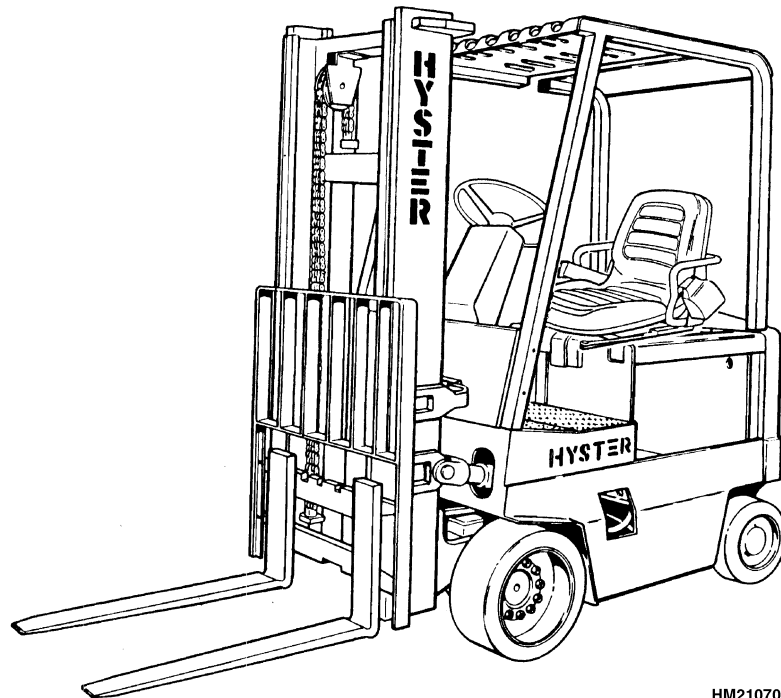


# CAPACITIES AND SPECIFICATIONS

E3.50-5.50XL, E4.50XLS  
(E70-120Z, E100ZS) [D098/E098]



HM210708

# **HYSTER**

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This section is for the following models:  
 E3.50-5.50XL, E4.50XLS (E70-120Z, E100ZS) [D098/E098]

## Lift Truck Lifting Capacity

Model	Kilograms (Pounds)
<b>E3.50XL (E70Z)</b>	3175 kg (7000 lb)
<b>E4.00XL (E80Z)</b>	3628 kg (8000 lb)
<b>E4.50XLS (E100ZS)</b>	4536 kg (10,000 lb)
<b>E4.50XL (E100Z)</b>	4536 kg (10,000 lb)
<b>E5.50XL (E120Z)</b>	5443 kg (12,000 lb)

**NOTE:** Load center at 610 mm (24 in.)

## Counterweight Weights

Model	Kilograms (Pounds)*
<b>E3.50XL (E70Z)</b>	822 kg (1812 lb)
<b>E4.00XL (E80Z)</b>	1253 kg (2762 lb)
<b>E4.50XLS (E100ZS)</b>	1912 kg (4215 lb)
<b>E4.50XL (E100Z)</b>	1253 kg (2762 lb)
<b>E5.50XL (E120Z)</b>	1912 kg (4215 lb)

\* +50/-0 kg (110/0 lb)

## Tire Sizes

Model	Steering	Drive
<b>E3.50-4.00XL (E70-80Z)</b>	18 × 6 × 12-1/8	22 × 9 × 16
<b>E4.50-5.50XL, E4.50XLS (E100-120Z, E100ZS)</b>	18 × 7 × 12-1/8	22 × 12 × 16

## Capacities

Item	Specification
<b>Hydraulic System Capacity</b>	
E3.50XL, E4.00XL, E4.50XLS (E70Z, E80Z, E100ZS)	41.3 liter (10.9 gal)
E4.50XL, E5.50XL (E100Z, E120Z)	49.2 liter (13.0 gal)
<b>Hydraulic Tank Capacity (To Full Mark)</b>	
E3.50XL, E4.00XL, E4.50XLS (E70Z, E80Z, E100ZS)	33.3 liter (8.8 gal)
E4.50XL, E5.50XL (E100Z, E120Z)	39.8 liter (10.5 gal)
<b>Differential/Speed Reducer</b>	5.2 liter (5.5 qt)
<b>Brake Fluid</b>	0.24 liter (0.5 pt)

## Hydraulic System

*Table 1. Manual Control Valve*

Item	Specification
<b>Relief Pressures*</b>	
Lift Circuit	20.6 ±0.7 MPa (3000 ±100 psi)
Tilt Circuit	15.5 ±0.7 MPa (2250 ±100 psi)
* Oil temperature 54 to 66°C (130 to 150°F)	

*Table 2. E-Hydraulic Control Valve*

Item	Specification
<b>Relief Pressures*</b>	
Relief Pressure, Lift System (Primary Relief Valve)	22.06 ±0.7 MPa (3200 ±100 psi)
Relief Pressure, Tilt System and Auxiliary Functions (Secondary Relief Valve)	15.5 ±0.7 MPa (2250 ±100 psi)
* Oil temperature 54 to 66°C (130 to 150°F).	

