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

	Standard	Optional
Make	**Cummins**	**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	mm 159 x 159
	in 6 1/4 x 6 1/4	**in 6 1/4 x 6 1/4**
Displacement	liters **in³** 37,7 **2,300**	liters **in³** 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

		Standard		Optional	
	Gear	3.73 Differential		3.15 Differential	
Range	Ratio	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	km/h 68,14
	mph 35.77	**mph 42.35**

TIRES

Standard - Front and Rear	**Rim Width**
27.00R49	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**

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	**in^2**	14 194	**2,200**
Lining Area Per Axle	cm^2	**in^2**	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	**in^2**	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	**in^2**	1 226	**190**

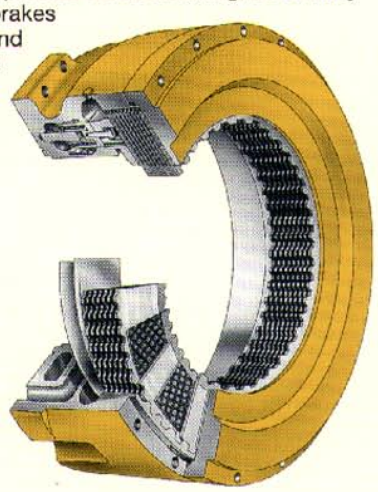
Retarder
Foot-operated valve controls all-hydraulic actuation of oil-cooled wet disc brakes on rear axle. System provides constant speed control on downhill hauls.

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

Cab

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

Gauges and Indicators

CONTRONIC monitoring and alarm system, multi-function indicator lights:
- Air filter restriction
- Alternator
- Brake pressure
- Converter temperature
- Cooling temperature
- Engine oil pressure
- High beam indicator
- Hydraulic filter
- Parking brake applied
- Retard oil temperature
- Steering filter
- Steering pressure
- Steering temperature
- Transmission oil pressure
- Transmission filter
- Turn signals/hazard

Do not shift light
Transmission malfunction light
Gauges:
- Brake temperature
- Converter temperature
- Coolant temperature
- Hour meter
- Speedometer
- Steering/brake pressure
- Tachometer

Machine Lights

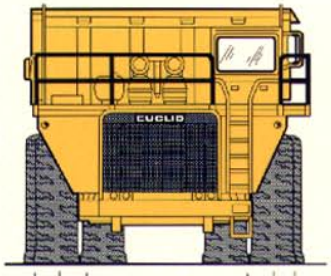
Back-up light (1)
Clearance lights (4)
Dual combination stop and taillights (2)
Head lights, (4)
Turn signals and four-way flashers

