

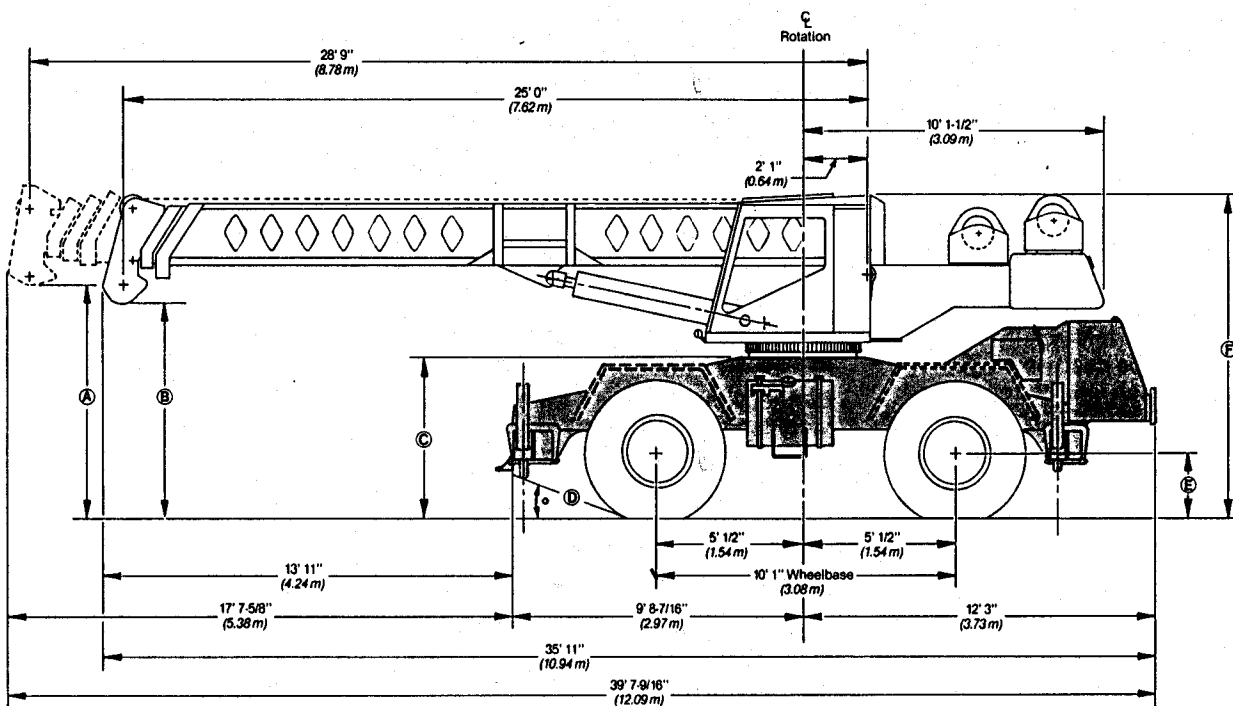
# General Specifications

Link-Belt®

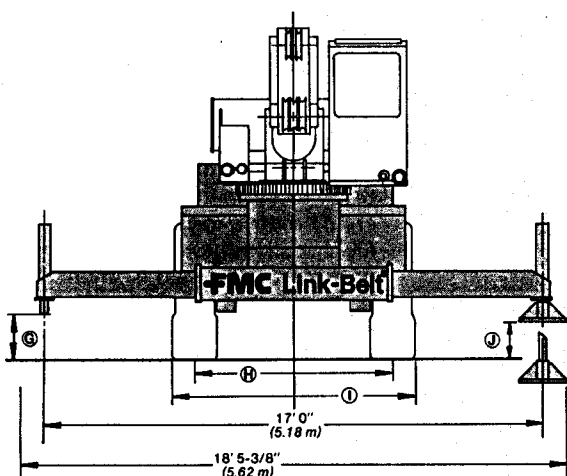
GENERAL INFORMATION ONLY

*Eighty Series* Hydraulic Rough Terrain Crane

**HSP-8020** 20-ton (18.14 metric ton)



Not to scale



General dimensions	Feet	meters
Turning radius (4-wheel steer)	15' 10"	4.83
Tailswing of counterweight	10' 6"	3.20