## Steering System

### SPECIFICATIONS

Item	36 Volt	48/80 Volts
Steering Oil Temperature	49 to 60°C (120 to 140°F)	49 to 60°C (120 to 140°F)
Inside Tire Angle	79°	79°
Number of Turns on Steer Wheel	4.5	4.5
Steering Relief Pressure	10,342 ±345 kPa (1500 ±50 psi)	10,342 ±345 kPa (1500 ±50 psi)
Steering Relief Current	18.4 ±5.0 Amps	18.3 ±5.0 Amps (48 Volt) 11.5 ±5.0 Amps (80 Volt)
Open Center Pressure Maximum	345 kPa (50 psi) Max.	345 kPa (50 psi) Max.
Open Center Current Maximum	3.0 Amps Max.	3.0 Amps Max. (48 Volt) 2.0 Amps Max. (80 Volt)
Steering Time (Unloaded Static)	3.6 Seconds	2.9 Seconds (48 Volt) 3.0 Seconds (80 Volt)
Hand Pump Displacement (Nominal)	100 CC/Rev.	100 CC/Rev.

## TURNING RADIUS

Model	Turning Radius
E3.50XL (E70Z)	2098 mm (82.6 in.)
E4.00XL (E80Z)	2148 mm (84.6 in.)
E4.50XLS (E100ZS)	2225 mm (87.6 in.)
E4.50XL (E100Z)	2314 mm (91.1 in.)
E5.50XL (E120Z)	2405 mm (94.7 in.)
Minimum Turing Radius Average Values $\pm 50$ mm ( $\pm 2$ in.) (WITH LOAD)	

## Mast Speeds

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
E3.50XL (E70Z)	Two-Stage	36 48/80	0.27 0.38	54 76	0.46 0.59	91 118	0.52	104	0.48	95
	Free-Lift	36 48/80	0.26 0.36	51 71	0.44 0.55	84 109	0.45	90	0.37	74
	Three-Stage	36 48/80	0.26 0.36	51 72	0.43 0.53	86 106	0.49	98	0.39	77
E4.00XL (E80Z)	Two-Stage	36 48/80	0.26 0.37	52 73	0.46 0.59	91 118	0.52	104	0.48	95
	Free-Lift	36 48/80	0.25 0.34	49 68	0.42 0.55	84 109	0.45	90	0.37	74
	Three-Stage	36 48/80	0.25 0.35	49 69	0.43 0.53	86 106	0.49	98	0.39	77
E4.50XL, E4.50XLS (E100Z, E100ZS)	Two-Stage	36 48/80	0.20 0.29	40 57	0.35 0.45	69 89	0.45	89	0.37	73
	Free-Lift	36 48/80	0.20 0.27	39 54	0.32 0.41	64 82	0.40	80	0.29	58
	Three-Stage	36 48/80	0.20 0.27	39 54	0.35 0.40	64 80	0.43	86	0.32	63
E5.50XL (E120Z)	Two-Stage	36 48/80	0.19 0.27	38 53	0.35 0.45	69 89	0.45	89	0.37	73
	Free-Lift	36 48/80	0.18 0.25	36 50	0.32 0.41	64 82	0.40	80	0.29	58
	Three-Stage	36 48/80	0.18 0.25	36 50	0.32 0.40	64 80	0.44	88	0.32	63

Oil temperature 55 to 66°C (130 to 150°F). Lifting speeds (valve fully open)  $\pm 10\%$  acceptable. "No Load" lowering speeds are minimum values. "Rated Load" lowering speeds are maximum values.

## Maximum Carriage and Tilt Creep Rates

**NOTE:** Start measurement with mast at vertical position and the load raised to 2.5 m (8.2 ft). Use maximum lift height if the maximum is less than 2.5 m (8.2 ft).

Hydraulic Oil Temperature	Vertical Creep at Carriage		Tilt Creep at Cylinder Rod		
	mm/Min	in./Min	°/Min	mm/Min	in./Min
20°C (68°F)	2.2 mm	0.09 in.	0.11°	0.74 mm	0.029 in.
30°C (86°F)	4.2 mm	0.17 in.	0.21°	1.42 mm	0.54 in.
40°C (104°F)	6.3 mm	0.25 in.	0.31°	2.10 mm	0.83 in.
50°C (122°F)	10.0 mm	0.39 in.	0.50°	3.38 mm	.133 in.
60°C (140°F)	14.6 mm	0.57 in.	0.73°	4.94 mm	.194 in.

