SERVICE REPAIR

MANUAL

Hyster C210 (N30XMH2) Forklift

HYSTER

CAPACITIES AND SPECIFICATIONS

E2.00-3.20XM (E45-65XM, E45-65XM$_2$) [F108]; J2.00-3.20XM (J40-65XM, J40-65XM$_2$) [A216]; N30XMH, N30XMH$_2$ [C210]

HM210973

HYSTER

PART NO. 897641

8000 SRM 561

SAFETY PRECAUTIONS
MAINTENANCE AND REPAIR

- When lifting parts or assemblies, make sure all slings, chains, or cables are correctly fastened, and that the load being lifted is balanced. Make sure the crane, cables, and chains have the capacity to support the weight of the load.
- Do not lift heavy parts by hand, use a lifting mechanism.
- Wear safety glasses.
- DISCONNECT THE BATTERY CONNECTOR before doing any maintenance or repair on electric lift trucks.
- Disconnect the battery ground cable on internal combustion lift trucks.
- Always use correct blocks to prevent the unit from rolling or falling. See HOW TO PUT THE LIFT TRUCK ON BLOCKS in the **Operating Manual** or the **Periodic Maintenance** section.
- Keep the unit clean and the working area clean and orderly.
- Use the correct tools for the job.
- Keep the tools clean and in good condition.
- Always use **HYSTER APPROVED** parts when making repairs. Replacement parts must meet or exceed the specifications of the original equipment manufacturer.
- Make sure all nuts, bolts, snap rings, and other fastening devices are removed before using force to remove parts.
- Always fasten a DO NOT OPERATE tag to the controls of the unit when making repairs, or if the unit needs repairs.
- Be sure to follow the **WARNING** and **CAUTION** notes in the instructions.
- Gasoline, Liquid Petroleum Gas (LPG), Compressed Natural Gas (CNG), and Diesel fuel are flammable. Be sure to follow the necessary safety precautions when handling these fuels and when working on these fuel systems.
- Batteries generate flammable gas when they are being charged. Keep fire and sparks away from the area. Make sure the area is well ventilated.

NOTE: The following symbols and words indicate safety information in this manual:

WARNING

Indicates a condition that can cause immediate death or injury!

CAUTION

Indicates a condition that can cause property damage!

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E2.00-3.20XM (E45-65XM, E45-65XM$_2$) [F108];
J2.00-3.20XM (J40-65XM, J40-65XM$_2$) [A216];
N30XMH, N30XMH$_2$ [C210]

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"THE QUALITY KEEPERS"

HYSTER APPROVED PARTS

Counterweights

Model	* mm (* in.)	Weight + 50 kg (110 lb) − 0 kg (0 lb)
E2.00XM and E2.50XM E2.50XM (E50XM and E50XM$_2$) E3.00XM	700 mm (27.6 in.) 847 mm (33.3 in.) 1015 mm (40.0 in.)	544 kg (1200 lb)
(E45XM and E45XM$_2$) (E55XM, E55XM$_2$) and E2.50XM (E65XM, E65XM$_2$), E3.00XM E3.20XM and (N30XMH, N30XMH$_2$)	700 mm (27.6 in.) 847 mm (33.3 in.) 1015 mm (40.0 in.)	770 kg (1700 lb)
(E50XM, E50XM$_2$) and E2.50XM (E60XM, E60XM$_2$) and E3.00XM	700 mm (27.6 in.) 847 mm (33.3 in.)	976 kg (2152 lb)
J2.00XM and J2.50XM (J40XM, J40XM$_2$ and J50XM, J50XM$_2$) J2.50XM and J3.00XM (J50XM, J50XM$_2$ and J60XM, J60XM$_2$)	717 mm (28.2 in.) 861 mm (33.9 in.)	678 kg (1495 lb)
J3.20XM and (J65XM, J65XM$_2$)	861 mm (33.9 in.)	749 kg (1651 lb)
*Approximate battery compartment lengths (identifies frame size).		

Hydraulic System

Item	Specification
Relief Pressure, Lift System	
E2.00-3.20XM (E45-65XM, E45-65XM$_2$) and (N30XMH, N30XMH$_2$)	21.7 ±0.7 MPa (3100 ±100 psi)
J2.00-3.20XM (J40-65XM, J40-65XM$_2$)	21.0 ±0.7 MPa (3000 ±100 psi)
Relief Pressure, Tilt System	
With Auxiliary Relief Valve	15.75 ±0.7 MPa (2250 ±100 psi)
Without Auxiliary Relief Valve	21.7 ±0.7 MPa (3100 ±100 psi)
Relief Pressure, Auxiliary	15.75 ±0.7 MPa (2250 ±100 psi)
Relief Pressure, Steering System	8620 ±345 kPa (1250 ±50 psi)
*Oil temperature 54 to 66°C (130 to 150°F).	

