
(J40XM, J40XM <sub>2</sub> , J50XM*, J50XM <sub>2</sub> *) - 36V			686 mm 27.0 in	1790 kg 3947 lb
(J40XM, J40XM <sub>2</sub> , J50XM*, J50XM <sub>2</sub> *) - 48V			805 mm 31.7 in	2127 kg 4690 lb
J2.50-3.20XM- 72/80V	856 x 986 mm 33.7 x 38.8 in	982 mm 38.7 in	805 mm 31.7 in	2127 kg 4690 lb
(J50-65XM, J50-65XM <sub>2</sub> ) - 36V			835 mm 32.9 in	2209 kg 4871 lb
(J50-65XM, J50-65XM <sub>2</sub> ) - 48V				

\*Short Wheelbase

777 mm (30.6 inch) = maximum height for all batteries.

The tolerances of the battery compartment are 3 and -0 mm (0.117 and -0 inch). The battery size column shows the size range that will permit the battery to still fit into a battery compartment.

The battery compartment length is front-to-back. Width is side-to-side. The "length" dimension of the battery must fit within the battery compartment side-to-side dimension with a clearance of 13 mm (0 to 0.5 inch) maximum. Battery width must fit within the battery compartment front-to-back dimension.

### WARNING

**The battery must fit the battery compartment so that the battery restraint system will operate correctly. Use only batteries with the correct length shown in the table above. Adjust the spacer plate and side spacers to prevent the battery from moving more than 0.5 inch forward or backward.**

## CAPACITIES

ITEM	SPECIFICATION
HYDRAULIC SYSTEM (Full Mark On Dipstick)* E2.00-3.20XM (E45-65XM, E45-65XM <sub>2</sub> And N30XMH, N30XMH <sub>2</sub> ) J2.00-3.20XM (J40-65XM, J40-65XM <sub>2</sub> )	23.0 litres (6.1 gal) 27.4 litres (7.23 gal)
DIFFERENTIAL/SPEED REDUCER) E2.00-3.20XM (E45-65XM, E45-65XM <sub>2</sub> And N30XMH, N30XMH <sub>2</sub> ) J2.00-3.20XM (J40-65XM, J40-65XM <sub>2</sub> )	4.2 litres (8.8 pt) 3.7 litres (7.8 pt)
BRAKE FLUID	0.24 litres (0.5 pt)
HYDRAULIC PUMP CAPACITIES** Large Lift Pump Small Lift Pumps Steering Pump	19 cc/revolution (1.16 in <sup>3</sup> /revolution) 12 cc/revolution (0.73 in <sup>3</sup> /revolution) 4.23 cc/revolution (0.26 in <sup>3</sup> /revolution)
*Check after all air is removed from the system and with the mast fully lowered.	
** Oil temperature at 54 to 66°C (130 to 150°F)	

## MOVEMENT RATES (MAXIMUM) FOR TILT CYLINDERS

LIFT TRUCK MODEL	HYDRAULIC OIL TEMPERATURE/MAST TILT RATE			
	20° C (68° F)		60° C (140° F)	
	mm/min	in/min	mm/min	in/min
All Models (Except N30XMH, N30XMH <sub>2</sub> )	0.8	0.03	5.0	0.20

## E45-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
E45XM	TWO-STAGE Limited Free Lift	36 48	0.295 0.442	58 87	0.513 0.625	101 123	0.569	112	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.305 0.406	60 80	0.472 0.625	93 123	0.523	103	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.310 0.396	61 78	0.462 0.610	91 120	0.538	106	0.467	92
	FOUR-STAGE Full Free Lift	36 48	0.290 0.401	57 79	0.452 0.569	89 112	0.447	88	0.411	81
E50XM	TWO-STAGE Limited Free Lift	36 48	0.284 0.376	56 74	0.513 0.625	101 123	0.574	113	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.295 0.391	58 77	0.472 0.625	93 123	0.538	106	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.290 0.381	57 75	0.462 0.610	91 120	0.549	108	0.467	92
	FOUR-STAGE Full Free Lift	36 48	0.279 0.391	55 77	0.452 0.569	89 112	0.447	88	0.411	81
E55XM	TWO-STAGE Limited Free Lift	36 48	0.279 0.371	55 73	0.513 0.625	101 123	0.584	115	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.290 0.381	57 75	0.472 0.625	93 123	0.554	109	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.279 0.371	55 73	0.462 0.610	91 120	0.559	110	0.467	92
E60XM	TWO-STAGE Limited Free Lift	36 48	0.249 0.310	49 61	0.472 0.589	93 116	0.569	112	0.457	90
	TWO-STAGE Full Free Lift	36 48	0.249 0.330	49 65	0.416 0.554	82 109	0.538	106	0.366	72
	THREE-STAGE Full Free Lift	36 48	0.249 0.330	49 65	0.411 0.533	81 105	0.544	107	0.396	78
E65XM	TWO-STAGE Limited Free Lift	36 48	0.259 0.320	51 63	0.472 0.589	93 116	0.559	110	0.457	90
	TWO-STAGE Full Free Lift	36 48	0.244 0.320	48 63	0.416 0.554	82 109	0.523	103	0.366	72
	THREE-STAGE Full Free Lift	36 48	0.244 0.320	48 63	0.411 0.533	81 105	0.533	105	0.396	78

\* Standard 19 cubic cm (1.16 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E45-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>SCR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
E45XM	TWO-STAGE Limited Free Lift	36	0.277	55	0.420	83	0.569	112	0.508	100
		48	0.361	71	0.559	110				
	TWO-STAGE Full Free Lift	36	0.284	56	0.444	87	0.523	103	0.457	90
		48	0.381	75	0.587	116				
THREE-STAGE Full Free Lift	36	0.291	57	0.435	86	0.538	106	0.467	92	
	48	0.372	73	0.573	113					
FOUR-STAGE Full Free Lift	36	0.272	54	0.425	84	0.447	88	0.411	81	
	48	0.377	74	0.535	105					
E50XM	TWO-STAGE Limited Free Lift	36	0.267	53	0.420	83	0.574	113	0.508	100
		48	0.353	70	0.559	110				
	TWO-STAGE Full Free Lift	36	0.277	55	0.444	87	0.538	106	0.457	90
		48	0.368	72	0.587	116				
THREE-STAGE Full Free Lift	36	0.272	54	0.435	86	0.549	108	0.467	92	
	48	0.358	71	0.573	113					
FOUR-STAGE Full Free Lift	36	0.263	52	0.435	84	0.447	88	0.411	81	
	48	0.368	72	0.535	105					
E55XM	TWO-STAGE Limited Free Lift	36	0.258	51	0.420	83	0.584	115	0.508	100
		48	0.339	67	0.559	110				
	TWO-STAGE Full Free Lift	36	0.272	54	0.444	87	0.554	109	0.457	90
48		0.358	71	0.587	116					
THREE-STAGE Full Free Lift	36	0.263	52	0.435	86	0.559	110	0.467	92	
48	0.349	69	0.573	113						
E60XM	TWO-STAGE Limited Free Lift	36	0.234	46	0.377	74	0.569	112	0.457	90
		48	0.306	60	0.516	102				
	TWO-STAGE Full Free Lift	36	0.234	46	0.392	77	0.538	106	0.366	72
48		0.310	61	0.520	102					
THREE-STAGE Full Free Lift	36	0.234	46	0.387	76	0.544	107	0.396	78	
48	0.310	61	0.501	99						
E65XM	TWO-STAGE Limited Free Lift	36	0.224	44	0.377	74	0.559	110	0.457	90
		48	0.296	58	0.516	102				
	TWO-STAGE Full Free Lift	36	0.229	45	0.392	77	0.523	103	0.366	72
48		0.301	59	0.520	102					
THREE-STAGE Full Free Lift	36	0.229	45	0.387	76	0.533	105	0.396	78	
48	0.301	59	0.501	99						

