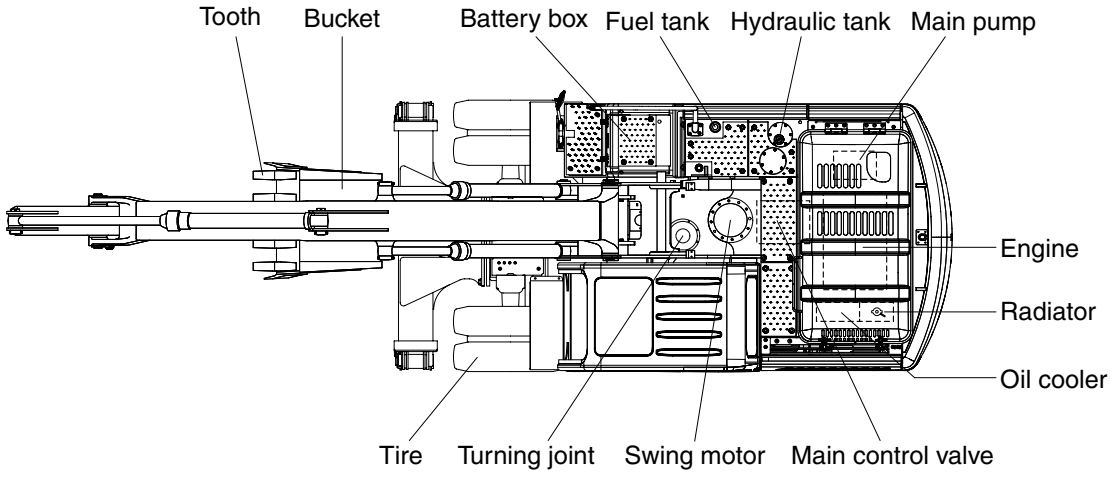
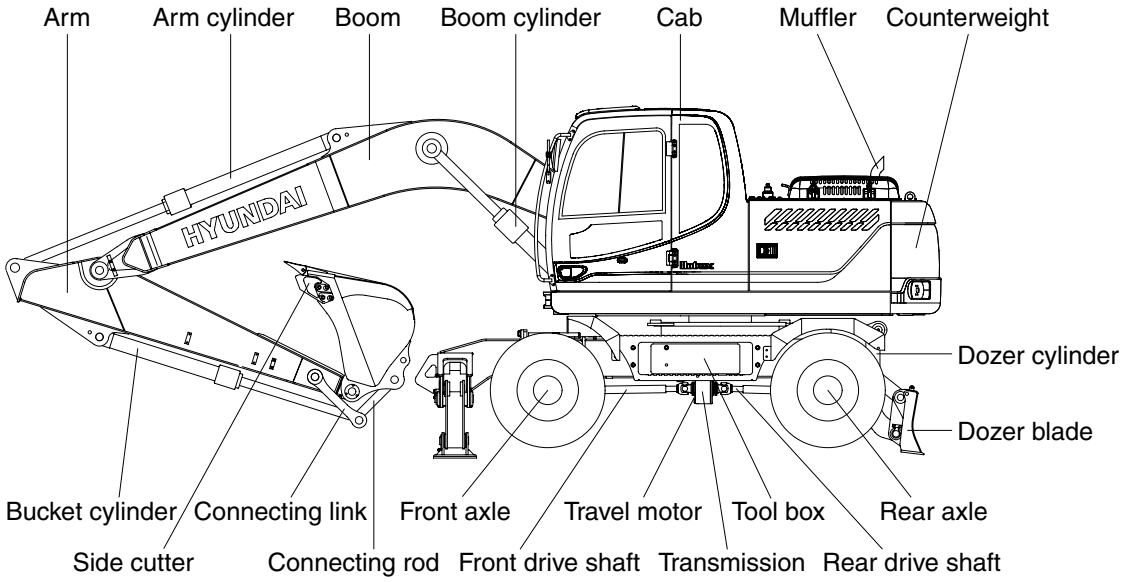
GROUP 2 SPECIFICATIONS