Wheels and Tires

Item	Specification
Torque - Wheel Nuts, Drive Tires	237 to 305 N•m (175 to 225 lbf ft)
Torque - Wheel Nuts, Steering Tires	34 N•m (25 lbf ft)
E2.00-3.00XM (E45-65XM, E45-65XM$_2$ and N30XMH, N30XMH$_2$)	
Drive Tires, Size Standard	21 × 7 × 15*
Drive Tires, Size Optional	21 × 8 × 15*
Steering Tires, Size Standard	16 × 5 × 10.5*
Steering Tires, Size Optional	16 × 6 × 10.5*
J2.00-3.20XM (J40-65XM, J40-65XM$_2$)	
Drive Tires, Size Pneumatic	23 × 10-12 16 Ply
Drive Tires, Size Pneumatic Shaped Solid	23 × 10-12/8.0
Steering Tires, Size Pneumatic	18 × 7.00 × 8.00 16 Ply
Steering Tires, Size Pneumatic Shaped Solid	18 × 7.00-8/4.33
*Smooth, lug tread; standard and nonmarking, electric compound and for all models, smooth polyurethane.	

Battery Specifications

E2.00-3.20XM (E45-65XM, E45-65XM$_2$, N30XMH, N30XMH$_2$)

Model	Minimum Compartment Size Length × Width	Battery Size Minimum/ Maximum		Weight	
		Length	Width	Minimum	Maximum
E2.00XM, E2.50XM*	695 × 987 mm (27.4 × 38.8 in.)	978/983 mm (38.5/38.7 in.)	681/691 mm (26.8/27.2 in.)	985 kg (2172 lb)	1453 kg (3203 lb)
E45-50XM (E45-50XM$_2$)*				1044 kg (2302 lb)	1498 kg (3302 lb)
E2.50XM, E3.00XM*	842 × 987 mm (33.2 × 38.8 in.)		800/838 mm (31.5/33.0 in.)	1317 kg (2903 lb)	1771 kg (3904 lb)
(E45-60XM, E45-60XM$_2$)*					
E3.00-3.20XM (E65XM, E65XM$_2$)	1010 × 987 mm (39.8 × 38.8 in.)		1001/1006 mm (39.4/39.6 in.)	1553 kg (3424 lb)	1998 kg (4405 lb)
(N30XMH, N30XMH$_2$)					

*Short Wheelbase
612 mm (24.1 in.) = maximum height for batteries with a cover.
579 mm (22.8 in.) = maximum height for batteries without a cover.

The tolerances of the battery compartment are +3 and −0 mm (+0.118 and −0 in.). 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 0 to 13 mm (0 to 0.5 in.) 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 this table. Adjust the spacer plate and side spacers to prevent the battery from moving more than 13 mm (0.5 in.) forward or backward.

J2.00-3.20XM (J40-65XM, J40-65XM$_2$)

Model	Min. Compartment Size Length × Width	Battery Size Minimum/Maximum		Maximum Weight
		Length	Width	
J2.00-2.50XM* - 72/80V	712 × 986 mm (28.0 × 38.8 in.)	982 mm (38.7 in.)	690 mm (27.2 in.)	1776 kg (3915 lb)
(J40XM, J40XM$_2$, J50XM*, J50XM$_2$*) - 36V				
(J40XM, J40XM$_2$, J50XM*, J50XM$_2$*) - 48V			686 mm (27.0 in.)	1790 kg (3946 lb)
J2.50-3.20XM - 72/80V	856 × 986 mm (33.7 × 38.8 in.)		805 mm (31.7 in.)	2127 kg (4689 lb)
(J50-65XM, J50-65XM$_2$) - 36V				
(J50-65XM, J50-65XM$_2$) - 48V			835 mm (32.9 in.)	2209 kg (4870 lb)

*Short Wheelbase
777 mm (30.6 in.) = maximum height for all batteries.

The tolerances of the battery compartment are +3 and −0 mm (+0.118 and −0 in.). 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 0 to 13 mm (0 to 0.5 in.) 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 this table. Adjust the spacer plate and side spacers to prevent the battery from moving more than 13 mm (0.5 in.) forward or backward.