\* Standard 19 cubic cm (1.16 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

(More Content includes: Brake system, Capacities, and specifications, Frame, Hydraulic, System, Industrial battery, Main control, Valve, Mast repair, Fasteners, Schematics diagrams, Steering axle, Steering system, Wire harness repair And more)

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## E45-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; SMALL LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
E45XM	TWO-STAGE Limited Free Lift	36 48	0.218 0.290	43 57	0.345 0.457	68 90	0.569	112	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.229 0.305	45 60	0.356 0.472	70 93	0.523	103	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.224 0.295	44 58	0.351 0.467	69 92	0.538	106	0.467	92
	FOUR-STAGE Full Free Lift	36 48	0.239 0.310	47 61	0.345 0.437	68 86	0.447	88	0.411	81
E50XM	TWO-STAGE Limited Free Lift	36 48	0.213 0.279	42 55	0.345 0.457	68 90	0.574	113	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.224 0.395	44 58	0.356 0.472	70 93	0.538	106	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.218 0.290	43 57	0.351 0.467	69 92	0.549	108	0.467	92
	FOUR-STAGE Full Free Lift	36 48	0.234 0.300	46 59	0.345 0.437	68 86	0.447	88	0.411	81
E55XM	TWO-STAGE Limited Free Lift	36 48	0.208 0.274	41 54	0.345 0.457	68 90	0.584	115	0.508	100
	TWO-STAGE Full Free Lift	36 48	0.218 0.284	43 56	0.356 0.472	70 93	0.554	109	0.457	90
	THREE-STAGE Full Free Lift	36 48	0.213 0.279	42 55	0.351 0.467	69 92	0.559	110	0.467	92
E60XM	TWO-STAGE Limited Free Lift	36 48	0.183 0.244	36 48	0.305 0.406	60 80	0.569	112	0.457	90
	TWO-STAGE Full Free Lift	36 48	0.188 0.249	37 49	0.310 0.417	61 82	0.538	106	0.366	72
	THREE-STAGE Full Free Lift	36 48	0.188 0.249	37 49	0.310 0.411	61 81	0.544	107	0.396	78
E65XM	TWO-STAGE Limited Free Lift	36 48	0.178 0.239	35 47	0.305 0.406	60 80	0.559	110	0.457	90
	TWO-STAGE Full Free Lift	36 48	0.183 0.244	36 48	0.310 0.417	61 82	0.523	103	0.366	72
	THREE-STAGE Full Free Lift	36 48	0.183 0.244	36 48	0.310 0.411	61 81	0.533	105	0.396	78

\* Slow (lift) speed 12 cubic cm (0.73 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E40-65XM, E40-65XM<sub>2</sub>, N30XMH<sub>2</sub> MAST SPEEDS (36 or 48 Volt) (3/99) Americas

190 mm (7.5 in) MOTOR & LARGE LIFT PUMP*										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
<b>E40XM E40XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.295 0.442	61 82	0.513 0.625	101 123	0.339	110	0.308	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.305 0.406	62 82	0.472 0.625	93 123	0.308	100	0.277	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.310 0.396	61 80	0.462 0.610	91 120	0.320	104	0.283	92
	<b>FOUR-STAGE Full Free Lift</b>	<b>36 48</b>	0.290 0.401	59 82	0.452 0.610	89 112	0.271	88	0.249	81
<b>E45XM E45XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.179 0.268	58 87	0.513 0.625	101 123	0.345	112	0.308	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.185 0.246	60 80	0.472 0.625	93 123	0.317	103	0.277	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.188 0.240	61 78	0.462 0.610	91 120	0.326	106	0.283	92
	<b>FOUR-STAGE Full Free Lift</b>	<b>36 48</b>	0.176 0.243	57 79	0.452 0.610	89 112	0.271	88	0.249	81
<b>E50XM E50XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.172 0.228	56 74	0.513 0.625	101 123	0.348	113	0.308	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.179 0.237	58 77	0.472 0.625	93 123	0.326	106	0.277	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.176 0.231	57 75	0.462 0.610	91 120	0.333	108	0.283	92
	<b>FOUR-STAGE Full Free Lift</b>	<b>36 48</b>	0.169 0.237	55 77	0.452 0.610	89 112	0.271	88	0.249	81
<b>E55XM E55XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.169 0.225	55 73	0.513 0.625	101 123	0.354	115	0.308	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.176 0.231	57 75	0.472 0.625	93 123	0.336	109	0.277	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.169 0.225	55 73	0.462 0.610	91 120	0.339	110	0.283	92
<b>E60XM E60XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.151 0.188	49 61	0.513 0.625	101 123	0.345	112	0.277	90
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.151 0.200	49 65	0.472 0.625	93 123	0.326	106	0.222	72
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.151 0.200	49 65	0.462 0.610	91 120	0.329	107	0.240	78
<b>E3.20XM E3.20XM<sub>2</sub></b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36 48</b>	0.157 0.194	51 63	0.513 0.625	101 123	0.339	110	0.277	90
	<b>TWO-STAGE Full Free Lift</b>	<b>36 48</b>	0.148 0.194	48 63	0.472 0.625	93 123	0.317	103	0.222	72
	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	0.148 0.194	48 63	0.462 0.610	91 120	0.323	105	0.240	78
<b>N30XMH<sub>2</sub></b>	<b>THREE-STAGE Full Free Lift</b>	<b>36 48</b>	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.280	91	0.280	91

\*Standard 19 cubic cm (1.16 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available



**E40-65XM, E40-65XM<sub>2</sub>, N30XMH<sub>2</sub> MAST SPEEDS (36 or 48 Volt) (3/99)  
Americas**

190 mm (7.5 in) MOTOR & SMALL LIFT PUMP*										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
E40XM E40XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.136 0.182	44 59	0.209 0.277	68 90	0.339	110	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.142 0.188	46 61	0.216 0.286	70 93	0.308	100	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.139 0.185	45 60	0.212 0.283	69 92	0.320	104	0.283	92
	FOUR-STAGE Full Free Lift	36 48	0.151 0.194	49 63	0.209 0.265	68 86	0.271	88	0.249	81
E45XM E45XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.132 0.176	43 57	0.209 0.277	68 90	0.345	112	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.139 0.185	45 60	0.216 0.286	70 93	0.317	103	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.136 0.179	44 58	0.212 0.283	69 92	0.326	106	0.283	92
	FOUR-STAGE Full Free Lift	36 48	0.145 0.188	47 61	0.209 0.265	68 86	0.271	88	0.249	81
E50XM E50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.129 0.169	42 55	0.209 0.277	68 90	0.348	113	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.136 0.179	44 58	0.216 0.286	70 93	0.326	106	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.132 0.176	43 57	0.212 0.283	69 92	0.333	108	0.283	92
	FOUR-STAGE Full Free Lift	36 48	0.142 0.182	46 59	0.209 0.265	68 86	0.271	88	0.249	81
E55XM E55XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.126 0.166	41 54	0.209 0.277	68 90	0.354	115	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.132 0.172	43 56	0.216 0.277	70 90	0.336	109	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.129 0.169	42 55	0.212 0.283	69 92	0.339	110	0.283	92
E60XM E60XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.111 0.148	36 48	0.185 0.246	60 80	0.345	112	0.277	90
	TWO-STAGE Full Free Lift	36 48	0.114 0.151	37 49	0.188 0.252	61 82	0.326	106	0.222	72
	THREE-STAGE Full Free Lift	36 48	0.114 0.151	37 49	0.188 0.249	61 81	0.329	107	0.240	78
E65XM E650XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.108 0.145	35 47	0.185 0.246	60 80	0.339	110	0.277	90
	TWO-STAGE Full Free Lift	36 48	0.111 0.148	36 48	0.188 0.252	61 82	0.317	103	0.222	72
	THREE-STAGE Full Free Lift	36 48	0.111 0.148	36 48	0.188 0.249	61 81	0.323	105	0.240	78
N30XMH <sub>2</sub>	THREE-STAGE Full Free Lift	36 48	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.280	91	0.280	91