1. MAJOR COMPONENT

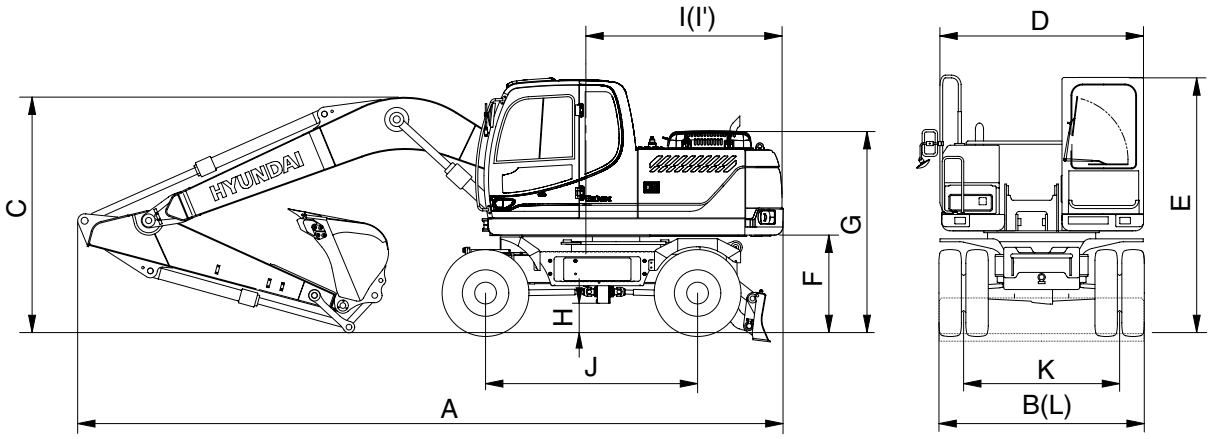




17W92SP01

2. SPECIFICATIONS

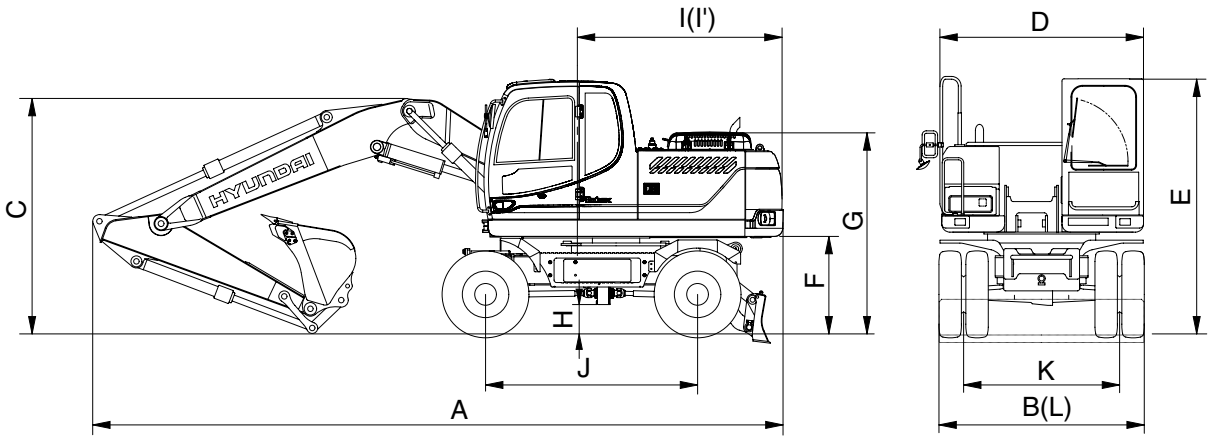
1) 5.1 m (16' 9") ONE PIECE BOOM, 2.2 m (7' 3") ARM AND REAR DOZER BLADE



17W92SP02

Description		Unit	Specification
Operating weight		kg (lb)	17300 (38140)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	0.76 (0.99)
Overall length	A	mm (ft-in)	8650 (28' 5")
Overall width	B		2500 (8' 2")
Overall height	C		3610 (11' 10")
Upperstructure width	D		2475 (8' 1")
Cab height	E		3190 (10' 6")
Ground clearance of counterweight	F		1270 (4' 2")
Engine cover height	G		2520 (8' 3")
Minimum ground clearance	H		375 (1' 3")
Rear-end distance	I		2480 (8' 2")
Rear-end swing radius	I'		2480 (8' 2")
Wheel base	J		2600 (8' 6")
Tread	K		1914 (6' 3")
Dozer blade width	L		2500 (8' 2")
Travel speed	Low	km/hr (mph)	10 (6.2)
	High		37 (23.0)
	Creep		3.0 (1.9)
Swing speed		rpm	11.0
Gradeability		Degree (%)	35 (70)
Max traction force		kgf (lbf)	9440 (20810)