## Battery Specifications

Model	Volts	Minimum Compartment Size Length × Width	Battery Length*	Weight	
			Min./Max	Min.	Max.
E3.50-4.00XL (E70-80Z)	36, 48, 80	841 × 987 mm (33.1 × 38.9 in.)	950 to 990 mm (37.4 to 39.0 in.)	1542 kg (3400 lb)	2177 kg (4799 lb)
E4.50XLS (E100ZS)	36, 48, 80	841 × 987 mm (33.1 × 38.9 in.)	950 to 990 mm (37.4 to 39.0 in.)	1633 kg (3600 lb)	2177 kg (4799 lb)
E4.50XL (E100Z)	36, 48, 80	694 × 1037 mm (27.3 × 40.8 in.)	1115 to 1150 mm (43.9 to 45.3 in.)	1814 kg (4000 lb)	2517 kg (5681 lb)
E5.50XL (E120Z)	36, 48, 80	993 × 1146 mm (39.3 × 45.1 in.)	1115 to 1150 mm (43.9 to 45.3 in.)	1919 kg (4231 lb)	2517 kg (5681 lb)

**\*BATTERY WIDTH**

Batteries without cover: 950 to 1117 mm (37.4 to 44.0 in.)

Batteries with cover: 950 to 1143 mm (37.4 to 45.0 in.)

**NOTE:** Maximum tolerances are +0 and -13 mm (+0 and -0.5 in.) for the size of the battery compartment. The battery specification chart shows the maximum size tolerances that will permit the battery to still fit into a battery compartment.

### Traction Motor Speed

Model	Volts	No Load		Rated Load	
		km/h	mph	km/h	mph
<b>E3.50XL(E70Z)</b>	36	12.0	7.5	10.9	6.8
	48/80	13.8	8.6	13.2	8.2
<b>E4.00XL(E80Z)</b>	36	11.7	7.3	10.5	6.5
	48/80	13.8	8.6	12.7	7.9
<b>E4.50XLS (E100ZS) E4.50XL (E100Z)</b>	36	11.4	7.1	9.9	6.2
	48/80	13.7	8.5	12.0	7.5
<b>E5.50XL (E120Z)</b>	36	11.2	7.0	9.7	6.0
	48/80	13.3	8.3	11.6	7.2

**NOTE:** Speeds  $\pm 8\%$  acceptable.  
 30.5 m (100 ft) is the length required for speeds measured with fully charged battery and lift truck run for one-half hour.

### Battery Current at Hoist Relief

Voltage	Battery Current*
36	782 amps
48	728 amps
80	386 amps

\*Battery Current at Hoist Relief  $\pm 50$  amperes.

### Torque Specifications

#### BRAKE SYSTEM

##### Back Plate Nuts

54 to 81 N•m (40 to 60 lbf ft) Initial Torque Sequence  
 108 to 122 N•m (80 to 90 lbf ft) Final Torque Sequence  
 95 to 122 N•m (70 to 90 lbf ft) Verify Torque With Hand Torque Wrench

##### Brake Drum to Hub Nuts (Dual Wheel)

285 N•m (210 lbf ft)

##### Service Brakes Support Plate

55 to 80 N•m (40 to 60 lbf ft)

##### Brake Light Switch Mounting Capscrews

2.0 to 2.3 N•m (18 to 20 lbf in)