Capacities

Item	Specification
Hydraulic System (Full Mark on Dipstick)*	
E2.00-3.20XM (E45-65XM, E45-65XM$_2$ and N30XMH, N30XMH$_2$)	23.0 liter (6.1 gal)
J2.00-3.20XM (J40-65XM, J40-65XM$_2$)	27.4 liter (7.23 gal)
Differential/Speed Reducer	
E2.00-3.20XM (E45-65XM, E45-65XM$_2$ and N30XMH, N30XMH$_2$)	4.2 liter (8.8 pt)
J2.00-3.20XM (J40-65XM, J40-65XM$_2$)	3.7 liter (7.8 pt)
Brake Fluid	0.24 liter (0.5 pt)
Hydraulic Pump Capacities**	
Large Lift Pump	19 cc/rev. (1.16 in.^{3}/rev.)
Small Lift Pumps	12 cc/rev. (0.73 in.^{3}/rev.)
Steering Pump	4.23 cc/rev. (0.26 in.^{3}/rev.)

*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$_2$)	0.8	0.03	5.0	0.20

Mast Speeds

E45-65XM MAST SPEEDS (36 OR 48 VOLT) AMERICAS

Contactor Controlled Standard Motor and 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
E45XM	Two-Stage LFL	36 48	0.295 0.442	58 87	0.513 0.625	101 123	0.569	112	0.508	100
	Two-Stage FFL	36 48	0.305 0.406	60 80	0.472 0.625	93 123	0.523	103	0.457	90
	Three-Stage FFL	36 48	0.310 0.396	61 78	0.462 0.610	91 120	0.538	106	0.467	92
	Four-Stage FFL	36 48	0.290 0.401	57 79	0.452 0.569	89 112	0.447	88	0.411	81
E50XM	Two-Stage LFL	36 48	0.284 0.376	56 74	0.513 0.625	101 123	0.574	113	0.508	100
	Two-Stage FFL	36 48	0.295 0.391	58 77	0.472 0.625	93 123	0.538	106	0.457	90
	Three-Stage FFL	36 48	0.290 0.381	57 75	0.462 0.610	91 120	0.549	108	0.467	92
	Four-Stage FFL	36 48	0.279 0.391	55 77	0.452 0.569	89 112	0.447	88	0.411	81
E55XM	Two-Stage LFL	36 48	0.279 0.371	55 73	0.513 0.625	101 123	0.584	115	0.508	100
	Two-Stage FFL	36 48	0.290 0.381	57 75	0.472 0.625	93 123	0.554	109	0.457	90
	Three-Stage FFL	36 48	0.279 0.371	55 73	0.462 0.610	91 120	0.559	110	0.467	92

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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.

Contactor Controlled Standard Motor and 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
E60XM	Two-Stage LFL	36 48	0.249 0.310	49 61	0.472 0.589	93 116	0.569	112	0.457	90
	Two-Stage FFL	36 48	0.249 0.330	49 65	0.416 0.554	82 109	0.538	106	0.366	72
	Three-Stage FFL	36 48	0.249 0.330	49 65	0.411 0.533	81 105	0.544	107	0.396	78
E65XM	Two-Stage LFL	36 48	0.259 0.320	51 63	0.472 0.589	93 116	0.559	110	0.457	90
	Two-Stage FFL	36 48	0.244 0.320	48 63	0.416 0.554	82 109	0.523	103	0.366	72
	Three-Stage FFL	36 48	0.244 0.320	48 63	0.411 0.533	81 105	0.533	105	0.396	78

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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.

SCR Controlled Standard Motor and 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
E45XM	Two-Stage LFL	36 48	0.279 0.361	55 71	0.420 0.559	83 110	0.569	112	0.508	100
	Two-Stage FFL	36 48	0.284 0.381	56 75	0.442 0.589	87 116	0.523	103	0.457	90
	Three-Stage FFL	36 48	0.290 0.371	57 73	0.437 0.574	86 113	0.538	106	0.467	92
	Four-Stage FFL	36 48	0.274 0.376	54 74	0.427 0.533	84 105	0.447	88	0.411	81
E50XM	Two-Stage LFL	36 48	0.269 0.356	53 70	0.422 0.559	83 110	0.574	113	0.508	100
	Two-Stage FFL	36 48	0.279 0.366	55 72	0.442 0.589	87 116	0.538	106	0.457	90
	Three-Stage FFL	36 48	0.274 0.361	54 71	0.437 0.589	86 113	0.549	108	0.467	92
	Four-Stage FFL	36 48	0.264 0.366	52 72	0.437 0.533	84 105	0.447	88	0.411	81
E55XM	Two-Stage LFL	36 48	0.259 0.340	51 67	0.422 0.559	83 110	0.584	115	0.508	100
	Two-Stage FFL	36 48	0.274 0.361	54 71	0.442 0.589	87 116	0.554	109	0.457	90
	Three-Stage FFL	36 48	0.264 0.351	52 69	0.437 0.589	86 113	0.559	110	0.467	92