2) 5.1 m (16' 9") HYDRAULIC ADJUSTABLE BOOM, 2.6 m (8' 6") ARM AND REAR DOZER BLADE

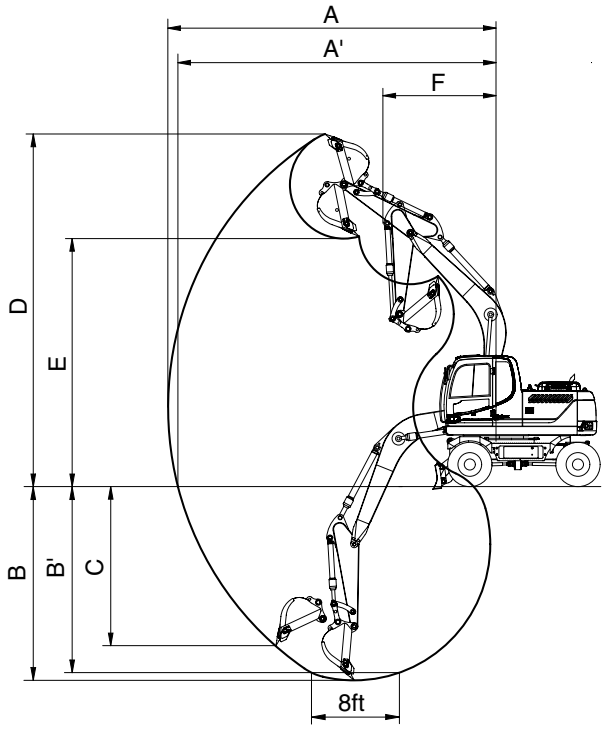


17W92SP03

Description		Unit	Specification
Operating weight		kg (lb)	16870 (37190)
Bucket capacity (SAE heaped), standard		m^3 (yd^3)	0.76 (0.99)
Overall length	A	mm (ft-in)	8750 (28' 8")
Overall width	B		2500 (8' 2")
Overall height	C		2920 (9' 7")
Upperstructure width	D		2475 (8' 1")
Cab height	E		3190 (10' 6")
Ground clearance of counterweight	F		1270 (4' 2")
Engine cover height	G		2520 (8' 3")
Minimum ground clearance	H		375 (1' 3")
Rear-end distance	I		2480 (8' 2")
Rear-end swing radius	I'		2480 (8' 2")
Wheel base	J		2600 (8' 6")
Tread	K		1914 (6' 3")
Dozer blade width	L		2500 (8' 2")
Travel speed	Low	km/hr (mph)	10 (6.2)
	High		37 (23.0)
	Creep		3.0 (1.9)
Swing speed		rpm	11.0
Gradeability		Degree (%)	35 (70)
Max traction force		kgf (lbf)	9440 (20810)