\*Slow (lift) speed 12 cubic cm (0.73 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## E2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>						
<b>MODEL</b>	<b>MAST</b>	<b>V</b>	<b>LIFTING</b>		<b>LOWERING</b>	
			<b>RATED LOAD</b>	<b>NO LOAD</b>	<b>RATED LOAD</b>	<b>NO LOAD</b>
			<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>
<b>E2.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.376	0.544	0.559	0.508
		<b>80</b>	0.422	0.605		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.396	0.569	0.508	0.457
		<b>80</b>	0.442	0.635		
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.386	0.559	0.528	0.467	
	<b>80</b>	0.432	0.625			
<b>FOUR-STAGE Full Free Lift</b>	<b>72</b>	0.330	0.483	0.447	0.411	
	<b>80</b>	0.366	0.538			
<b>E2.50XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.345	0.544	0.574	0.508
		<b>80</b>	0.391	0.605		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.366	0.569	0.538	0.457
		<b>80</b>	0.411	0.635		
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.356	0.559	0.549	0.467	
	<b>80</b>	0.401	0.625			
<b>FOUR-STAGE Full Free Lift</b>	<b>72</b>	0.315	0.483	0.447	0.411	
	<b>80</b>	0.351	0.538			
<b>E3.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.300	0.488	0.559	0.457
		<b>80</b>	0.335	0.544		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.310	0.503	0.538	0.366
<b>80</b>		0.345	0.564			
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.310	0.503	0.544	0.396	
	<b>80</b>	0.345	0.559			
<b>E3.20XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.295	0.488	0.559	0.457
		<b>80</b>	0.330	0.544		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.300	0.503	0.523	0.366
<b>80</b>		0.335	0.564			
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.300	0.503	0.533	0.396	
	<b>80</b>	0.335	0.559			

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>SCR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
E2.00XM	TWO-STAGE Limited Free Lift	72	0.353	0.511	0.559	0.508
		80	0.396	0.568		
	TWO-STAGE Full Free Lift	72	0.372	0.535	0.508	0.457
		80	0.415	0.597		
THREE-STAGE Full Free Lift	72	0.363	0.525	0.528	0.467	
	80	0.406	0.587			
FOUR-STAGE Full Free Lift	72	0.310	0.454	0.447	0.411	
	80	0.344	0.506			
E2.50XM	TWO-STAGE Limited Free Lift	72	0.325	0.511	0.574	0.508
		80	0.368	0.568		
	TWO-STAGE Full Free Lift	72	0.344	0.535	0.538	0.457
		80	0.387	0.597		
THREE-STAGE Full Free Lift	72	0.334	0.525	0.549	0.467	
	80	0.377	0.587			
FOUR-STAGE Full Free Lift	72	0.296	0.454	0.447	0.411	
	80	0.329	0.506			
E3.00XM	TWO-STAGE Limited Free Lift	72	0.282	0.458	0.559	0.457
		80	0.315	0.511		
	TWO-STAGE Full Free Lift	72	0.291	0.473	0.538	0.366
80		0.325	0.530			
THREE-STAGE Full Free Lift	72	0.291	0.473	0.544	0.396	
	80	0.325	0.525			
E3.20XM	TWO-STAGE Limited Free Lift	72	0.277	0.458	0.559	0.457
		80	0.310	0.511		
	TWO-STAGE Full Free Lift	72	0.282	0.473	0.523	0.366
80		0.315	0.530			
THREE-STAGE Full Free Lift	72	0.282	0.473	0.533	0.396	
	80	0.315	0.525			

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; SMALL LIFT PUMP*</b>						
<b>MODEL</b>	<b>MAST</b>	<b>V</b>	<b>LIFTING</b>		<b>LOWERING</b>	
			<b>RATED LOAD</b>	<b>NO LOAD</b>	<b>RATED LOAD</b>	<b>NO LOAD</b>
			<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>
<b>E2.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72 80</b>	0.290 0.310	0.411 0.462	0.559	0.508
	<b>TWO-STAGE Full Free Lift</b>	<b>72 80</b>	0.300 0.330	0.432 0.478	0.508	0.457
	<b>THREE-STAGE Full Free Lift</b>	<b>72 80</b>	0.295 0.320	0.422 0.472	0.528	0.467
	<b>FOUR-STAGE Full Free Lift</b>	<b>72 80</b>	0.310 0.340	0.406 0.447	0.447	0.411
<b>E2.50XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72 80</b>	0.274 0.295	0.411 0.462	0.574	0.508
	<b>TWO-STAGE Full Free Lift</b>	<b>72 80</b>	0.279 0.305	0.432 0.478	0.538	0.457
	<b>THREE-STAGE Full Free Lift</b>	<b>72 80</b>	0.279 0.300	0.422 0.472	0.549	0.467
	<b>FOUR-STAGE Full Free Lift</b>	<b>72 80</b>	0.295 0.325	0.406 0.477	0.447	0.411
<b>E3.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72 80</b>	0.229 0.259	0.371 0.411	0.559	0.457
	<b>TWO-STAGE Full Free Lift</b>	<b>72 80</b>	0.234 0.259	0.381 0.422	0.538	0.366
	<b>THREE-STAGE Full Free Lift</b>	<b>72 80</b>	0.234 0.259	0.366 0.422	0.544	0.396
<b>E3.20XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72 80</b>	0.229 0.254	0.371 0.411	0.559	0.457
	<b>TWO-STAGE Full Free Lift</b>	<b>72 80</b>	0.229 0.254	0.381 0.422	0.523	0.366
	<b>THREE-STAGE Full Free Lift</b>	<b>72 80</b>	0.229 0.254	0.366 0.422	0.533	0.396

\* Slow (lift) speed 12 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONTACTOR CONTROLLED OPTIONAL MOTOR &amp; LARGE LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
E2.00XM	TWO-STAGE Limited Free Lift	72	0.396	0.554	0.559	0.508
		80	0.442	0.620		
	TWO-STAGE Full Free Lift	72	0.406	0.579	0.508	0.457
		80	0.457	0.645		
THREE-STAGE Full Free Lift	72	0.401	0.559	0.528	0.467	
	80	0.452	0.635			
FOUR-STAGE Full Free Lift	72	0.351	0.483	0.447	0.411	
	80	0.391	0.538			
E2.50XM	TWO-STAGE Limited Free Lift	72	0.371	0.554	0.574	0.508
		80	0.417	0.620		
	TWO-STAGE Full Free Lift	72	0.386	0.579	0.538	0.457
		80	0.432	0.645		
THREE-STAGE Full Free Lift	72	0.376	0.559	0.549	0.467	
	80	0.422	0.635			
FOUR-STAGE Full Free Lift	72	0.330	0.483	0.447	0.411	
	80	0.371	0.538			
E3.00XM	TWO-STAGE Limited Free Lift	72	0.320	0.498	0.559	0.457
		80	0.361	0.554		
	TWO-STAGE Full Free Lift	72	0.325	0.513	0.538	0.366
80		0.366	0.574			
THREE-STAGE Full Free Lift	72	0.325	0.508	0.544	0.396	
	80	0.366	0.569			
E3.20XM	TWO-STAGE Limited Free Lift	72	0.315	0.498	0.559	0.457
		80	0.351	0.554		
	TWO-STAGE Full Free Lift	72	0.320	0.513	0.523	0.366
80		0.361	0.574			
THREE-STAGE Full Free Lift	72	0.320	0.508	0.533	0.396	
	80	0.356	0.569			