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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.

SCR Controlled Standard Motor and 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
E60XM	Two-Stage LFL	36 48	0.234 0.305	46 60	0.376 0.518	74 102	0.569	112	0.457	90
	Two-Stage FFL	36 48	0.234 0.310	46 61	0.391 0.518	77 102	0.538	106	0.366	72
	Three-Stage FFL	36 48	0.234 0.310	46 61	0.386 0.503	76 99	0.544	107	0.396	78
E65XM	Two-Stage LFL	36 48	0.224 0.295	44 58	0.376 0.518	74 102	0.559	110	0.457	90
	Two-Stage FFL	36 48	0.229 0.300	45 59	0.391 0.518	77 102	0.523	103	0.366	72
	Three-Stage FFL	36 48	0.229 0.300	45 59	0.386 0.503	76 99	0.533	105	0.396	78

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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.

Contactor Controlled Standard Motor and 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
E45XM	Two-Stage LFL	36 48	0.218 0.290	43 57	0.345 0.457	68 90	0.569	112	0.508	100
	Two-Stage FFL	36 48	0.229 0.305	45 60	0.356 0.472	70 93	0.523	103	0.457	90
	Three-Stage FFL	36 48	0.224 0.295	44 58	0.351 0.467	69 92	0.538	106	0.467	92
	Four-Stage FFL	36 48	0.239 0.310	47 61	0.345 0.437	68 86	0.447	88	0.411	81
E50XM	Two-Stage LFL	36 48	0.213 0.279	42 55	0.345 0.457	68 90	0.574	113	0.508	100
	Two-Stage FFL	36 48	0.224 0.295	44 58	0.356 0.472	70 93	0.538	106	0.457	90
	Three-Stage FFL	36 48	0.218 0.290	43 57	0.351 0.467	69 92	0.549	108	0.467	92
	Four-Stage FFL	36 48	0.234 0.300	46 59	0.345 0.437	68 86	0.447	88	0.411	81
E55XM	Two-Stage LFL	36 48	0.208 0.274	41 54	0.345 0.457	68 90	0.584	115	0.508	100
	Two-Stage FFL	36 48	0.218 0.284	43 56	0.356 0.472	70 93	0.554	109	0.457	90
	Three-Stage FFL	36 48	0.213 0.279	42 55	0.351 0.467	69 92	0.559	110	0.467	92

LFL = Limited Free Lift FFL = Full Free Lift
*Slow (lift) speed 12 cc (0.73 in.^{3}) 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.

Contactor Controlled Standard Motor and 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
E60XM	Two-Stage LFL	36 48	0.183 0.244	36 48	0.305 0.406	60 80	0.569	112	0.457	90
	Two-Stage FFL	36 48	0.188 0.249	37 49	0.310 0.417	61 82	0.538	106	0.366	72
	Three-Stage FFL	36 48	0.188 0.249	37 49	0.310 0.411	61 81	0.544	107	0.396	78
E65XM	Two-Stage LFL	36 48	0.178 0.239	35 47	0.305 0.406	60 80	0.559	110	0.457	90
	Two-Stage FFL	36 48	0.183 0.244	36 48	0.310 0.417	61 82	0.523	103	0.366	72
	Three-Stage FFL	36 48	0.183 0.244	36 48	0.310 0.411	61 81	0.533	105	0.396	78

LFL = Limited Free Lift FFL = Full Free Lift
*Slow (lift) speed 12 cc (0.73 in.^{3}) 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$_2$, N30XMH$_2$ MAST SPEEDS (36 OR 48 VOLT) AMERICAS