3. WORKING RANGE

1) 5.1 m (16' 9") MONO BOOM

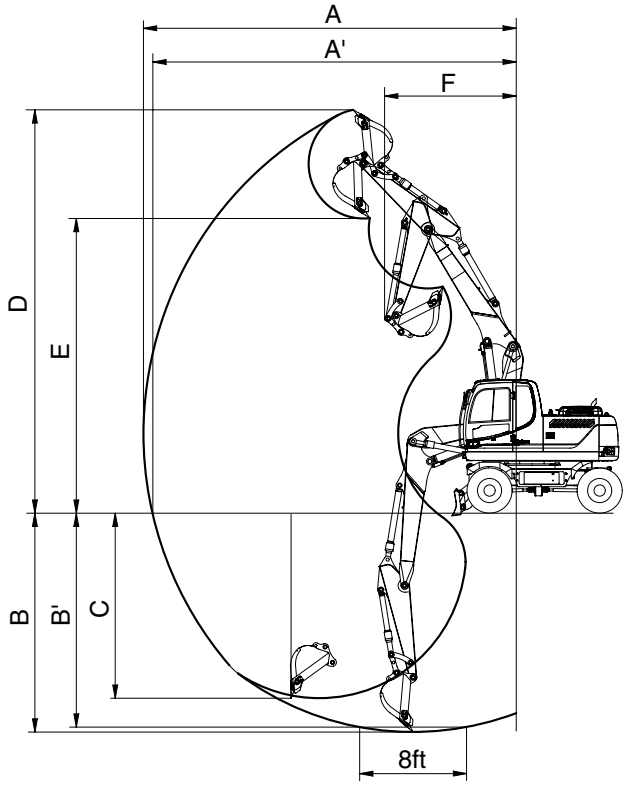


17W92SP05

Description		2.2 m (7' 3") Arm	2.6 m (8' 6") Arm	3.1 m (10' 2") Arm
Max digging reach	A	8690 mm (28' 6")	9020 mm (29' 7")	9450 mm (31' 0")
Max digging reach on ground	A'	8480 mm (27' 10")	8810 mm (28' 11")	9250 mm (30' 4")
Max digging depth	B	5420 mm (17' 9")	5820 mm (19' 1")	6320 mm (20' 9")
Max digging depth (8 ft level)	B'	5200 mm (17' 1")	5620 mm (18' 5")	6130 mm (20' 1")
Max vertical wall digging depth	C	4890 mm (16' 1")	5140 mm (16' 10")	5470 mm (17' 11")
Max digging height	D	8990 mm (29' 6")	9070 mm (29' 9")	9220 mm (30' 3")
Max dumping height	E	6420 mm (21' 1")	6550 mm (21' 6")	6730 mm (22' 1")
Min swing radius	F	3180 mm (10' 5")	3170 mm (10' 5")	3160 mm (10' 4")
Bucket digging force	SAE	107.9 [117.2] kN	107.9 [117.2] kN	107.9 [117.2] kN
		11000 [11940] kgf	11000 [11940] kgf	11000 [11940] kgf
		24250 [26330] lbf	24250 [26330] lbf	24250 [26330] lbf
	ISO	123.6 [134.2] kN	123.6 [134.2] kN	123.6 [134.2] kN
		12600 [13680] kgf	12600 [13680] kgf	12600 [13680] kgf
		27780 [30160] lbf	27780 [30160] lbf	27780 [30160] lbf
Arm digging force	SAE	87.2 [94.7] kN	77.3 [83.9] kN	69.0 [74.9] kN
		8890 [9650] kgf	7880 [8560] kgf	7030 [7630] kgf
		19600 [21280] lbf	17370 [18860] lbf	15500 [16830] lbf
	ISO	91.0 [98.8] kN	80.3 [87.2] kN	71.4 [77.5] kN
		9280 [10080] kgf	8190 [8890] kgf	7280 [7900] kgf
		20460 [22210] lbf	18060 [19600] lbf	16050 [17430] lbf

* : Standard [ ] : Power boost

2) 5.1 m (16' 9") HYDRAULIC ADJUSTABLE BOOM



17W92SP06

Description		2.2 m (7' 3") Arm	2.6 m (8' 6") Arm
Max digging reach	A	8760 mm (28' 9")	9110 mm (29' 11")
Max digging reach on ground	A'	8550 mm (28' 1")	8910 mm (29' 3")
Max digging depth	B	5220 mm (17' 2")	5620 mm (18' 5")
Max digging depth (8 ft level)	B'	5120 mm (16' 10")	5520 mm (18' 1")
Max vertical wall digging depth	C	4430 mm (14' 6")	4780 mm (15' 8")
Max digging height	D	9630 mm (31' 7")	9820 mm (32' 3")
Max dumping height	E	6930 mm (22' 9")	7130 mm (23' 5")
Min swing radius	F	3100 mm (10' 2")	2970 mm (9' 9")
Bucket digging force	SAE	107.9 [117.2] kN	107.9 [117.2] kN
		11000 [11940] kgf	11000 [11940] kgf
		24250 [26330] lbf	24250 [26330] lbf
	ISO	123.6 [134.2] kN	123.6 [134.2] kN
		12600 [13680] kgf	12600 [13680] kgf
		27780 [30160] lbf	27780 [30160] lbf
Arm digging force	SAE	87.2 [94.7] kN	77.3 [83.9] kN
		8890 [9650] kgf	7880 [8560] kgf
		19600 [21280] lbf	17370 [18860] lbf
	ISO	91.0 [98.8] kN	80.3 [87.2] kN
		9280 [10080] kgf	8190 [8890] kgf
		20460 [22210] lbf	18060 [19600] lbf