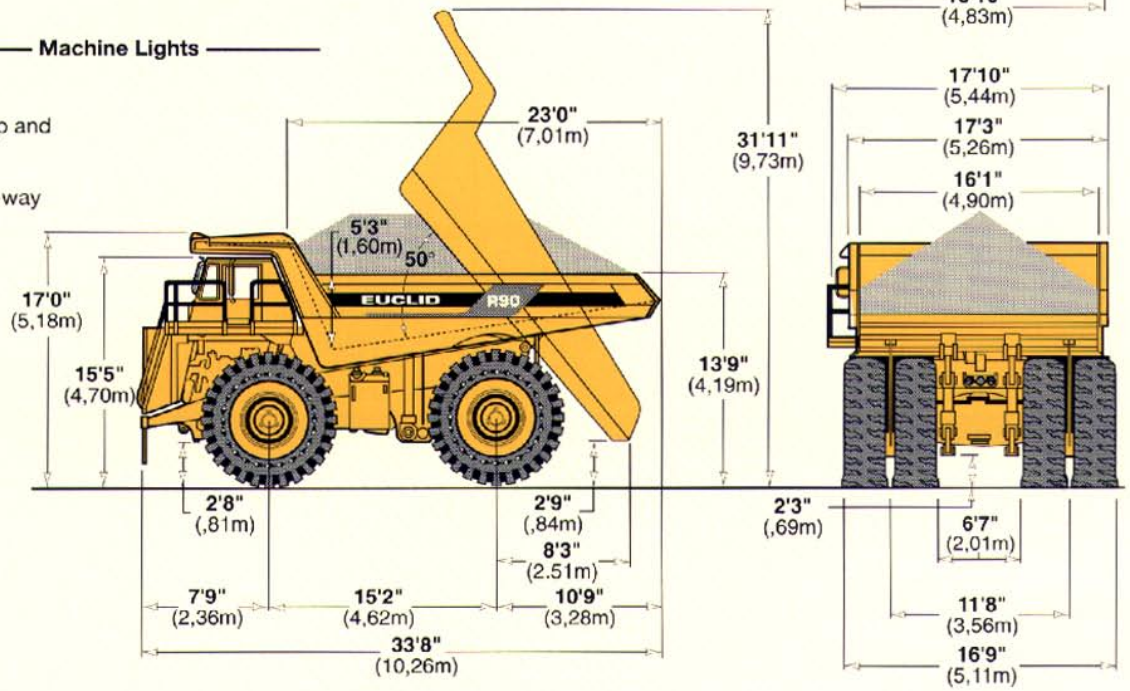
OPTIONAL EQUIPMENT

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

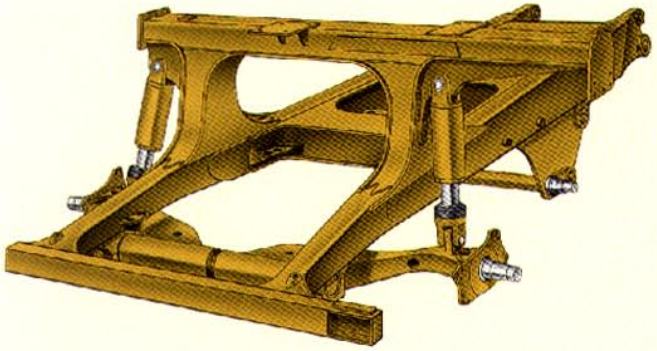




SUSPENSION

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.



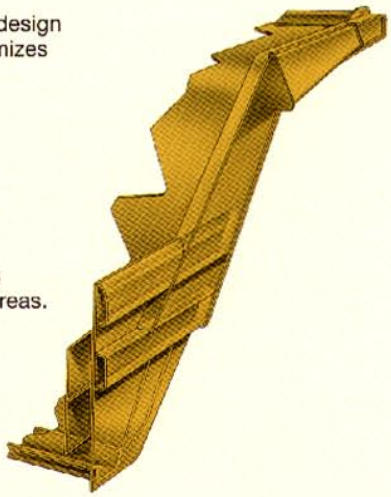
The unique trailing arm front suspension absorbs haul road input, minimizing suspension-induced frame twisting while providing independent tire action. Ride struts are mounted with spherical bushings, eliminating extreme sidewall forces by ensuring a purely axial input to the ride strut. The wide track 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.