190 mm (7.5 in.) Motor and 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
E40XM E40XM$_2$	Two-Stage LFL	36 48	0.310 0.417	61 82	0.513 0.625	101 123	0.559	110	0.508	100
	Two-Stage FFL	36 48	0.315 0.417	62 82	0.472 0.625	93 123	0.508	100	0.457	90
	Three-Stage FFL	36 48	0.310 0.406	61 80	0.462 0.610	91 120	0.528	104	0.467	92
	Four-Stage FFL	36 48	0.300 0.417	59 82	0.452 0.569	89 112	0.447	88	0.411	81
E45XM E45XM$_2$	Two-Stage LFL	36 48	0.295 0.442	58 87	0.513 0.625	101 123	0.569	112	0.508	100
	Two-Stage FFL	36 48	0.305 0.406	60 80	0.472 0.625	93 123	0.523	103	0.457	90
	Three-Stage FFL	36 48	0.310 0.396	61 78	0.462 0.610	91 120	0.538	106	0.467	92
	Four-Stage FFL	36 48	0.290 0.401	57 79	0.452 0.569	89 112	0.447	88	0.411	81

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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

190 mm (7.5 in.) Motor and 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
E50XM **E50XM$_2$**	Two-Stage LFL	36 48	0.284 0.376	56 74	0.513 0.625	101 123	0.574	113	0.508	100
	Two-Stage FFL	36 48	0.295 0.391	58 77	0.472 0.625	93 123	0.538	106	0.457	90
	Three-Stage FFL	36 48	0.290 0.381	57 75	0.462 0.610	91 120	0.549	108	0.467	92
	Four-Stage FFL	36 48	0.279 0.391	55 77	0.452 0.610	89 112	0.447	88	0.411	81
E55XM **E55XM$_2$**	Two-Stage LFL	36 48	0.279 0.371	55 73	0.513 0.625	101 123	0.584	115	0.508	100
	Two-Stage FFL	36 48	0.290 0.381	57 75	0.472 0.625	93 123	0.554	109	0.457	90
	Three-Stage FFL	36 48	0.279 0.371	55 73	0.462 0.610	91 120	0.559	110	0.467	92
E60XM **E60XM$_2$**	Two-Stage LFL	36 48	0.249 0.310	49 61	0.513 0.625	101 123	0.569	112	0.457	90
	Two-Stage FFL	36 48	0.249 0.330	49 65	0.472 0.625	93 123	0.538	106	0.366	72
	Three-Stage FFL	36 48	0.249 0.330	49 65	0.462 0.610	91 120	0.544	107	0.396	78

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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

190 mm (7.5 in.) Motor and 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**
E65XM **E65XM$_2$**	Two-Stage LFL	36 48	0.259 0.320	51 63	0.513 0.625	101 123	0.559	110	0.457	90
	Two-Stage FFL	36 48	0.244 0.320	48 63	0.472 0.625	93 123	0.523	103	0.366	72
	Three-Stage FFL	36 48	0.244 0.320	48 63	0.462 0.610	91 120	0.533	105	0.396	78
N30XMH$_2$	Three-Stage FFL	36 48	N/A N/A	N/A N/A	N/A N/A	N/A N/A	0.462	91	0.462	91

LFL = Limited Free Lift FFL = Full Free Lift
*Standard 19 cc (1.16 in.^{3}) 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

190 mm (7.5 in.) Motor and 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$_2$	Two-Stage LFL	36 48	0.224 0.300	44 59	0.345 0.457	68 90	0.559	110	0.508	100
	Two-Stage FFL	36 48	0.234 0.310	46 61	0.357 0.472	70 93	0.508	100	0.457	90
	Three-Stage FFL	36 48	0.229 0.305	45 60	0.351 0.467	69 92	0.528	104	0.467	92
	Four-Stage FFL	36 48	0.249 0.320	49 63	0.345 0.437	68 86	0.447	88	0.411	81
E45XM E45XM$_2$	Two-Stage LFL	36 48	0.218 0.290	43 57	0.345 0.457	68 90	0.569	112	0.508	100
	Two-Stage FFL	36 48	0.229 0.305	45 60	0.357 0.472	70 93	0.523	103	0.457	90
	Three-Stage FFL	36 48	0.224 0.295	44 58	0.351 0.467	69 92	0.538	106	0.467	92
	Four-Stage FFL	36 48	0.239 0.310	47 61	0.345 0.437	68 86	0.447	88	0.411	81

LFL = Limited Free Lift FFL = Full Free Lift
*Slow (lift) speed 12 cc (0.73 in.^{3}) 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