[ ] : Power boost

4. WEIGHT

Item	R170W-9	
	kg	lb
Upperstructure assembly	4590	10120
Main frame weld assembly	1430	3150
Engine assembly	560	1230
Fan clutch assembly	45	100
Main pump assembly	100	220
Main control valve assembly	145	320
Swing motor assembly	250	550
Hydraulic oil tank assembly	165	360
Fuel tank assembly	130	290
Counterweight	2650	5840
Cab assembly	500	1100
Lower frame weld assembly	1640	3615
Swing bearing	260	570
Travel motor assembly	80	176
Turning joint	120	265
Transmission assembly	135	298
Front axle assembly	655	1444
Rear axle assembly	534	1177
Front attachment assembly (5.1m boom, 2.2m arm, 0.76m^3 SAE heaped bucket)	2990	6590
5.1m boom assembly	1040	2290
2.2m arm assembly	480	1050
0.76m^3 SAE heaped bucket assembly	570	1260
Boom cylinder assembly	155×2EA	340×2EA
Arm cylinder assembly	180	400
Bucket cylinder assembly	125	260
Bucket control link assembly	120	265
Oscillating cylinder assembly	30	70
Dozer blade assembly	830	1830
Blade cylinder assembly	55	120
Front outrigger assembly	1000	2200
Rear outrigger assembly	1010	2230
Outrigger cylinder assembly	80	180

5. LIFTING CAPACITIES

1) ROBEX 170W-9

(1) 5.1 m (16' 9") boom, 2.2 m (7' 3") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 2650 kg (5840 lb) counterweight.

· : Rating over-front · : Rating over-side or 360 degree

Load point height		3700Load radius8160								At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		Capacity		Reach
												m (ft)
7.0 m (25.0 ft)	kg									*3710	3020	5.89
	lb									*8180	6660	(19.3)
6.0 m (20.0 ft)	kg							*3340	2830	*3660	2080	7.15
	lb							*7360	6240	*8070	4590	(23.5)
4.5 m (15.0 ft)	kg					*4730	4550	*4170	2770	*3690	1680	7.86
	lb					*10430	10030	*9190	6110	*8140	3700	(25.8)
3.0 m (10.0 ft)	kg			*9740	7880	*6000	4190	*4690	2630	3430	1500	8.19
	lb			*21470	17370	*13230	9240	*10340	5800	7560	3310	(26.9)
1.5 m (5.0 ft)	kg					*7180	3850	*5230	2470	3380	1460	8.19
	lb					*15830	8490	*11530	5450	7450	3220	(26.9)
Ground Line	kg			*7660	6950	*7720	3660	5520	2360	3580	1540	7.87
	lb			*16890	15320	*17020	8070	12170	5200	7890	3400	(25.8)
-1.5 m (-5.0 ft)	kg	*7650	*7650	*11110	7010	*7510	3620	*5380	2330	*3950	1820	7.18
	lb	*16870	*16870	*24490	15450	*16560	7980	*11860	5140	*8710	4010	(23.6)
-3.0 m (-10.0 ft)	kg	*12010	*12010	*9250	7190	*6410	3700			*3660	2540	5.95
	lb	*26480	*26480	*20390	15850	*14130	8160			*8070	5600	(19.5)

Note 1. Lifting capacity are based on SAE J1097 and ISO 10567.
2. Lifting capacity of the ROBEX series does not exceed 75% of tipping load with the machine on firm, level ground or 87% of full hydraulic capacity.
3. The load point is a hook located on the back of the bucket.
4. * indicates load limited by hydraulic capacity.

(2) 5.1 m (16' 9") hydraulic adjustable boom, 2.2 m (7' 3") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 2650 kg (5840 lb) counterweight.

