

Euclid R90



MAXIMUM GMW
149,687 KG (330,000 LBS)

HAULER CLASS
85,8 TONNES (94.5 TONS)

WET DISC BRAKE

TWO MAN INTEGRAL
ROPS/FOPS CAB

COMMAND CAB III

ALL-HYDRAULIC BRAKING

COOLING CENTER:
SWING-OUT GRILLE
AIR TO OIL
TRANSMISSION COOLER

HIGH HARDNESS, HIGH
STRENGTH STEEL BODY

AUTOMATIC SHIFT
CONTROL

NEOCON SUSPENSION

SEPARATE HYDRAULIC
RESERVOIRS

EUCLID



ENGINE

Make	Standard Cummins	Optional Cummins
Model	KT38-C	KTA38-C
Type	4 Cycle	4 Cycle
Aspiration	Turbocharged	Turbocharged/ Aftercooled
Rated Output	(SAE @ 2100 rpm) kW bhp 690 925	kW bhp 783 1050
Flywheel Output	(SAE @ 2100 rpm) kW bhp 650 872	kW bhp 732 982
No. Cylinders	12	12
Bore & Stroke	mm 159 x 159 in 6 1/4 x 6 1/4	mm 159 x 159 in 6 1/4 x 6 1/4
Displacement	liters in ³ 37,7 2,300	liters in ³ 37,7 2,300
Max. Torque	@1300 rpm N•m lb ft 4 095 3,020	N•m lb ft 4 630 3,415
Torque Rise	30.5%	30%
Starting	Electric	Electric



TRANSMISSION

Allison DP-8963, Planetary type, full automatic shift. Integral torque converter TC860 with automatic lock-up to lock-up shifting in all ranges. Remote mounted, 6 forward speeds, 1 reverse. Automatic Transmission Electronic Control provides park brake interlock and hoist interlock as well as built in diagnostics.

Maximum Speeds @ Governed Engine Speed with standard 27.00R49 tires

Range	Gear Ratio	Standard 3.73 Differential		Optional 3.15 Differential	
		km/h	mph	km/h	mph
1	4.24	9,91	6.16	11,73	7.29
2	2.32	18,11	11.25	21,44	13.33
3	1.69	24,86	15.45	29,43	18.29
4	1.31	32,07	19.93	37,97	23.60
5	1.00	42,01	26.11	49,74	30.92
6	0.73	57,55	35.77	68,14	42.35
R	5.75	7,31	4.54	8,65	5.38



DRIVE AXLE

Full floating axle shafts, double reduction provided by Euclid Model 2650 differential and single reduction planetary with balanced life gears in each wheel. Parallel link mounting with "A"-frame top member which reduces "roll-steer" effect.

Ratios	Standard	Optional
Differential	3.73:1	3.15:1
Planetary	6.63:1	6.63:1
Total Reduction	24.73:1	20.88:1
Maximum Speeds with 27.00R49 Tires	km/h 57,55 mph 35.77	km/h 68,14 mph 42.35



TIRES

Standard - Front and Rear
27.00R49

Rim Width
mm in 495 **19.5**

Optional
Optional tire types, treads and ply ratings available.



ELECTRICAL SYSTEM

Twenty-four volt lighting and accessories system. Seventy-five amp alternator with integral transistorized voltage regulator. Four 12 volt heavy-duty (8D) batteries connected in series/parallel.



LOAD CAPACITY

	m ³	yd ³
Struck (SAE)	35,7	46.7
Heap 3:1	47,0	61.5
Heap 2:1 (SAE)	52,7	69.0
Euclid Field Heap	50,0	65.4
Payload	kg	lb
Maximum	85 756	189,056

Based on material density, Euclid will size an optional larger or smaller body to assure rated payload. Consult Euclid Market Support.



WEIGHTS

	kg	lb
Chassis & Hoists	51 463	113,457
Body	12 468	27,487
*Net Machine Weight	63 731	140,944
Maximum Payload	85 756	189,056
Maximum GMW with Std. Tires Including Options, 50% fuel, Operator & Payload Not to Exceed	149 687	330,000
*Options/Approx. Change in Net Machine Weight: Body Liners, 400 BHN Steel, Complete (Light Duty)	3 858	8,506
Body Liners, 400 BHN Steel, Complete (Heavy Duty)	5 900	13,010
Tires - Set of 6 (27.00R49RL4)	1 566	3,444
Weight Distribution	Front	Rear
Empty	49%	51%
Loaded	33%	67%



STEERING SYSTEM

Closed-center full time hydrostatic power steering system using two double-acting cylinders, piston type pump and brake/steering system reservoir. Accumulator provides supplementary steering in accordance with SAE J1511, ISO 5010.