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## E2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>SCR CONTROLLED OPTIONAL MOTOR &amp; LARGE LIFT PUMP*</b>						
<b>MODEL</b>	<b>MAST</b>	<b>V</b>	<b>LIFTING</b>		<b>LOWERING</b>	
			<b>RATED LOAD</b>	<b>NO LOAD</b>	<b>RATED LOAD</b>	<b>NO LOAD</b>
			<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>	<b>m/sec</b>
<b>E2.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.372	0.520	0.559	0.508
		<b>80</b>	0.415	0.583		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.382	0.544	0.508	0.457
		<b>80</b>	0.430	0.606		
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.377	0.535	0.528	0.467	
	<b>80</b>	0.425	0.597			
<b>FOUR-STAGE Full Free Lift</b>	<b>72</b>	0.329	0.454	0.447	0.411	
	<b>80</b>	0.368	0.506			
<b>E2.50XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.349	0.520	0.574	0.508
		<b>80</b>	0.392	0.583		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.363	0.544	0.538	0.457
		<b>80</b>	0.406	0.606		
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.353	0.535	0.549	0.467	
	<b>80</b>	0.396	0.597			
<b>FOUR-STAGE Full Free Lift</b>	<b>72</b>	0.310	0.454	0.447	0.411	
	<b>80</b>	0.349	0.506			
<b>E3.00XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.301	0.468	0.559	0.457
		<b>80</b>	0.339	0.520		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.306	0.482	0.538	0.366
<b>80</b>		0.344	0.540			
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.306	0.478	0.544	0.396	
	<b>80</b>	0.344	0.535			
<b>E3.20XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>72</b>	0.296	0.468	0.559	0.457
		<b>80</b>	0.329	0.520		
	<b>TWO-STAGE Full Free Lift</b>	<b>72</b>	0.301	0.482	0.523	0.366
<b>80</b>		0.339	0.540			
<b>THREE-STAGE Full Free Lift</b>	<b>72</b>	0.301	0.478	0.533	0.396	
	<b>80</b>	0.334	0.535			

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

**E2.00-3.20XM, E2.00-3.20XM<sub>2</sub>, MAST SPEEDS (72 or 80 Volt) (3/99)  
Europe**

190 mm MOTOR & LARGE LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
E2.00XM E2.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.228 0.256	0.330 0.366	0.339	0.308
	TWO-STAGE Full Free Lift	72 80	0.240 0.268	0.345 0.388	0.308	0.277
	THREE-STAGE Full Free Lift	72 80	0.234 0.262	0.339 0.379	0.320	0.283
	FOUR-STAGE Full Free Lift	72 80	0.200 0.222	0.293 0.326	0.271	0.249
E2.50XM E2.50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.209 0.237	0.330 0.366	0.348	0.308
	TWO-STAGE Full Free Lift	72 80	0.222 0.249	0.345 0.388	0.326	0.277
	THREE-STAGE Full Free Lift	72 80	0.216 0.243	0.339 0.379	0.333	0.283
	FOUR-STAGE Full Free Lift	72 80	0.191 0.212	0.293 0.326	0.271	0.249
E3.00XM E3.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.182 0.200	0.296 0.330	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.188 0.179	0.305 0.342	0.326	0.222
	THREE-STAGE Full Free Lift	72 80	0.188 0.179	0.305 0.339	0.329	0.240
E3.20XM E3.20XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.179 0.200	0.296 0.330	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.182 0.203	0.305 0.342	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.182 0.203	0.305 0.339	0.323	0.240

\*Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

**E2.00-3.20XM, E2.00-3.20XM<sub>2</sub>, MAST SPEEDS (72 or 80 Volt) (3/99)  
Europe**

190 mm MOTOR & SMALL LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
E2.00XM E2.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.176 0.188	0.249 0.280	0.339	0.308
	TWO-STAGE Full Free Lift	72 80	0.182 0.200	0.262 0.289	0.308	0.277
	THREE-STAGE Full Free Lift	72 80	0.179 0.194	0.256 0.286	0.320	0.283
	FOUR-STAGE Full Free Lift	72 80	0.188 0.206	0.246 0.271	0.271	0.249
E2.50XM E2.50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.166 0.179	0.249 0.280	0.348	0.308
	TWO-STAGE Full Free Lift	72 80	0.169 0.185	0.262 0.289	0.326	0.277
	THREE-STAGE Full Free Lift	72 80	0.169 0.182	0.256 0.286	0.333	0.283
	FOUR-STAGE Full Free Lift	72 80	0.179 0.197	0.246 0.271	0.271	0.249
E3.00XM E3.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.139 0.157	0.225 0.249	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.142 0.157	0.231 0.256	0.326	0.222
	THREE-STAGE Full Free Lift	72 80	0.142 0.157	0.222 0.256	0.329	0.240
E3.20XM E3.20XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.139 0.154	0.225 0.249	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.139 0.154	0.231 0.256	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.139 0.154	0.222 0.256	0.323	0.240

\*Slow (lift) speed 12 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available



**E2.00-3.20XM, E2.00-3.20XM<sub>2</sub>, MAST SPEEDS (72 or 80 Volt) (3/99)  
Europe**

203 or 190 mm LONG STACK MOTOR & SMALL LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
E2.00XM E2.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.240 0.268	0.356 0.376	0.339	0.308
	TWO-STAGE Full Free Lift	72 80	0.246 0.277	0.351 0.391	0.308	0.277
	THREE-STAGE Full Free Lift	72 80	0.243 0.274	0.345 0.385	0.320	0.283
	FOUR-STAGE Full Free Lift	72 80	0.212 0.237	0.293 0.326	0.271	0.249
E2.50XM E2.50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.240 0.268	0.356 0.376	0.348	0.308
	TWO-STAGE Full Free Lift	72 80	0.234 0.262	0.351 0.391	0.326	0.277
	THREE-STAGE Full Free Lift	72 80	0.228 0.256	0.345 0.385	0.333	0.283
	FOUR-STAGE Full Free Lift	72 80	0.200 0.225	0.293 0.326	0.271	0.249
E3.00XM E3.00XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.194 0.219	0.302 0.336	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.197 0.222	0.311 0.348	0.326	0.222
	THREE-STAGE Full Free Lift	72 80	0.197 0.222	0.308 0.345	0.329	0.240
E3.20XM E3.20XM <sub>2</sub>	TWO-STAGE Limited Free Lift	72 80	0.191 0.212	0.293 0.326	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.194 0.219	0.311 0.348	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.194 0.216	0.308 0.345	0.323	0.240

\*Slow (lift) speed 12 cubic cm displacement pump, GE long stack or BKB 203 mm pump motor and 500 mm load center.  
Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## J40-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
<b>J40XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36</b>	0.310	61	0.513	101	0.559	110	0.508	100
		<b>48</b>	0.416	82	0.625	123	0.559	110	0.508	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36</b>	0.315	62	0.472	93	0.508	100	0.457	90
		<b>48</b>	0.416	82	0.625	123	0.508	100	0.457	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36</b>	0.310	61	0.462	91	0.528	104	0.467	92
		<b>48</b>	0.406	80	0.610	120	0.528	104	0.467	92
<b>J50XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36</b>	0.284	56	0.513	101	0.574	113	0.508	100
		<b>48</b>	0.376	74	0.625	123	0.574	113	0.508	100
	<b>TWO-STAGE Full Free Lift</b>	<b>36</b>	0.295	58	0.472	93	0.538	106	0.457	90
		<b>48</b>	0.391	77	0.625	123	0.538	106	0.457	90
	<b>THREE-STAGE Full Free Lift</b>	<b>36</b>	0.290	57	0.462	91	0.549	108	0.467	92
		<b>48</b>	0.381	75	0.610	120	0.549	108	0.467	92
<b>J60XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36</b>	0.249	49	0.472	93	0.569	112	0.457	90
		<b>48</b>	0.310	61	0.589	116	0.569	112	0.457	90
	<b>TWO-STAGE Full Free Lift</b>	<b>36</b>	0.249	49	0.416	82	0.538	106	0.366	72
		<b>48</b>	0.330	65	0.554	109	0.538	106	0.366	72
	<b>THREE-STAGE Full Free Lift</b>	<b>36</b>	0.249	49	0.411	81	0.544	107	0.396	78
		<b>48</b>	0.330	65	0.533	105	0.544	107	0.396	78
<b>J65XM</b>	<b>TWO-STAGE Limited Free Lift</b>	<b>36</b>	0.259	51	0.472	93	0.559	110	0.457	90
		<b>48</b>	0.320	63	0.589	116	0.559	110	0.457	90
	<b>TWO-STAGE Full Free Lift</b>	<b>36</b>	0.244	48	0.416	82	0.523	103	0.366	72
		<b>48</b>	0.320	63	0.554	109	0.523	103	0.366	72
	<b>THREE-STAGE Full Free Lift</b>	<b>36</b>	0.244	48	0.411	81	0.533	105	0.396	78
		<b>48</b>	0.320	63	0.533	105	0.533	105	0.396	78