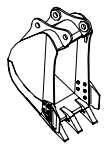
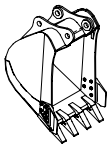
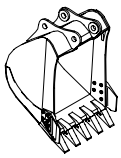
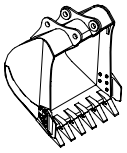
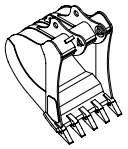
Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.0 m (25.0 ft)		apacity		Reach
														m (ft)
6.0 m (20.0 ft)	kg											*3710	2010	7.22
	lb											*8180	4430	(23.7)
4.5 m (15.0 ft)	kg							*4210	2760			*3680	1620	7.92
	lb							*9280	6080			*8110	3570	(26.0)
3.0 m (10.0 ft)	kg					*6040	4180	*4690	2610			3410	1450	8.25
	lb					*13320	9220	*10340	5750			7520	3200	(27.1)
1.5 m (5.0 ft)	kg					*7120	3810	*5190	2440	*3430	1660	3360	1410	8.26
	lb					*15700	8400	*11440	5380	*7560	3660	7410	3110	(27.1)
Ground Line	kg			*6770	*6770	*7590	3610	*5450	2330			3570	1500	7.94
	lb			*14930	*14930	*16730	7960	*12020	5140			7870	3310	(26.0)
-1.5 m (-5.0 ft)	kg	*6880	*6880	*10730	6950	*7310	3580	*5230	2300			*3640	1780	7.26
	lb	*15170	*15170	*23660	15320	*16120	7890	*11530	5070			*8020	3920	(23.8)
-3.0 m (-10.0 ft)	kg			*8720	7160	*6110	3680					*3140	2490	6.05
	lb			*19220	15790	*13470	8110					*6920	5490	(19.8)

(3) 5.1 m (16' 9") hydraulic adjustable boom, 2.6 m (8' 6") arm equipped with 0.76 m³ (SAE heaped) bucket, rear dozer blade down and 2650 kg (5840 lb) counterweight.

Load point height		Load radius										At max. reach		
		1.5 m (5.0 ft)		3.0 m (10.0 ft)		4.5 m (15.0 ft)		6.0 m (20.0 ft)		7.0 m (25.0 ft)		Capacity		Reach
														m (ft)
7.5 m (25.0 ft)	kg											*3360	2640	6.37
	lb											*7410	5820	(20.9)
6.0 m (20.0 ft)	kg							*3250	2870			*3360	1880	7.53
	lb							*7170	6330			*7410	4140	(24.7)
4.5 m (15.0 ft)	kg							*3830	2790			*3420	1530	8.20
	lb							*8440	6150			*7540	3370	(26.9)
3.0 m (10.0 ft)	kg			*8540	8180	*5530	4240	*4400	2630	*2990	1740	3190	1370	8.52
	lb			*18830	18030	*12190	9350	*9700	5800	*6590	3840	7030	3020	(28.0)
1.5 m (5.0 ft)	kg			*7620	7180	*6830	3860	*5010	2460	*3710	1660	3140	1330	8.52
	lb			*16800	15830	*15060	8510	*11050	5420	*8180	3660	6920	2930	(28.0)
Ground Line	kg			*8230	6890	*7570	3630	*5420	2330	*3250	1610	3300	1390	8.22
	lb			*18140	15190	*16690	8000	*11950	5140	*7170	3550	7280	3060	(27.0)
-1.5 m (-5.0 ft)	kg	*7190	*7190	*11280	6890	*7570	3550	5420	2270			3780	1620	7.56
	lb	*15850	*15850	*24870	15190	*16690	7830	11950	5000			8330	3570	(24.8)
-3.0 m (-10.0 ft)	kg	*10590	*10590	*9950	7030	*6760	3590	*4660	2320			*3700	2180	6.43
	lb	*23350	*23350	*21940	15500	*14900	7910	*10270	5110			*8160	4810	(21.1)
-4.5 m (-15.0 ft)	kg			*6800	*6800									
	lb			*14990	*14990									

6. BUCKET SELECTION GUIDE

1) GENERAL BUCKET

				
0.39 m³ SAE heaped bucket	0.50 m³ SAE heaped bucket	0.64 m³, 0.76 m³ SAE heaped bucket	0.89 m³, 1.05 m³ SAE heaped bucket	◈0.69 m³ SAE heaped bucket