Steering Angle		38°
Turning Diameter (SAE)	m	ft in 22,65 74'4"
Steering Pump Output (@ 2100 rpm)	l/m	gpm 91 24
System Operating Pressure	kPa	psi 18 962 2,750

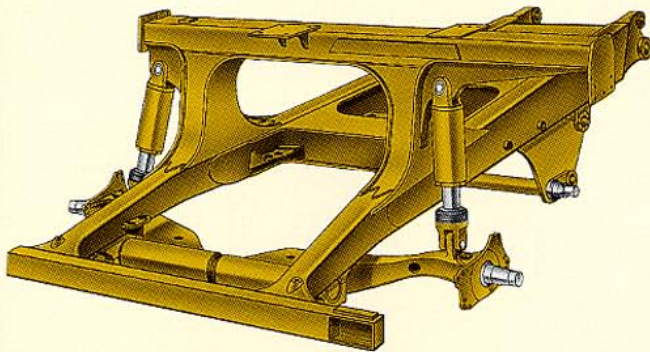


SUSPENSION

Front and Rear Suspension

Independent trailing arm for each front wheel. Neocon struts containing energy-absorbing gas and environmentally friendly compressible Neocon-x fluid mounted between trailing arm and frame. The cast rear axle housing has a parallel link mounting with an A-Frame top member. Provides a reduced "roll-steer" effect which results in a more stabilized ride and contributes to lower overall frame stress levels. Rear mounted Neocon struts suspend drive axle from frame. Neocon struts provide variable damping and rebound feature.

The Euclid frame and suspension are designed to work in unison to provide maximum structural integrity and operator comfort. The formed rectangular frame rail construction provides superior resistance to bending and torsional loads while eliminating unnecessary weight. Euclid achieves long frame fatigue life through proven design and manufacturing practices. Smooth frame transitions minimize stress concentrations and steel castings effectively distribute input loads. Frame life is further enhanced by utilizing fatigue resistant weld joints and locating welds in low stress areas.



The unique trailing arm front suspension absorbs haul road input, minimizing suspension-induced frame twisting while providing independent tire action. Ride struts are mounted with spherical bushings, eliminating extreme sidewall forces by ensuring a purely axial input to the ride strut. The wide track stance of the trailing arm design and long wheel base assure a more stable, comfortable ride. The suspension struts employ gas and Neocon-x fluid as the energy-absorbing media. This suspension continues to absorb energy when extreme dynamic loads are generated which significantly contributes to improved isolation of the operator and machine components.



BODY

Flat chute type, sloped floor, continuously exhaust heated. High tensile strength 1310 N/mm² **190,000 psi** alloy steel 400 BHN used in thickness of:

	mm	in
Floor	17	11/16"
Front	8	5/16"
Sides	8	5/16"
Canopy	5	3/16"
Corner	11	7/16"

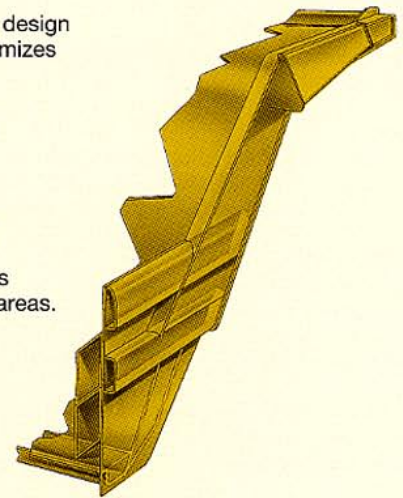
Optional Body Liners (Light Duty)

Floor, Corners & Top Rails	10	3/8"
Sides, Front, End Protection	6	1/4"

Optional Body Liners (Heavy Duty)

Floor & Corners	16	5/8"
Top Rails	10	3/8"
Sides, Front & End Protection	8	5/16"

The horizontal stiffener design of the Euclid body minimizes stress concentrations in any one area. Load shocks are dissipated over the entire body length. The closely-spaced floor stiffeners provide additional protection by minimizing distances between unsupported areas.