\* Standard 19 cubic cm (1.16 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J40-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>SCR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
J40XM	<b>TWO-STAGE Limited Free Lift</b>	36	0.279	55	0.483	95	0.559	110	0.508	100
		48	0.371	73	0.589	116	0.559	110	0.508	100
	<b>TWO-STAGE Full Free Lift</b>	36	0.295	58	0.442	87	0.508	100	0.457	90
		48	0.391	77	0.589	116	0.508	100	0.457	90
	<b>THREE-STAGE Full Free Lift</b>	36	0.290	57	0.437	86	0.528	104	0.467	92
		48	0.381	75	0.574	113	0.528	104	0.467	92
J50XM	<b>TWO-STAGE Limited Free Lift</b>	36	0.269	53	0.483	95	0.574	113	0.508	100
		48	0.357	70	0.589	116	0.574	113	0.508	100
	<b>TWO-STAGE Full Free Lift</b>	36	0.279	55	0.442	87	0.538	106	0.457	90
		48	0.366	72	0.589	116	0.538	106	0.457	90
	<b>THREE-STAGE Full Free Lift</b>	36	0.274	54	0.437	86	0.549	108	0.467	92
		48	0.361	71	0.574	113	0.549	108	0.467	92
J60XM	<b>TWO-STAGE Limited Free Lift</b>	36	0.234	46	0.442	87	0.569	112	0.457	90
		48	0.305	60	0.554	109	0.569	112	0.457	90
	<b>TWO-STAGE Full Free Lift</b>	36	0.234	46	0.391	77	0.538	106	0.366	72
		48	0.310	61	0.518	102	0.538	106	0.366	72
	<b>THREE-STAGE Full Free Lift</b>	36	0.234	46	0.386	76	0.544	107	0.396	78
		48	0.310	61	0.503	99	0.544	107	0.396	78
J65XM	<b>TWO-STAGE Limited Free Lift</b>	36	0.234	44	0.442	87	0.559	110	0.457	90
		48	0.295	58	0.554	109	0.559	110	0.457	90
	<b>TWO-STAGE Full Free Lift</b>	36	0.229	45	0.391	77	0.523	103	0.366	72
		48	0.300	59	0.518	102	0.523	103	0.366	72
	<b>THREE-STAGE Full Free Lift</b>	36	0.229	45	0.386	76	0.533	105	0.396	78
		48	0.300	59	0.503	99	0.533	105	0.396	78

\* Standard 19 cubic cm (1.16 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J40-65XM MAST SPEEDS (36 or 48 Volt) Americas

<b>CONTACTOR CONTROLLED STANDARD MOTOR &amp; SMALL LIFT PUMP*</b>										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
J40XM	TWO-STAGE Limited Free Lift	36	0.218	43	0.345	68	0.559	110	0.508	100
		48	0.290	57	0.457	90				
	TWO-STAGE Full Free Lift	36	0.229	45	0.356	70	0.508	100	0.457	90
		48	0.305	60	0.472	93				
	THREE-STAGE Full Free Lift	36	0.224	44	0.351	69	0.528	104	0.467	92
		48	0.295	58	0.467	92				
J50XM	TWO-STAGE Limited Free Lift	36	0.213	42	0.345	68	0.574	113	0.508	100
		48	0.279	55	0.457	90				
	TWO-STAGE Full Free Lift	36	0.224	44	0.356	70	0.538	106	0.457	90
		48	0.395	58	0.472	93				
	THREE-STAGE Full Free Lift	36	0.218	43	0.351	69	0.549	108	0.467	92
		48	0.290	57	0.467	92				
J60XM	TWO-STAGE Limited Free Lift	36	0.183	36	0.305	60	0.569	112	0.457	90
		48	0.244	48	0.406	80				
	TWO-STAGE Full Free Lift	36	0.188	37	0.310	61	0.538	106	0.366	72
		48	0.249	49	0.417	82				
	THREE-STAGE Full Free Lift	36	0.188	37	0.310	61	0.544	107	0.396	78
		48	0.249	49	0.411	81				
J60XM	TWO-STAGE Limited Free Lift	36	0.178	35	0.305	60	0.559	110	0.457	90
		48	0.239	47	0.406	80				
	TWO-STAGE Full Free Lift	36	0.183	36	0.310	61	0.523	103	0.366	72
		48	0.244	48	0.417	82				
	THREE-STAGE Full Free Lift	36	0.183	36	0.310	61	0.533	105	0.396	78
		48	0.244	48	0.411	81				

\* Slow (lift) speed 12 cubic cm (0.73 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J40-65XM, J40-65XM<sub>2</sub>, MAST SPEEDS (36 or 48 Volt) (3/99) Americas

190 mm (7.5 in) MOTOR & LARGE LIFT PUMP*										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/min	m/sec	ft/min	m/sec	ft/min	m/sec	ft/min
J40XM J40XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.188 0.253	61 82	0.513 0.625	101 123	0.339	110	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.191 0.253	62 82	0.472 0.625	93 123	0.308	100	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.188 0.246	61 80	0.462 0.610	91 120	0.320	104	0.283	92
J50XM J50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.172 0.228	56 74	0.513 0.625	101 123	0.348	113	0.308	100
	TWO-STAGE Full Free Lift	36 48	0.179 0.237	58 77	0.472 0.625	93 123	0.326	106	0.277	90
	THREE-STAGE Full Free Lift	36 48	0.176 0.231	57 75	0.462 0.610	91 120	0.333	108	0.283	92
J60XM J60XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.151 0.188	49 61	0.513 0.625	93 116	0.345	112	0.277	90
	TWO-STAGE Full Free Lift	36 48	0.151 0.200	49 65	0.472 0.625	82 109	0.326	106	0.222	72
	THREE-STAGE Full Free Lift	36 48	0.151 0.200	49 65	0.462 0.610	81 105	0.329	107	0.240	78
J65XM J65XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.157 0.194	51 63	0.513 0.625	93 116	0.339	110	0.277	90
	TWO-STAGE Full Free Lift	36 48	0.148 0.194	48 63	0.472 0.625	82 109	0.317	103	0.222	72
	THREE-STAGE Full Free Lift	36 48	0.148 0.194	48 63	0.462 0.610	81 105	0.323	105	0.240	78

\*Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 610 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## J40-65XM, J40-65XM<sub>2</sub>, MAST SPEEDS (36 or 48 Volt) (3/99) Americas