### Dimensions affected by tires

Tires	16.0 x 24 (16-PR)		17.5 x 25 (16-PR)		20.5 x 25 (20-PR)	
	Feet	meters	Feet	meters	Feet	meters
A	—	—	—	—	8' 3/4"	2.46
B	7' 5"	2.26	7' 2-1/2"	2.20	7' 5-3/4"	2.28
C	5' 7-5/16"	1.71	5' 4-1/2"	1.64	5' 8-1/4"	1.73
D	19.4°	—	16.8°	—	20°	—
E	2' 1-13/16"	0.66	1' 11"	0.58	2' 4-9/16"	0.73
F	11' 7/16"	3.36	10' 9-5/8"	3.29	11' 2-3/4"	3.42
G	20-1/8"	0.51	17-1/4"	0.44	21"	0.53
H	6' 6-7/16"	1.99	6' 5-13/16"	1.91	6' 11-7/16"	2.12
I	8' 0"	2.44	8' 0"	2.44	8' 8-13/16"	2.66
J	12-1/8"	0.31	9-1/4"	0.24	13"	0.33

## Upperstructure



**Boom**

FMC patented design. 25' 0" - 60' 0" (7.62-18.29 m) three-section power boom. Boom side plates have diamond shaped impressions for superior strength to weight ratio and 100,000 p.s.i. (689.5 MPa) steel angle chords for lateral stiffness. Boom telescope sections are supported by wear shoes both vertically and horizontally to prevent metal-to-metal contact.

*Optional boom* — 28' 9" - 91' 0" (8.76 m - 27.74 m) 4-section boom with two power sections and one manual section.

*Optional boom* — 28' 9" - 49' 6" (8.76 m - 15.09 m) 2-section boom with one power section.

*Boom head* — Two, three or four, 10-5/8" (0.27 m) root diameter head sheaves handle up to 8 parts of wire rope. Two easily removable wire rope guards, and rope dead end lugs provided on each side of boom head. Optional 12-1/8" (0.31 m) root diameter head sheaves; meets 23:1 ratio European safety code with 14 mm wire rope.

*Auxiliary lifting sheave* — Optional. Single 10-5/8" (0.27 m) root diameter sheave with removable wire rope guard, mounted to boom. For use with one or two parts of line off the optional auxiliary winch. Does not affect erection of fly, or use of main head sheaves for multiple reeving.

*Boom elevation* — One FMC designed hydraulic cylinder with holding valve. Self-aligning steel bushings. Hand and optional foot controls for controlling 3-section boom elevation from -5° to 80° and 4-section boom elevation from -3° to 80°. Boom angle indicator standard.

### Fly

Optional; 20' 0" (6.10 m) stowable one-piece lattice type. (3-section boom only)

Optional; 24' 0" (7.32 m) stowable one-piece lattice type. (2 & 4 section boom only)

### Jib

Optional; 14' 6" (4.42 m) stowable A-frame. Attaches to boom head only. Can be offset 10°, 20°, and 30°. (2 & 4 section boom only)



**Cab and Controls**

Environmental cab; isolated from vibration by rubber mounts. All tinted, tempered safety glass windows. Sliding rear window and swing up roof window for maximum visibility and ventilation. Slide-by door opens to 3' 0" (0.91 m) width. 3-way adjustable operator's seat. 4-way adjustable tilt/telescoping steering wheel. Ignition and steering wheel key lock. Control levers for swing, boom telescope, winch and boom hoist. Outrigger controls, sight level bubble. Optional foot controls for boom hoist, and swing brake.

**Cab instrumentation** — Dash mounted gauges for hydraulic oil temperature, converter temperature, fuel, water temperature, voltmeter and oil pressure.



**Swing**

Bi-directional hydraulic swing motor mounted to a planetary reducer for 360° continuous smooth swing at 3.0 r.p.m.

*Swing parking brake* — Manually applied-released, disc brake mounted on the speed reducer.

*Swing lock* — Standard two position pin-type (over front and rear) operated from operator's cab.

**Counterweight** — Bolted to upperstructure frame.



**Hydraulic system**

*Main pump* — Double gear-type pump. Powered by carrier engine through a straight mechanical drive or through an optional mechanical clutch pump disconnect. Pump operates at 2,800 p.s.i. (193.05 Bars) maximum system pressure.

*Swing/steering pump* — Single gear-type pump. Powered by carrier engine through a straight mechanical drive. Pump operates at 2,500 p.s.i. (172.37 Bars).

*Reservoir* — FMC, 100 gallon (378.50 L) capacity. Double diffusers for deaeration.

*Filtration* — Two 10 micron filters located outside of hydraulic reservoir for easy replacement.

*Control valves* — 5 separate control valves allow simultaneous operation of all crane functions.



**Load hoist system**

*Standard:* Main winch with single speed motor and automatic brake; power up/power down mode of operation. Bi-directional gear-type hydraulic motor, driven through a double planetary reduction unit for positive operator control under all load conditions.

*Optional:* 2 speed main winch; 1 speed auxiliary winch.