SERVICE CAPACITIES

	liters	gallons
Accumulator	37,9	10,0
Crankcase (incl. filters)	140,0	37,0
Transmission (incl. filters)	98,4	26,0
Cooling System	268,7	71,0
Fuel Tank	1003,0	265,0
Hydraulic		
Hoist Tank	318,0	84,0
Steering Tank	117,0	31,0
Differential	147,6	39,0
Planetaries	136,3	36,0
Windshield washer	3,8	1,0



FRAME

Formed rectangular rails with section height tapered from rear to front, bridged by five cross members, front bumper and front suspension tube. Cross member to frame junctions use large radii to minimize stress. Frame utilizes 310 N/mm² **45,000 psi** yield strength steel.



HYDRAULIC SYSTEM

Two (2) Euclid two-stage cylinders, double-acting in second stage, internal dampened (extend and retract) inverted and outboard-mounted. Separate Hoist/Brake Cooling reservoir and independent tandem gear pump. Electronically operated control valve mounted on horsecollar.

Body Raise Time (Loaded)	s		12	
Body Float Down Time	s		14	
Brake Cooling Pump Output (@ 2100 rpm)	l/m	gpm	459	121.3
Hoist Pump Output (@ 2100 rpm)	l/m	gpm	449	118.4
System Relief Pressure	kPa	psi	17 238	2,500



BRAKE SYSTEM

Brake systems meet or surpass SAE J1473 and ISO 3450, Alberta, British Columbia.

Service

All-hydraulic actuated front disc brakes with two calipers per front disc. Calipers are internally ported, each containing three pairs of opposing pistons. Rear brakes are oil-cooled wet discs.

Front Axle - Dry Disc

Disc Diameter Each (2 discs/axle)	cm	in	101.6	40
Brake Surface Area Per Axle	cm ²	in²	14 194	2,200
Lining Area Per Axle	cm ²	in²	4 129	640
Brake Pressure (Max.)	kPa	psi	13 790	2,000

Rear Axle - Oil-Cooled Wet Discs

Brake Swept Area Per Axle	cm ²	in²	79 282	12,288
Brake Pressure (Max.)	kPa	psi	10 515	1,525

Secondary

Two independent circuits within the service brake system provide back-up stopping capability. System is manually or automatically applied to stop machine within prescribed braking distance.

Parking

Drum, two shoe internal expanding type mounted behind transmission. Automatically applied if hydraulic pressure is lost. Manually controlled from shift console.

Size	mm	in	438 x 102	17 1/4 x 4
Lining Area	cm ²	in²	1 226	190

Retarder

Foot-operated valve controls all-hydraulic actuation of oil-cooled wet disc brakes on rear axle. System provides constant speed control on downhill hauls.

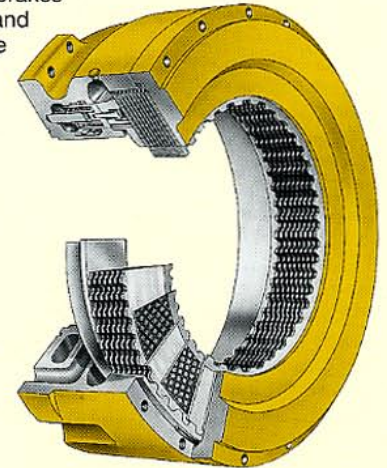
Capacity (Continuous)	kW	bhp	969	1,300
Capacity (Intermittent)	kW	bhp	1805	2,420

The Euclid R90 is equipped with an all-hydraulic actuated braking system providing precise braking control and quick system response. The brake control valve is actuated directly at the brake pedal. The controller has a unique variable front to rear brake proportioning that maximizes the stopping performance under slippery road conditions without having to deactivate front brakes.



WET DISC BRAKE

The Euclid wet disc brake is engineered for long service life even in the most extreme environments. The wet disc brakes are located on the rear axle and provide service braking, secondary braking and retarding. The brakes are of a multi-plate design and continuously oil-cooled. The sealed design protects against environmental contamination for prolonged service life. The wet disc brake is designed with automatic retraction and self-adjusting features to prevent drag and compensate for wear. Separate pedals activate the service braking and retarding functions.