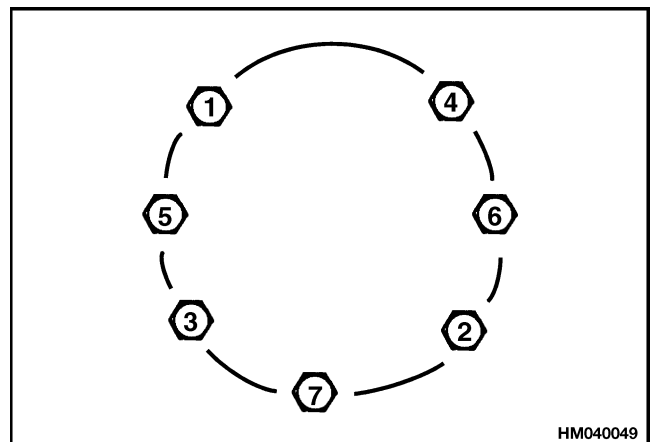


Figure 1. Support Plate Tightening Sequence

**DIFFERENTIAL****Lock Plate Capscrews**

19 N•m (14 lbf ft)

**Adjuster Nuts**

14 N•m (11 lbf ft)

**Bearing Cap Capscrews**

225 N•m (166 lbf ft)

**Differential Case Half Capscrews**

140 N•m (105 lbf ft)

**Ring Gear Capscrews**

140 N•m (105 lbf ft)

**Thrust Screw Nut**

120 N•m (89 lbf ft)

**DRIVE AXLE****Drive Axle to Speed Reducer Case Capscrews**

66 N•m (50 lbf ft)

**Axle Mount Capscrews**

320 N•m (235 lbf ft)

**Axle Shaft Capscrews**

225 N•m (166 lbf ft)

**Wheel Nuts**

680 N•m (500 lbf ft)

**Wheel Bearing Adjustment Nut**

203 N•m (150 lbf ft) Initial

34 N•m (25 lbf ft) Final

**Wheel Bearing Lock Nut**

136 N•m (100 lbf ft)

**Traction Motor to Speed Reducer**

38 N•m (28 lbf ft)

**FRAME****Counterweight Capscrews**

Upper 404 N•m (298 lbf ft)

Lower 66 N•m (49 lbf ft)

**Overhead Guard Mounting Capscrews**

86 N•m (64 lbf ft)

**Hood Hinge**

8 N•m (71 lbf in)

**Traction Motor to Frame**

200 N•m (148 lbf ft) Stud

105 N•m (78 lbf ft) Nut

**MAST****Hanger Caps for Sideshift Carriage**

320 N•m (235 lbf ft)

**Keeper Plate Capscrews**

90 N•m (65 lbf ft)

**Side Roller Mount Capscrews**

90 N•m (65 lbf ft)

**Mobile Frame to Fixed Frame, Sideshift Carriage**

78 N•m (58 lbf ft)

**Bottom Mounting Capscrews, Main Lift Cylinders (2 Stage LFL and 3 Stage FFL Masts)**

38 N•m (28 lbf ft)

**Bottom Mounting Capscrews, Main Lift Cylinders (2 Stage FFL Masts)**

53 N•m (40 lbf ft)

**Main Lift Cylinders Mounting Brackets to Top of Outer Weldment (All Masts)**

18 N•m (159 lbf in)

**Lowering Control Valve**

18 N•m (159 lbf in)

**MAIN CONTROL VALVE****Through Bolt Nuts (5/16 in.)**

20 N•m (15 lbf ft)

**Through Bolt Nuts (3/8 in.)**

45 N•m (35 lbf ft)

**Solenoid End Plate**

4.5 to 5.6 N•m (40 to 50 lbf in)

**STEERING SYSTEM****Axle Mount Capscrews**

88 N•m (65 lbf ft)

**Bearing Cap for Spindles**

52 N•m (38 lbf ft)

**Tie Rod Nut**

175 N•m (129 lbf ft)



**Steering Cylinder Capscrews**

225 N•m (165 lbf ft)

**Wheel Bearing Adjustment Nut**

68 N•m (50 lbf ft) Initial

3 N•m (25 lbf in) Final

**TILT CYLINDERS****Piston Nut**

400 to 445 N•m (295 to 325 lbf ft)

**Retainer**

400 to 500 N•m (295 to 370 lbf ft)

**Rod End Lock Capscrews**

80 N•m (60 lbf ft)

**Anchor Pin Retainer Capscrews**

80 N•m (60 lbf ft)

**Tilt Cylinder to Mast Mounting**

77 N•m (57 lbf ft)

**HYDRAULIC SYSTEM****Hydraulic Pump Rear Valve Housing Capscrews**

46 to 49 N•m (34 to 36 lbf ft)

**Hydraulic Motor Power Cables**

18 to 22 N•m (159.3 to 195 lbf in)

**Hydraulic Pump Hose Connections**

49 N•m (36 lbf ft)

**Steering Motor Power Cables (M6 x 1.0)**

6.5 to 7.0 N•m (57.5 to 62 lbf in)

**Steer Pump Hose Connections**

77 to 80 N•m (56 to 59 lbf ft)

**Steering and Hydraulic Pump and Motor Mounting Bracket Capscrews**

16 N•m (142 lbf in)

**ELECTRICAL SYSTEM**

Electrical Connections:

**#6-32 - Terminal Strip**

0.73 to 1.02 N•m (6.5 to 9.0 lbf in)

**M6 x 1.00 - Power Steer Motor**

4.7 to 5.3 N•m (42 to 47 lbf in)

**M8 x 1.00 - Traction and Pump Motor**

21 to 25 N•m (186 to 221 lbf in)

**M8 x 1.00 - Traction and Pump Controls**

13 to 17 N•m (115 to 150 lbf in)

**M10 x 1.5 - Line and Pump Contactors**

15 to 18 N•m (133 to 159 lbf in)

**Traction and Pump Motor Controllers**

26 to 28 N•m (230 to 248 lbf in)

**Traction Motor Terminal Cable Bolts**

23 to 25 N•m (204 to 221 lbf in)





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