*Line pulls and speeds* — Maximum permissible line pull 9,000 lbs. (4 082 kg) and maximum permissible line speed 416 f.p.m. (126.80 m/min.) on standard 12" (0.30 m) root diameter smooth drum. Maximum permissible line pull 8,195 lbs. (3 717 kg) and maximum permissible line speed 443 f.p.m. (135.03 m/min.) on optional 13-1/4" (0.34 m) diameter grooved drum.

**Optional upperstructure equipment** 360° house lock, electronic boom length indicator, boom hoist foot control, propane heater, diesel heater, rear view mirrors, seat belt, warning horn, foot actuated swing brake, two-speed main winch, grooved drum, drum rotation indicators, 15-ton (13.61 metric ton) hook block, 8-1/2 ton (7.71 metric ton) hook, ball and swivel, anti-two block, load moment device, back-up alarm, rear steer indicator, two single sealed beam head lights, front and rear directional signals, stop and tail lights, boom mounted working light, engine monitoring system, tachometer, air conditioner, top hatch window wiper.

# Chassis



## Type

FMC 8' 0" (2.44 m) wide, 121" (3.07 m) wheelbase.

4x2x4 - (4-wheel steer, 2 wheel drive) Standard; for flat terrain with limited turning area.

4x4x4 - (4-wheel steer, 4 wheel drive) Optional; for rough terrain with limited turning area.

4x4x4 - (4-wheel steer, 4 wheel drive) Optional; rear axle with no-spin differential; for rough terrain with limited turning area.

**Frame** — FMC designed, 100,000 p.s.i. (689.5 MPa) steel, double walled construction with integral 100,000 p.s.i. (689.5 MPa) steel outrigger boxes.



## Outriggers

Four hydraulic, telescoping beam and jack outriggers. Vertical jack cylinders equipped with integral holding valve. Beams extended 17' 0" (5.18 m) centerline-to-centerline and retract to within 8' 0" (2.44 m) overall width. Equipped with stowable, lightweight 17-3/8" (0.44 m) square steel floats. Controls and sight level bubble located in upperstructure cab.



## Axles

**Front**-Standard; heavy duty planetary drive/steer type.

**Rear**-Standard; heavy duty non-driving/steer type.

**Rear**-Optional; heavy duty planetary drive/steer type.

**Rear**-Optional; heavy duty no-spin differential, planetary drive/steer type.

## Suspension

**Front axle** — Rigid mounted to frame.

**Rear axle** — Pin-mounted on welded steel box cradle. Automatic hydraulic rear axle oscillation lockout engages when upperstructure rotates past 2 1/2° of centerline.

## Tires

**Front and rear** — Standard 16.0 x 24 (16-PR).

**Optional** — 17.5 x 25 (16-PR)  
20.5 x 25 (20-PR)



## Brakes

**Service** — Air over hydraulic brakes on all 4 wheels. 17" x 4" (0.43 m x 0.10 m) drum brakes on each wheel. Effective lining area 142 sq. in./wheel (916 cm<sup>2</sup>).

**Parking** — Spring applied, air released; cab controlled; mounted on front axle.

**Steering** — Hydraulic two wheel, four wheel and "crab" steering; controlled from tilt/telescoping steering wheel.

**Transmission** — Allison 4-speed fully automatic transmission. 8-speeds forward and 2 reverse with 2-speed Rockwell heavy duty transfer case. Electric over air controls. Completely automatic shifting in both low and high range for operator convenience.

**Miscellaneous standard equipment** — Cab steps, 2 front carrier steps, skid resistant finish on carrier deck, storage compartment. Automatic rear axle disconnect.

**Optional chassis equipment**—24 volt start, no-spin differential on rear axle, front and rear towing shackles, lifting lug package, front and rear fenders, engine block heater, ether injection package, alcohol evaporator, spare tires and rims, pintle hook, manual pump disconnect, auxiliary steering system, air dryer.

## Travel Speeds and Gradeability

Engine	Tires	Maximum speed		Gradeability at stall (See Note)	Maximum tractive effort at stall		Gradeability at 1.0 m.p.h. (1.61 km/h)	Maximum tractive effort at 1.0 m.p.h. (1.61 km/h)	
		m.p.h.	km/h		Pounds	kilograms		Pounds	kilograms
GM 4-53N	16.0 x 24	20	32.19	173%	41,550	18 840	71%	27,780	12 600
	17.5 x 25	18	28.97	212%	43,280	19 630	65%	26,020	11 800
	20.5 x 25	21	33.80	126%	38,760	17 580	58%	24,870	11 280
Cummins V378C*	16.0 x 24	22	35.40	189%	42,510	19 280	67%	26,740	12 130
	17.5 x 25	20	32.19	240%	44,280	20 080	69%	27,270	12 370
	20.5 x 25	23	37.01	134%	39,650	17 980	61%	25,840	11 720

\*Optional equipment Note: Gradeability values above 58% (30°) are theoretical due to engine oil pan limits.