190 mm (7.5 in) MOTOR & SMALL LIFT PUMP*										
MODEL	MAST	V	LIFTING				LOWERING			
			RATED LOAD		NO LOAD		RATED LOAD		NO LOAD	
			m/sec	ft/sec	m/sec	ft/sec	m/sec	ft/sec	m/sec	ft/sec
J40XM J40XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.136 0.182	44 59	0.209 0.277	68 90	0.339	110	0.308	
	TWO-STAGE Full Free Lift	36 48	0.139 0.188	45 61	0.216 0.286	70 93	0.308	100	0.277	
	THREE-STAGE Full Free Lift	36 48	0.139 0.185	45 60	0.212 0.283	69 92	0.320	104	0.283	
J50XM J50XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.129 0.169	42 55	0.209 0.277	68 90	0.348	113	0.308	
	TWO-STAGE Full Free Lift	36 48	0.136 0.179	44 58	0.216 0.286	70 93	0.326	106	0.277	
	THREE-STAGE Full Free Lift	36 48	0.132 0.176	43 57	0.212 0.283	69 92	0.333	108	0.283	
J60XM J60XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.111 0.142	36 46	0.185 0.246	60 80	0.345	112	0.277	
	TWO-STAGE Full Free Lift	36 48	0.114 0.151	37 49	0.188 0.252	61 82	0.326	106	0.222	
	THREE-STAGE Full Free Lift	36 48	0.114 0.151	37 49	0.188 0.249	61 81	0.329	107	0.240	
J65XM J65XM <sub>2</sub>	TWO-STAGE Limited Free Lift	36 48	0.108 0.145	35 47	0.185 0.246	60 80	0.339	110	0.277	
	TWO-STAGE Full Free Lift	36 48	0.111 0.148	36 48	0.188 0.252	61 82	0.317	103	0.222	
	THREE-STAGE Full Free Lift	36 48	0.111 0.148	36 48	0.188 0.249	61 81	0.323	105	0.240	

\*Slow (lift) speed 12 cubic cm (0.73 cubic in) displacement pump, 190 mm (7.5 in) standard pump motor and 610 mm (24 in) load center.

Oil temperature 54 to 66°C (130 to 150°F). Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONT. OR TRANSISTOR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72	0.376	0.544	0.559	0.508
		80	0.422	0.605		
	TWO-STAGE Full Free Lift	72	0.396	0.569	0.508	0.457
		80	0.442	0.635		
	THREE-STAGE Full Free Lift	72	0.386	0.559	0.528	0.467
		80	0.432	0.625		
J2.50XM	TWO-STAGE Limited Free Lift	72	0.345	0.544	0.574	0.508
		80	0.391	0.605		
	TWO-STAGE Full Free Lift	72	0.366	0.569	0.538	0.457
		80	0.411	0.635		
	THREE-STAGE Full Free Lift	72	0.356	0.559	0.549	0.467
		80	0.401	0.625		
J3.00XM	TWO-STAGE Limited Free Lift	72	0.300	0.488	0.569	0.457
		80	0.335	0.544		
	TWO-STAGE Full Free Lift	72	0.310	0.503	0.538	0.366
		80	0.345	0.564		
	THREE-STAGE Full Free Lift	72	0.310	0.503	0.544	0.396
		80	0.345	0.559		
J3.20XM	TWO-STAGE Limited Free Lift	72	0.295	0.488	0.559	0.457
		80	0.330	0.544		
	TWO-STAGE Full Free Lift	72	0.300	0.503	0.523	0.366
		80	0.335	0.564		
	THREE-STAGE Full Free Lift	72	0.300	0.503	0.533	0.396
		80	0.335	0.559		

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>SCR CONTROLLED STANDARD MOTOR &amp; LARGE LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72	0.353	0.511	0.559	0.508
		80	0.396	0.568		
	TWO-STAGE Full Free Lift	72	0.372	0.535	0.508	0.457
		80	0.415	0.597		
	THREE-STAGE Full Free Lift	72	0.363	0.525	0.528	0.467
		80	0.406	0.587		
J2.50XM	TWO-STAGE Limited Free Lift	72	0.325	0.511	0.574	0.508
		80	0.368	0.568		
	TWO-STAGE Full Free Lift	72	0.344	0.535	0.538	0.457
		80	0.387	0.597		
	THREE-STAGE Full Free Lift	72	0.334	0.525	0.549	0.467
		80	0.377	0.587		
J3.00XM	TWO-STAGE Limited Free Lift	72	0.282	0.458	0.569	0.457
		80	0.315	0.511		
	TWO-STAGE Full Free Lift	72	0.291	0.473	0.538	0.366
		80	0.325	0.530		
	THREE-STAGE Full Free Lift	72	0.291	0.473	0.544	0.396
		80	0.325	0.525		
J3.20XM	TWO-STAGE Limited Free Lift	72	0.277	0.458	0.559	0.457
		80	0.310	0.511		
	TWO-STAGE Full Free Lift	72	0.282	0.473	0.523	0.366
		80	0.315	0.530		
	THREE-STAGE Full Free Lift	72	0.282	0.473	0.533	0.396
		80	0.315	0.525		

\* Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.



## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONT. OR TRANSISTOR CONTROLLED STANDARD MOTOR &amp; SMALL LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72	0.290	0.411	0.559	0.508
		80	0.310	0.462		
	TWO-STAGE Full Free Lift	72	0.300	0.432	0.508	0.457
		80	0.330	0.478		
	THREE-STAGE Full Free Lift	72	0.295	0.422	0.528	0.467
		80	0.320	0.472		
J2.50XM	TWO-STAGE Limited Free Lift	72	0.274	0.411	0.574	0.508
		80	0.295	0.462		
	TWO-STAGE Full Free Lift	72	0.279	0.432	0.538	0.457
		80	0.305	0.478		
	THREE-STAGE Full Free Lift	72	0.279	0.422	0.549	0.467
		80	0.300	0.472		
J3.00XM	TWO-STAGE Limited Free Lift	72	0.229	0.371	0.569	0.457
		80	0.259	0.411		
	TWO-STAGE Full Free Lift	72	0.234	0.381	0.538	0.366
		80	0.259	0.422		
	THREE-STAGE Full Free Lift	72	0.234	0.366	0.544	0.396
		80	0.259	0.422		
J3.20XM	TWO-STAGE Limited Free Lift	72	0.229	0.371	0.559	0.457
		80	0.254	0.411		
	TWO-STAGE Full Free Lift	72	0.229	0.381	0.523	0.366
		80	0.254	0.422		
	THREE-STAGE Full Free Lift	72	0.229	0.366	0.533	0.396
		80	0.254	0.422		

\* Slow (lift) speed 12 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

<b>CONT. OR TRANSISTOR CONTROLLED OPTIONAL MOTOR &amp; LARGE LIFT PUMP*</b>						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72	0.396	0.554	0.559	0.508
		80	0.442	0.620		
	TWO-STAGE Full Free Lift	72	0.406	0.579	0.508	0.457
		80	0.457	0.645		
	THREE-STAGE Full Free Lift	72	0.401	0.559	0.528	0.467
		80	0.452	0.635		
J2.50XM	TWO-STAGE Limited Free Lift	72	0.371	0.554	0.574	0.508
		80	0.416	0.620		
	TWO-STAGE Full Free Lift	72	0.386	0.579	0.538	0.457
		80	0.432	0.645		
	THREE-STAGE Full Free Lift	72	0.376	0.559	0.549	0.467
		80	0.422	0.635		
J3.00XM	TWO-STAGE Limited Free Lift	72	0.320	0.498	0.569	0.457
		80	0.361	0.554		
	TWO-STAGE Full Free Lift	72	0.325	0.513	0.538	0.366
		80	0.366	0.574		
	THREE-STAGE Full Free Lift	72	0.325	0.508	0.544	0.396
		80	0.366	0.569		
J3.20XM	TWO-STAGE Limited Free Lift	72	0.315	0.498	0.559	0.457
		80	0.351	0.554		
	TWO-STAGE Full Free Lift	72	0.320	0.513	0.523	0.366
		80	0.361	0.574		
	THREE-STAGE Full Free Lift	72	0.320	0.508	0.533	0.396
		80	0.356	0.569		

\* Standard 19 cubic cm displacement pump, 190 mm GE long stack or BKB 203 mm pump motor and 500 mm load center. Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) Europe