Capacity		Width		Weight	Recommendation				
					5.1 m (16' 9") Mono boom			5.1 m (16' 9") Hyd adjustable boom	
SAE heaped	CECE heaped	Without side cutter	With side cutter		2.2 m arm (7' 3")	2.6 m arm (8' 6")	3.1 m arm (10' 2")	2.2 m arm (7' 3")	2.6 m arm (8' 6")
0.39 m³ (0.51 yd³)	0.34m3 (0.44yd3)	620 mm (24.4")	740 mm (29.1")	410 kg (900 lb)					
0.50 m³ (0.65 yd³)	0.44 m³ (0.58 yd³)	760 mm (29.9")	880 mm (34.6")	470 kg (1040 lb)					
0.64 m³ (0.84 yd³)	0.55 m³ (0.72 yd³)	920 mm (36.2")	1040 mm (40.9")	510 kg (1120 lb)					
0.76 m³ (0.99 yd³)	0.65 m³ (0.85 yd³)	1060 mm (41.7")	1180 mm (46.5")	570 kg (1260 lb)					
0.89 m³ (1.16 yd³)	0.77 m³ (1.01 yd³)	1220 mm (48.0")	1340 mm (52.8")	610 kg (1340 lb)					
1.05 m³ (1.37 yd³)	0.90 m³ (1.18 yd³)	1400 mm (55.1")	1520 mm (59.8")	680 kg (1500 lb)					
◈0.69 m³ (0.9 yd³)	0.62 m³ (0.81 yd³)	990 mm (39.0")	-	700 kg (1540 lb)					

◈ : Heavy duty bucket

Applicable for materials with density of 2000 kg/m³ (3370 lb/yd³) or less

Applicable for materials with density of 1600 kg/m³ (2700 lb/yd³) or less

Applicable for materials with density of 1100 kg/m³ (1850 lb/yd³) or less

7. SPECIFICATIONS FOR MAJOR COMPONENTS

1) ENGINE

Item	Specification
Model	Cummins QSB 6.7
Type	4-cycle turbocharged diesel engine, low emission
Cooling method	Water cooling
Number of cylinders and arrangement	6 cylinders, in-line
Firing order	1-5-3-6-2-4
Combustion chamber type	Direct injection type
Cylinder bore × stroke	107 × 124 mm (4.2" × 4.9")
Piston displacement	6700 cc (409 cu in)
Compression ratio	17.2 : 1
Rated gross horse power (SAE J1995)	163 Hp (122 kW) at 2100 rpm
Maximum torque	74.7 kgf · m (540 lbf · ft) at 1400 rpm
Engine oil quantity	24 ℓ (6.3 U.S. gal)
Dry weight	556 kg (1226 lb)
High idling speed	2000 ± 50 rpm
Low idling speed	800 ± 100 rpm
Rated fuel consumption	175.0 g/Hp · hr at 2100 rpm
Starting motor	Nippon densor (24 V - 4.5 kW)
Alternator	Delco remy (24 V - 70 A)
Battery	2 × 12 V × 100 Ah

2) MAIN PUMP

Item	Specification
Type	Variable displacement tandem axis piston pumps
Capacity	2 × 80 cc/rev
Maximum pressure	350 kgf/cm^2 (4980 psi) [380 kgf/cm^2 (5400 psi)]
Rated oil flow	2 × 168 ℓ /min (44.4 U.S. gpm / 37.0 U.K. gpm)
Rated speed	2100 rpm

[ ]: Power boost

3) GEAR PUMP

Item	Specification
Type	Fixed displacement gear pump single stage
Capacity	15cc/rev
Maximum pressure	40 kgf/cm^2 (570 psi)
Rated oil flow	31.5 ℓ /min (8.3 U.S. gpm/6.9 U.K. gpm)

4) MAIN CONTROL VALVE

Item	Specification
Type	11 spools two-block
Operating method	Hydraulic pilot system
Main relief valve pressure	350 kgf/cm^2 (4980 psi) [380 kgf/cm^2 (5400 psi)]
Overload relief valve pressure	400 kgf/cm^2 (5690 psi)

[ ]: Power boost

5) SWING MOTOR

Item	Specification
Type	Fixed displacement axial piston motor
Capacity	117.8 cc/rev
Relief pressure	285 kgf/cm^2 (4050 psi)
Braking system	Automatic, spring applied hydraulic released
Braking torque	59 kgf · m (427 lbf · ft)
Brake release pressure	33~50 kgf/cm^2 (469~711 psi)
Reduction gear type	2 - stage planetary