Engine	GM 4-53N	Cummins V-378C*
Cylinders - cycle	4 - 2	6 - 4
Bore	3-7/8" (98.43 mm)	4-5/8" (117.48 mm)
Stroke	4-1/2" (114.30 mm)	3-3/4" (95.25 mm)
Displacement	212 cu. in. (3 475 cm <sup>3</sup> )	378 cu. in. (6 195 cm <sup>3</sup> )
Maximum brake h.p.	136 at 2,800 r.p.m.	145 at 3,000 r.p.m.
Peak torque	282 ft. lbs. (382.39 J)	280 ft. lbs. (379.68 J)
Electric system	12 volt negative ground	12 volt negative ground
Fuel capacity	75 gallons (283.90 L)	75 gallons (283.90 L)
Alternator	42 amp	80 amp
Crankcase capacity	14 quarts (13.25 L)	18 quarts (17.03 L)
Air compressor	12 c.f.m. (0.34 m <sup>3</sup> /min.)	13.2 c.f.m. (0.37 m <sup>3</sup> /min.)

\*Optional Engine

### Axle loads 3-section boom

Base machine with optional 25' - 60' (7.62-18.29 m) 3-section boom, 385' (117.35 m) 9/16" (14 mm) wire rope, FMC 4 x 4 x 4 carrier with GM 4-53N engine, 16.0 x 24 tires, counterweight.	G.V.W. ①		Upper facing front				Upper facing rear			
			Front axle		Rear axle		Front axle		Rear axle	
	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs
	43,690	19 818	18,495	8 389	25,195	11 428	18,784	8 520	24,906	11 297
17.5 x 25 tires	- 124	- 56	- 62	- 28	- 62	- 28	- 62	- 28	- 62	- 28
20.5 x 25 tires	+ 1,430	+ 649	+ 715	+ 324	+ 715	+ 324	+ 715	+ 324	+ 715	+ 324
Hook block at bumper	+ 388	+ 176	+ 605	+ 274	- 217	- 98	-	-	-	-
Headache ball at bumper	+ 213	+ 97	+ 332	+ 151	- 119	- 54	-	-	-	-
Auxiliary lifting sheave	+ 90	+ 41	+ 258	+ 117	- 168	- 76	- 168	- 76	+ 258	+ 117
20' (6.10 m) lattice fly	+ 509	+ 231	+ 878	+ 398	- 369	- 167	- 369	- 167	+ 878	+ 398
2-section boom	- 2,450	- 1 111	- 2,153	- 976	- 297	- 135	- 1,879	- 853	- 571	- 259

① Adjust gross vehicle weight and axle loading according to component weight.

Note: All weights are ± 3%.

### Axle loads 4-section boom

Base machine with standard 28' 9"-91' (8.76-27.74 m) 4-section boom, 400' (121.92 m) 9/16" (14 mm) wire rope, FMC 4 x 4 x 4 carrier with GM 4-53N engine, 16.0 x 24 tires, counterweight.	G.V.W. ①		Upper facing front				Upper facing rear			
			Front axle		Rear axle		Front axle		Rear axle	
	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs	Lbs.	kgs
	45,771	20 762	23,081	10 470	22,690	10 292	14,628	6 635	24,906	11 297
Hook block at bumper	+ 388	+ 176	+ 605	+ 274	- 217	- 98	-	-	-	-
Headache ball at bumper	+ 213	+ 97	+ 332	+ 151	- 119	- 54	-	-	-	-
Auxiliary lifting sheave	+ 75	+ 34	+ 243	+ 110	- 168	- 76	- 168	- 76	+ 243	+ 110
14' 6" (4.42 m) A-frame jib stowed	+ 575	+ 261	+ 1,337	+ 606	- 762	- 346	- 762	- 346	+ 1,337	+ 606
24' (7.32 m) lattice fly	+ 480	+ 218	+ 922	+ 418	- 442	- 200	- 442	- 200	+ 922	+ 418
20.5 x 25 tires	+ 1,430	+ 649	+ 715	+ 324	+ 715	+ 324	+ 715	+ 324	+ 715	+ 324

① Adjust gross vehicle weight and axle loading according to component weight.

Note: All weights are ± 3%.

We are constantly improving our products and therefore reserve the right to change designs and specifications.



**FMC Corporation Construction Equipment Group Lexington Kentucky 40512**

Link-Belt® cranes/excavators manufactured in: Cedar Rapids Iowa • Lexington & Bowling Green Kentucky • Ontario Canada • Milan Italy • Queretaro Mexico & Nagoya Japan (under license)