COMMAND CAB III

Command Cab III integral ROPS (Rollover Protection Structure) is standard in accordance with SAE J1040 (1988c) and dimensions comply with ISO 3471. Double wall construction of 11 gauge inner and outer steel panels, lends itself to a more structurally sound cab. Foam rubber lining material along with foam rubber-backed carpeting and multiple layered floor mat act to absorb sound and control interior temperature. A properly maintained cab from Euclid, with doors and windows closed per work cycle procedures in ANSI/SAE J1166 (1990), provides an operator sound exposure L_{eq} (Equivalent Sound Level) of 81.0dB(A). A three-point rubber iso-mount arrangement to the deck surface minimizes vibration to the operator compartment. Electrical quick disconnect for ease of serviceability.



Excellent Serviceability. A removable front closure allows easy access to service brake valves and retarder valve. The upper dash utilizes four (4) removable panels that house gauges and customer options, each individually accessible. A removable closure located behind the seat provides easy access to the shifting control, CONTRONIC, and all electrical junction points.

Comfort and Ease of Operation. A wrap-around style dashboard positions controls within easy reach and visual contact. A full complement of easy-to-read gauges, CONTRONIC monitoring and warning system, a spacious environment, six-way adjustable mechanical seat, tilt/telescopic steering wheel, filtered ventilation, door locks, and a full size padded trainer seat, all contribute to operator safety and comfort.

STANDARD EQUIPMENT

General

All hydraulic braking	Mirrors right and left
Automatic transmission shifting	Mud flaps
Body down indicator, mechanical	Neocon suspension
Body prop cable	Operator arm guard
Canopy spill guard	Park brake interlock
Continuous heated body	Radiator grill guard
Cooling system sight gauge	Reverse alarm
Cooling system surge tank	Rock ejector bars
Cushioned hoist cylinders	Steering accumulator
Electric horns	Steering tank sight gauge
Electric start	Swing-out grille
Fan guard	Tow eyes, front
Fixed steering stops	Transmission sight gauge
Hoist interlock	Wet disc brake wear indicators

Cab

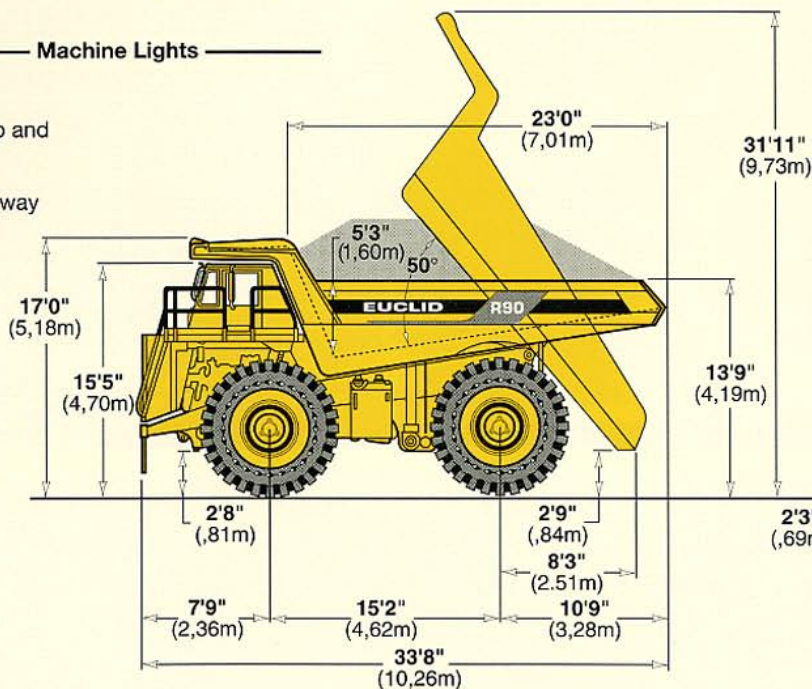
Acoustical lining	Modular instrumentation
Air filtration/replaceable elements	Mechanical, 6 position seat
Ash tray	Operator seat belt
Cab interior light	Quick connect test ports
Cigar lighter	Rubber floor mat
Door locks	Safety glass
Emergency engine shut down switch	Sun visor
Full trainer seat	Tilt/telescopic steering wheel
Heater and defroster 7.6 kW 26,000 btu	Tinted glass all windows
Integral ROPS/FOPS cab	Trainer seat belt
	Windshield washer
	Windshield wiper