SCR CONTROLLED OPTIONAL MOTOR & LARGE LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72	0.372	0.520	0.559	0.508
		80	0.415	0.583		
	TWO-STAGE Full Free Lift	72	0.382	0.544	0.508	0.457
		80	0.430	0.606		
	THREE-STAGE Full Free Lift	72	0.377	0.535	0.528	0.467
		80	0.425	0.597		
J2.50XM	TWO-STAGE Limited Free Lift	72	0.349	0.520	0.574	0.508
		80	0.392	0.583		
	TWO-STAGE Full Free Lift	72	0.363	0.544	0.538	0.457
		80	0.406	0.606		
	THREE-STAGE Full Free Lift	72	0.353	0.535	0.549	0.467
		80	0.396	0.597		
J3.00XM	TWO-STAGE Limited Free Lift	72	0.301	0.468	0.569	0.457
		80	0.339	0.520		
	TWO-STAGE Full Free Lift	72	0.306	0.482	0.538	0.366
		80	0.344	0.540		
	THREE-STAGE Full Free Lift	72	0.306	0.478	0.544	0.396
		80	0.344	0.535		
J3.20XM	TWO-STAGE Limited Free Lift	72	0.296	0.468	0.559	0.457
		80	0.329	0.520		
	TWO-STAGE Full Free Lift	72	0.301	0.482	0.523	0.366
		80	0.339	0.540		
	THREE-STAGE Full Free Lift	72	0.301	0.478	0.533	0.396
		80	0.334	0.535		

\* Standard 19 cubic cm displacement pump, 190 mm GE long stack or BKB 203 mm pump motor and 500 mm load center. Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. No Load lowering speeds are minimum values. Rated Load lowering speeds are maximum values.

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) (3/99) Europe

190 mm MOTOR & LARGE LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72 80	0.228 0.256	0.330 0.366	0.345	0.308
	TWO-STAGE Full Free Lift	72 80	0.240 0.268	0.345 0.388	0.317	0.277
	THREE-STAGE Full Free Lift	72 80	0.234 0.262	0.339 0.379	0.326	0.283
J2.50XM	TWO-STAGE Limited Free Lift	72 80	0.209 0.237	0.330 0.366	0.354	0.308
	TWO-STAGE Full Free Lift	72 80	0.222 0.249	0.345 0.388	0.336	0.277
	THREE-STAGE Full Free Lift	72 80	0.216 0.243	0.339 0.37	0.339	0.283
J3.00XM	TWO-STAGE Limited Free Lift	72 80	0.182 0.203	0.296 0.330	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.188 0.209	0.305 0.342	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.188 0.209	0.305 0.339	0.323	0.240
J3.20XM	TWO-STAGE Limited Free Lift	72 80	0.179 0.200	0.296 0.330	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.182 0.203	0.305 0.342	0.323	0.222
	THREE-STAGE Full Free Lift	72 80	0.182 0.203	0.305 0.339	0.330	0.240

\*Standard 19 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) (3/99) Europe

190 mm MOTOR & SMALL LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72 80	0.176 0.188	0.249 0.280	0.339	0.308
	TWO-STAGE Full Free Lift	72 80	0.182 0.200	0.262 0.290	0.308	0.277
	THREE-STAGE Full Free Lift	72 80	0.179 0.194	0.256 0.286	0.320	0.283
J2.50XM	TWO-STAGE Limited Free Lift	72 80	0.166 0.179	0.249 0.280	0.348	0.308
	TWO-STAGE Full Free Lift	72 80	0.169 0.185	0.262 0.290	0.326	0.277
	THREE-STAGE Full Free Lift	72 80	0.169 0.182	0.256 0.286	0.333	0.283
J3.00XM	TWO-STAGE Limited Free Lift	72 80	0.139 0.157	0.225 0.249	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.142 0.157	0.231 0.256	0.326	0.222
	THREE-STAGE Full Free Lift	72 80	0.142 0.157	0.222 0.256	0.329	0.240
J3.20XM	TWO-STAGE Limited Free Lift	72 80	0.139 0.154	0.225 0.249	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.139 0.154	0.231 0.256	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.139 0.154	0.222 0.256	0.323	0.240

\*Slow (lift) speed 12 cubic cm displacement pump, 190 mm standard pump motor and 500 mm load center.

Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## J2.00-3.20XM MAST SPEEDS (72 or 80 Volt) (3/99) Europe

203 or 190 mm LONG STACK MOTOR & LARGE LIFT PUMP*						
MODEL	MAST	V	LIFTING		LOWERING	
			RATED LOAD	NO LOAD	RATED LOAD	NO LOAD
			m/sec	m/sec	m/sec	m/sec
J2.00XM	TWO-STAGE Limited Free Lift	72 80	0.240 0.268	0.336 0.376	0.339	0.308
	TWO-STAGE Full Free Lift	72 80	0.246 0.277	0.351 0.391	0.308	0.277
	THREE-STAGE Full Free Lift	72 80	0.243 0.274	0.345 0.385	0.320	0.283
J2.50XM	TWO-STAGE Limited Free Lift	72 80	0.225 0.252	0.336 0.376	0.348	0.308
	TWO-STAGE Full Free Lift	72 80	0.234 0.262	0.351 0.391	0.326	0.277
	THREE-STAGE Full Free Lift	72 80	0.278 0.256	0.345 0.385	0.333	0.283
J3.00XM	TWO-STAGE Limited Free Lift	72 80	0.194 0.219	0.302 0.336	0.345	0.277
	TWO-STAGE Full Free Lift	72 80	0.197 0.222	0.311 0.348	0.326	0.222
	THREE-STAGE Full Free Lift	72 80	0.197 0.222	0.308 0.345	0.329	0.240
J3.20XM	TWO-STAGE Limited Free Lift	72 80	0.191 0.212	0.302 0.336	0.339	0.277
	TWO-STAGE Full Free Lift	72 80	0.194 0.219	0.311 0.348	0.317	0.222
	THREE-STAGE Full Free Lift	72 80	0.194 0.216	0.308 0.345	0.323	0.240

\*Slow (lift) speed 19 cubic cm displacement pump, GE long stack or BKB 203 mm pump motor and 500 mm load center.  
 Oil temperature 54 to 66°C. Lifting speeds (valve fully open) ± 10% acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values. N/A = Not Available