6) TRAVEL MOTOR

Item	Specification
Type	Variable displacement bent-axis axial piston motor
Relief pressure	380 kgf/cm^2 (5400 psi)
Counter balance valve	Applied
Capacity	140 cc/rev

7) POWER TRAIN

Item	Description		Specification
Transmission	Type		2 speed power shift transmission
	Gear ratio	1st	4.87
		2nd	1.20
Parking brake	Type		Multi disc brake integrated in transmission
	Maximum braking torque		3044 kgf · m (22020 lbf · ft)
Axle	Type		4 wheel drive with differential
	Gear ratio		16.0
	Brake		Multi disc brake

8) CYLINDER

Item		Specification
Boom cylinder	Bore dia × Rod dia × Stroke	ø 115 × ø 80 × 1090mm
	Cushion	Extend only
Arm cylinder	Bore dia × Rod dia × Stroke	ø 120 × ø 85 × 1355mm
	Cushion	Extend and retract
Bucket cylinder	Bore dia × Rod dia × Stroke	ø 115 × ø 75 × 995mm
	Cushion	Extend only
Dozer cylinder	Bore dia × Rod dia × Stroke	ø 110 × ø 65 × 235mm
	Cushion	Extend only
Outrigger cylinder	Bore dia × Rod dia × Stroke	ø 125 × ø 75 × 475mm
	Cushion	-

9) BUCKET

Item	Capacity		Tooth quantity	Width	
	SAE heaped	CECE heaped		Without side cutter	With side cutter
R170W-9	0.76 m^3 (0.99 yd^3)	0.65 m^3 (0.85 yd^3)	5	1060 mm (41.7")	1180 mm (46.5")
	0.39 m^3 (0.51 yd^3)	0.34 m^3 (0.44 yd^3)	3	620 mm (24.4")	740 mm (29.1")
	0.50 m^3 (0.65 yd^3)	0.44 m^3 (0.58 yd^3)	4	760 mm (29.9")	880 mm (34.6")
	0.64 m^3 (0.84 yd^3)	0.55 m^3 (0.72 yd^3)	5	920 mm (36.2")	1040 mm (40.9")
	0.89 m^3 (1.16 yd^3)	0.77 m^3 (1.01 yd^3)	6	1220 mm (48.0")	1340 mm (52.8")
	1.05 m^3 (1.37 yd^3)	0.90 m^3 (1.18 yd^3)	6	1400 mm (55.1")	1520 mm (59.8")
	◈0.69 m^3 (0.90 yd^3)	0.62 m^3 (0.81 yd^3)	5	990 mm (39.0")	-

◈ : Heavy duty bucket

8. RECOMMENDED OILS

Use only oils listed below or equivalent.
Do not mix different brand oil.

Service point	Kind of fluid	Capacity ℓ (U.S. gal)	Ambient temperature °C (°F) -20 (-4) / -10 (14) / 0 (32) / 10 (50) / 20 (68) / 30 (86) / 40 (104)
Engine oil pan	Engine oil	24 (6.3)	SAE 30 / SAE 10W
Transmission case	Engine oil	2.5 (0.7)	SAE 10W-30 / SAE 15W-40
Swing drive	Gear oil	2.5 (0.7)	SAE 85W-140
Swing drive	Grease	0.35 (0.1)	NLGI NO.1 / NLGI NO.2
Front axle	Gear oil	Center : 10.5 (2.77) Hub : 2.5×2 (0.66×2)	SAE 85W-90 LSD
Rear axle	Gear oil	Center : 15.1 (4.0) Hub : 2.5×2 (0.66×2)	SAE 85W-90 LSD
Hydraulic tank	Hydraulic oil	Tank: 124 (32.8) System: 240 (63.4)	ISO VG 32 / ISO VG 46 / ISO VG 68
Fuel tank	Diesel fuel	260 (68.7)	ASTM D975 NO.1 / ASTM D975 NO.2
Fitting (Grease nipple)	Grease	As required	NLGI NO.1 / NLGI NO.2
Radiator (Reservoir tank)	Mixture of antifreeze and water 50 : 50	19.5 (5.2)	Ethylene glycol base permanent type

SAE : Society of Automotive Engineers
API : American Petroleum Institute
ISO : International Organization for Standardization
NLGI : National Lubricating Grease Institute
ASTM : American Society of Testing and Material