Gauges and Indicators

CONTRONIC monitoring and alarm system, multi-function indicator lights:	Steering temperature
Air filter restriction	Transmission oil pressure
Alternator	Transmission filter
Brake pressure	Turn signals/hazard
Converter temperature	Do not shift light
Cooling temperature	Transmission malfunction light
Engine oil pressure	Gauges:
High beam indicator	Brake temperature
Hydraulic filter	Converter temperature
Parking brake applied	Coolant temperature
Retard oil temperature	Hour meter
Steering filter	Speedometer
Steering pressure	Steering/brake pressure
	Tachometer

Machine Lights

Back-up light (1)
Clearance lights (4)
Dual combination stop and taillights (2)
Head lights, (4)
Turn signals and four-way flashers

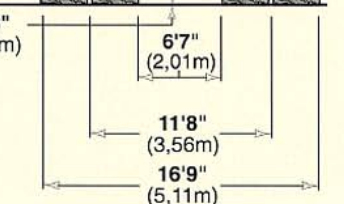
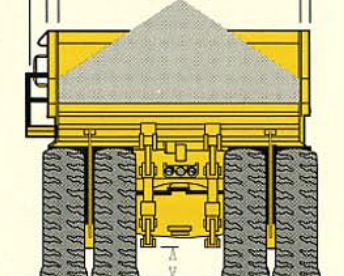
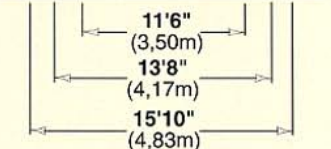
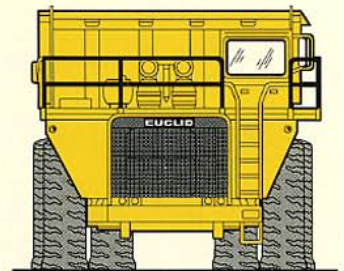