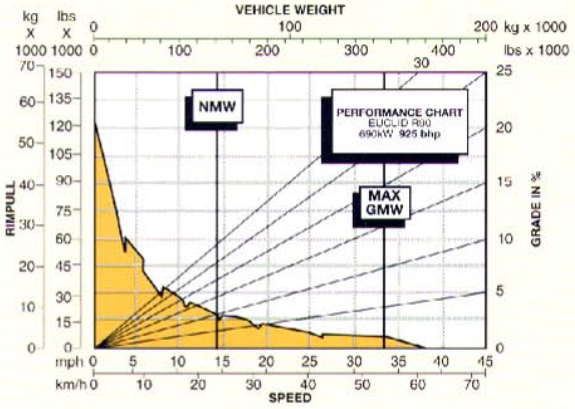


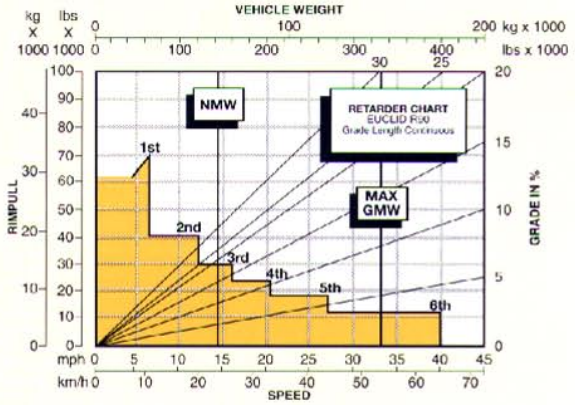
SERVICE CAPACITIES

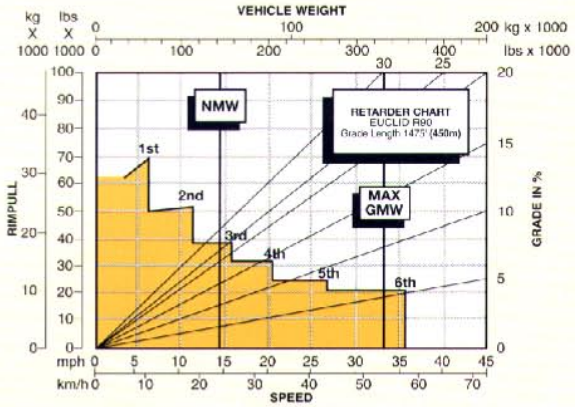
	liters	gallons
Accumulator	37.9	**10.0**
Crankcase (incl. filters)	140,0	**37.0**
Transmission (incl. filters)	98,4	**26.0**
Cooling System	268,7	**71.0**
Fuel Tank	1003,0	**265.0**
Hydraulic		
Hoist Tank	318,0	**84.0**
Steering Tank	117,0	**31.0**
Differential	147,6	**39.0**
Planetaries	136,3	**36.0**
Windshield washer	3,8	**1.0**

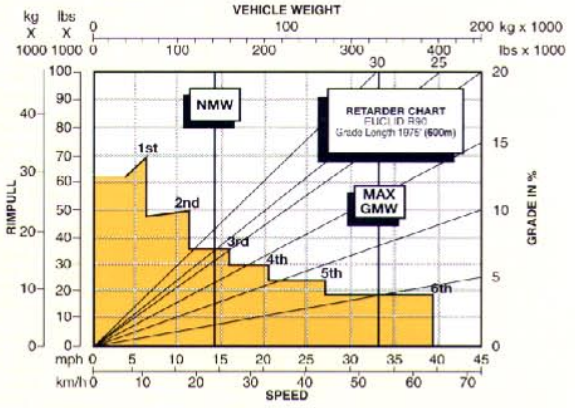
FRAME

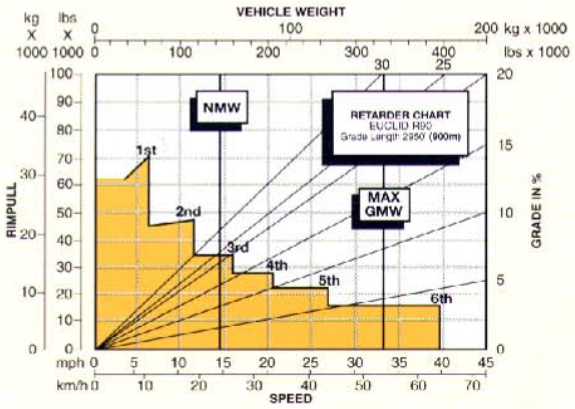
Formed rectangular rails with section height tapered from rear to front, bridged by five cross members, front bumper and front suspension tube. Cross member to frame junctions use large radii to minimize stress. Frame utilizes 310 N/mm² **45,000 psi** yield strength steel.

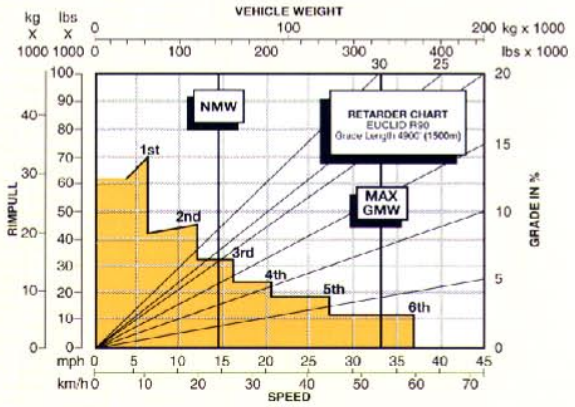












INSTRUCTIONS:

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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