## TORQUE SPECIFICATIONS

ITEM	SPECIFICATION
<b>FRAME</b>	
Overhead Guard	
Front leg M12 X 1.75 X 50 capscrews (3)	Standard Torque Value
Rear leg M12 X 1.75 X 50 capscrews (2)	Standard Torque Value
Counterweight Capscrews	
Upper capscrews (2)	
E2.00-3.20XM (E45-65XM, E45-65XM <sub>2</sub> )	380 N.m (289 lb <sub>f</sub> ft)
J2.00-3.20XM (J40-65XM, J45-65XM <sub>2</sub> )	320 N.m (236lb <sub>f</sub> ft)
Lower (tow pin) M12 X 1.75 X 90 capscrews (2)	66 N.m (49 lb <sub>f</sub> ft)
Cover <sup>3</sup> / <sub>8</sub> UNC X 1 <sup>1</sup> / <sub>4</sub> capscrews (2)	52 N.m (38 lb <sub>f</sub> ft)
<b>DRIVE AXLE, SPEED REDUCER AND DIFFERENTIAL E2.00-3.20XM (E45-65XM, E45-65XM<sub>2</sub> And N30XMH, N30XMH<sub>2</sub>)</b>	
Wheel Nuts	237-305 N.m (175-225 lb <sub>f</sub> ft)
Wheel Locknut	205 N.m (151 lb <sub>f</sub> ft) Initial 34 N.m (25 lb <sub>f</sub> ft) Final
Axle Housing (differential) to Spindle Housing (axle) M12 X 1.75 X 35 capscrews (16 each side)	90 N.m (66 lb <sub>f</sub> ft)
Axle Flange M12 X 1.75 X 35 Capscrews (16 ea. axle)	90 N.m (66 lb <sub>f</sub> ft)
Axle Hangers to Frame	
Torque wrench on Head of Bolt	780 N.m (575 lb <sub>f</sub> ft)
Torque wrench on Nut of Bolt	715 N.m (527 lb <sub>f</sub> ft)
Back Plate to Axle Mount Capscrews (8)	255 N.m (188 lb <sub>f</sub> ft)
Wheel Cylinder M8 X 1.25 capscrews	13-20 N.m (10-15 lb <sub>f</sub> ft)
Ring Gear to Differential Case 7/16 UNF X 1 bolts (12)	111 N.m (82 lb <sub>f</sub> ft)
Differential Case Halves 3/8 UNF x 3-1/2 capscrews (8)	50 N.m (37 lb <sub>f</sub> ft)
Bearing Cap Capscrews for Differential Bearings (4)	95-110 N.m (70-80 lb <sub>f</sub> ft)
Lock Plate Capscrews for the Adjusting Nuts (2)	19 N.m (14 lb <sub>f</sub> ft)
Locknut for Thrust Screw	68-95 N.m (50-70 lb <sub>f</sub> ft)
Pinion Nut (use shims to set rotating torque with nut tight)	340 N.m (251 lb <sub>f</sub> ft)
Speed Reducer Housing to Axle (differential) Housing E2.00-3.20XM (E45-65XM, E45-65XM <sub>2</sub> ) And (N30XMH, N30XMH <sub>2</sub> ) only	
M10 x 1.5 x 30 bolts (6)	38 N.m (28 lb <sub>f</sub> ft)
M10 x 1.5 x 40 bolts (2)	38 N.m (28 lb <sub>f</sub> ft)
Traction Motor to Speed Reducer	
M10 x 1.5 x 35 bolts (2)	38 N.m (28 lb <sub>f</sub> ft)
M10 x 1.5 x 70 bolts (6)	38 N.m (28 lb <sub>f</sub> ft)

## TORQUE SPECIFICATIONS

ITEM	TORQUE
<b>DRIVE AXLE, SPEED REDUCER AND DIFFERENTIAL J2.00-3.20XM (J40-65XM, J40-65XM<sub>2</sub>)</b>	
Axle Mounts To Frame	
Torque Wrench On Head Of Bolt	540 N.m (400 lb <sub>f</sub> ft)
Torque Wrench On Nut Of Bolt	473 N.m (350 to 525 lb <sub>f</sub> ft)
Axle Housing To Differential Housing	38 N.m (28 lb <sub>f</sub> ft)
Axle Shaft Capscrews	98 N.m (72 lb <sub>f</sub> ft)
Back Plate To Axle Mount Capscrews	
5/8 in Capscrews	245 N.m (180 lb <sub>f</sub> ft)
1/2 in Capscrews	125 N.m (92 lb <sub>f</sub> ft)
Bearing Cap Capscrews For Differential Bearings	95 to 110 N.m (14 lb <sub>f</sub> ft)
Bearing Cap Capscrews For Speed Reducer	19 N.m (14 lb <sub>f</sub> ft)
Differential Case Halves	50 N.m (37 lb <sub>f</sub> ft)
Drive Gear To Differential Case	111 N.m (82 lb <sub>f</sub> ft)
Retainer Capscrews For Adjustment Nuts	19 N.m (14 lb <sub>f</sub> ft)
Speed Reducer Housing To Differential Housing	52 N.m (38 lb <sub>f</sub> ft)
Traction Motor To Speed Reducer Housing	38 N.m (28 lb <sub>f</sub> ft)
Wheel Cylinder Capscrews	
7/16 in Capscrews	78 to 91 N.m (58 to 67 lb <sub>f</sub> ft)
1/2 in Capscrews	91 to 102 N.m (67 to 75 lb <sub>f</sub> ft)
Wheel Nuts	237 to 305 N.m (175 to 222 lb <sub>f</sub> ft)
<b>STEERING AXLE E2.00-3.20XM (E45-65XM, E45-65XM<sub>2</sub> And N30XMH, N30XMH<sub>2</sub>)</b>	
Mount Brackets M12 x 1.75 x 45 bolts (4)	88 N.m (65 lb <sub>f</sub> ft)
Steering Cylinder to Axle capscrews	
M16 x 2 x 130 (4)	121 N.m (89 lb <sub>f</sub> ft)
Tie Rod Nuts 3/4 UNF (2)	163 N.m (120 lb <sub>f</sub> ft)
Capscrews, Lower Spindle Cap (6)	
3/8 UNC X 1	44 N.m (32 lb <sub>f</sub> ft)
Castle Nut, Wheel Hub (2)	Initial: 68 Nm (50 lb <sub>f</sub> ft) while rotating wheel Loosen, then 3 Nm (2 lb <sub>f</sub> ft)



## TORQUE SPECIFICATIONS

ITEM	TORQUE
<b>STEERING AXLE J2.00-3.20XM (J40-65XM, J40-65XM<sub>2</sub>)</b>	
Mount Brackets M12 x 1.75 x 45 bolts (4)	88 N.m (65 lb <sub>f</sub> ft)
Steering Cylinder to Axle capscrews M16 x 2 x 50 (8)	225 N.m (166 lb <sub>f</sub> ft)
Castle Nut, King Pin (2)	90 N.m (66 lb <sub>f</sub> ft) Initial 34 N.m (25 lb <sub>f</sub> ft) Final
Castle Nut, Wheel Hub (2)	Initial: 68 Nm (50 lb <sub>f</sub> ft) while rotating wheel Loosen, then 3 Nm (2 lb <sub>f</sub> ft)
Wheel Nut (20)	237 to 305 N.m (174 to 225 lb <sub>f</sub> ft)
<b>MASTS</b>	
Capscrews, Hanger Caps M12 X 1.75 X 100 (4)	90 N.m (66 lb <sub>f</sub> ft)
Mast To Mount Pivot Pins	130 N.m (96 lb <sub>f</sub> ft)
Tilt Rod End M12 X 1.75 X 55 (2)	90 N.m (66 lb <sub>f</sub> ft)
<b>SEAT BRAKE</b>	
Lever Arm Pivot at Motor M12 X 1.75 (1)	40 N.m (30 lb <sub>f</sub> ft)
Brake Drum Mount (to armature shaft) M12 X 1.75 X 50 (1)	66 N.m (49 lb <sub>f</sub> ft) lubed

## REFERENCE TABLE

<b>Adhesives And Sealants</b>			
<b>Hyster Part No.</b>	<b>Loctite® Part No.</b>	<b>Description</b>	<b>Size</b>
360387	222	Small Screw Threadlock (Purple)	50 ml (1.7 oz.)
318702 *	242	Removable Threadlock (Blue)	10 ml (0.34 oz.)
226414 *	271	High Strength Threadlock (Red)	10 ml (0.34 oz.)
318996	277	High Viscosity Threadlock (Red)	50 ml (1.7 oz.)
318650	290	Low Viscosity Threadlock (Green)	0.6 ml (0.02 oz.)
251099	290	Low Viscosity Threadlock (Green)	50 ml (1.7 oz.)
355844 *	422	SuperBonder® Adhesive	3 ml (0.1 oz.)
350830	515	Gasket Eliminator (Purple)	6 ml (0.2 oz.)
313022 *	515	Gasket Eliminator (Purple)	50 ml (1.7 oz.)
273338 *	567	Pipe Sealant with Teflon® (White)	50 ml (1.7 oz.)
318705	595	Super Flex® Silicone	100 ml (3.5 oz.)
318701 *	609	Retaining Compound	10 ml (0.34 oz.)
341959	680	Retaining Compound	50 ml (1.7 oz.)
226415		Primer T - Aerosol	177 ml (6 oz.)
316865		Anti-Seize Compound	476 ml (1 lb)
360053-10		Chisel Gasket Remover (10 Aerosol cans per case)	536 ml (18 oz.)
318700 *		Adhesive & Sealant Kit [Contains one each of * items]	

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