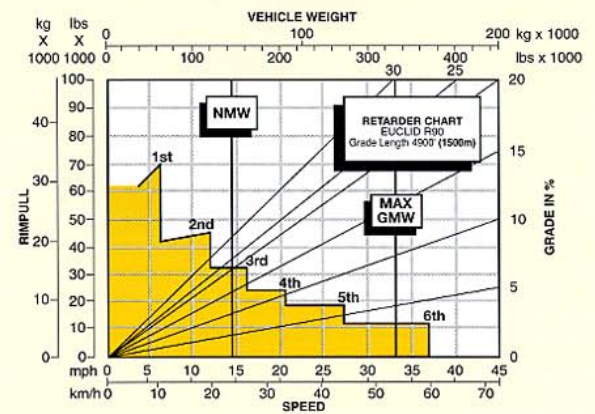
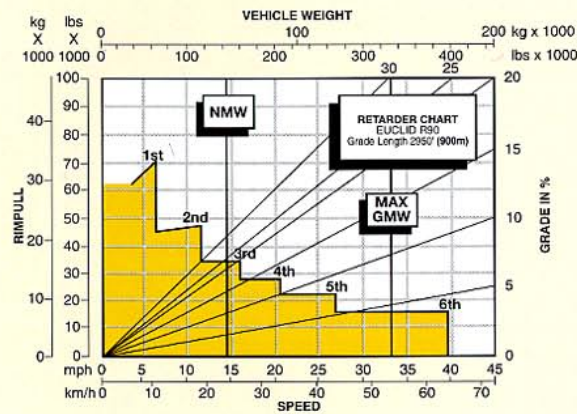
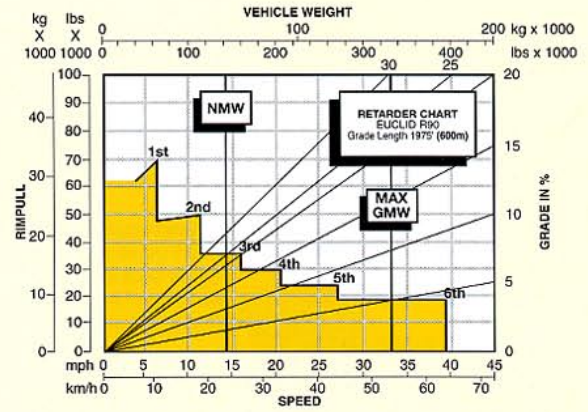
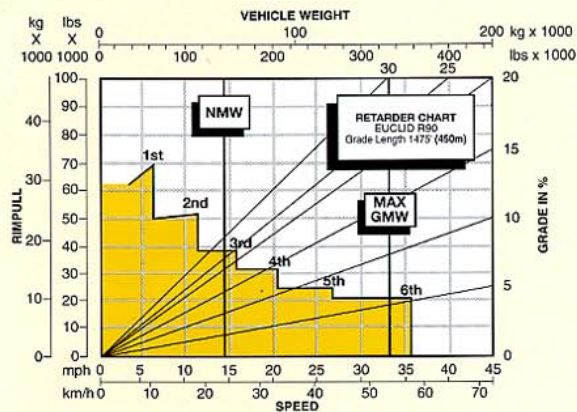
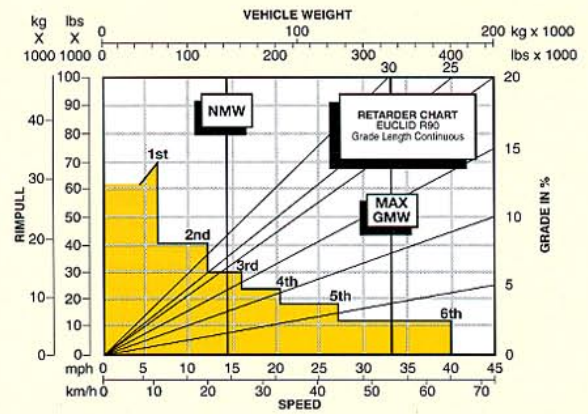
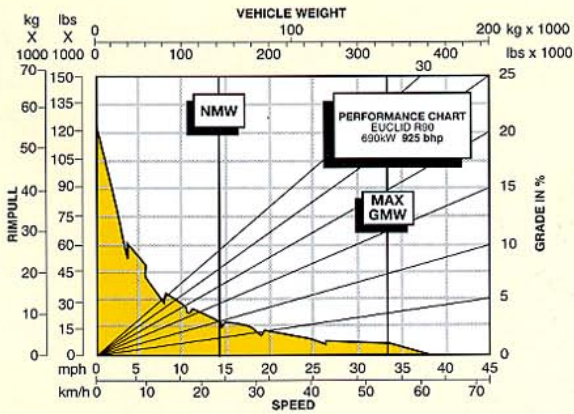
OPTIONAL EQUIPMENT

Active traction control (ATC)	Fast coupling service center
Air conditioning	Front brake cut-off
Air suspension seat	Fuel tank sight gauge
Body liners (400 BHN) plates, STD and HD	Field replaceable tube radiator
Canopy spill guard extension	German market equipment
CONTRONIC liquid crystal display (fuel level, service intervals, shift range indicator)	Guard rails
Cold starting aid	Hoodsides
Decals, French, German & Spanish	Load weighing
Differential, 3.15:1 ratio	Lube system, automatic
Engine heater (oil & coolant)	Lube system, centralized
Extra reverse alarm	Starter lockout switch
Fast fueling	Muffler
	Radio & tapeplayer
	Tires (size, type & rating)
	Transmission guard
	Unit sound suppression

Standard and optional equipment may vary from country to country. Special options provided on request. Consult Euclid Market Support.

Note: Dimensions shown are for empty machine with 27.00R49 tires.





INSTRUCTIONS:

Diagonal lines represent total resistance (Grade % plus rolling resistance %). Charts based on 0% rolling resistance, standard tires and gearing unless otherwise stated.

1. Find the total resistance on diagonal lines on right-hand border of performance or retarder chart.
2. Follow the diagonal line downward and intersect the NMW or GMW weight line.
3. From intersection, read horizontally right or left to intersect the performance or retarder curve.
4. Read down for machine speed.

NOTE: Photos and illustrations throughout may show optional equipment.

Under our policy of continuous product improvement, we reserve the right to change specifications and design without prior notice. The illustrations do not necessarily show the standard version of the machine.

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