

D & H EQUIPMENT, LTD



**YOU MAKE ASPHALT,
WE CAN HELP YOU MAKE BETTER ASPHALT**

D&H EQUIPMENT, LTD

C U S T O M E Q U I P M E N T M A N U F A C T U R E R

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D&H Equipment, LTD

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YOU MAKE ASPHALT, WE HELP YOU MAKE IT BETTER.

Greetings,

I would like to take this opportunity to thank you for allowing me to tell you about D&H Equipment, LTD. We are a family-owned, Texas-friendly business specializing in building Texas-tough equipment for satisfied customers throughout the world. Our focus is on top quality asphalt blending plants, individually built for each customer's needs and requirements.

When my father, Howard Cox started his paving company in 1967, he primarily did asphalt paving, chip seal, and road base work. In the last 21 years, they focused on asphalt rubber and micro surfacing. Recognizing a need for reliable and durable equipment, D&H Equipment, LTD was founded in 2004. Utilizing first-hand experience working with asphalt, I now serve as General Manager and concentrate on meeting this growing demand by producing quality asphalt equipment.

Active now in more than a dozen countries and on six continents, our D&H equipment operates worldwide.

We are dedicated to being the one source for all your asphalt modification needs. D&H is one of the only manufacturers that build all of our own proprietary equipment ourselves, in our own facility. We do not use fabrication shops owned by others to build our equipment.

When you purchase our equipment, we also provide the on-the-job training necessary to operate the equipment to its fullest potential. Our trainers and technicians have day-to-day experience with our machinery and on paving jobsites.

Please take a moment to visit at www.dhequip.com where you can find more information, pictures, and video of our equipment and innovative components. Feel free to contact me if you have any questions or would like additional information.

I look forward to working with you and discussing a possible venture with your company.

Sincerely,

Andy Cox

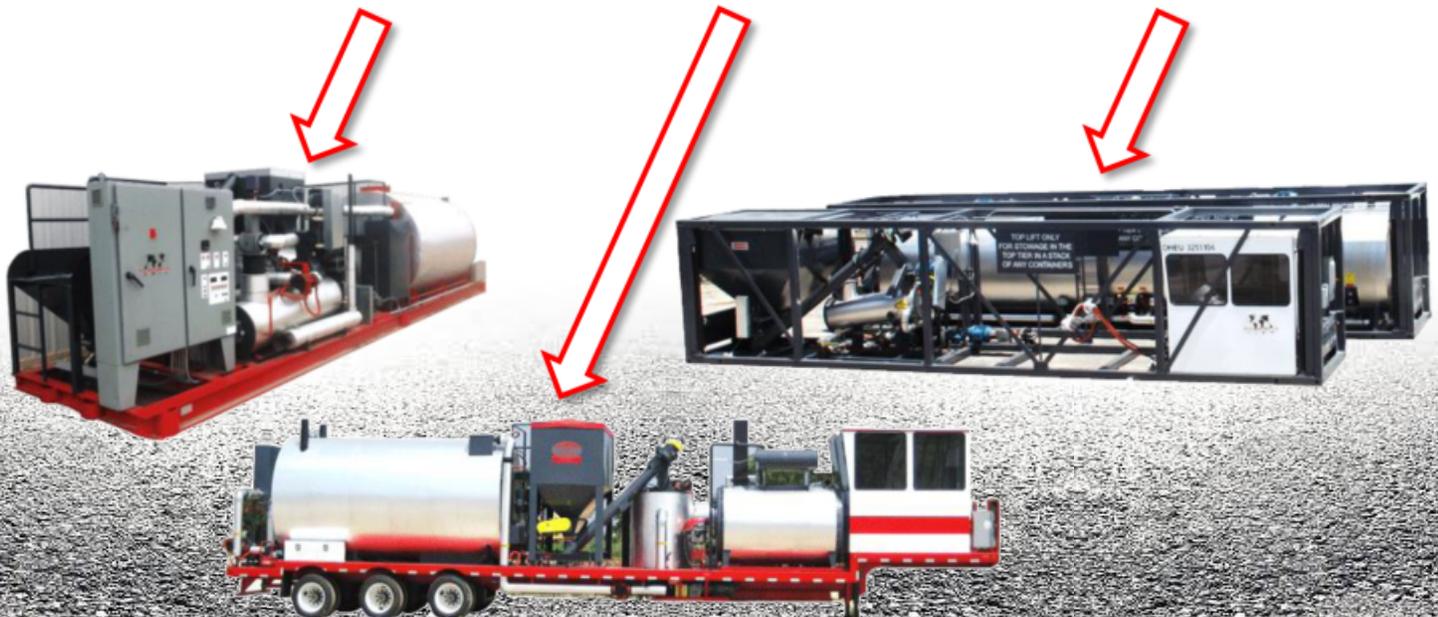
Andy Cox
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ASPHALT RUBBER BLENDERS

D&H specializes in a variety of blending systems. Over 20 years of experience in mixing, paving, and manufacturing equipment contributes to the innovation and reliability of our blending systems. We over-engineer our equipment to ensure the durability you need. While the chart below shows several available options, D&H is a custom manufacturer and can build equipment to suit your exacting specifications.

STANDARD OPTIONS	TRIAL BLENDER	COMBINATION BLENDER	CONTAINERIZED BLENDER
PRODUCTION RATE	10 TPH	15TPH	25TPH
FRAME	SKID	SINGLE TRAILER	40' CONTAINER SKIDS
CONTROL ROOM	NO	YES	YES
AUTOMATED CONTROLS	MANUAL ONLY	AUTOMATED & MANUAL	AUTOMATED & MANUAL
MIX CHAMBER STYLE	HORIZONTAL	HORIZONTAL	HORIZONTAL
HEAT EXCHANGER	NO EXCHANGER	30m ³	30m ³
HEATER SIZE	NO HEATER	1M BTU	2M BTU OR 3M BTU
HOPPER SIZE	100 CUBIC FEET	250 CUBIC FEET	300 CUBIC FEET
SECOND HOPPER SIZE	N/A	N/A	N/A
ASPHALT PUMP SIZE	BEARCAT 300	BEARCAT 450	BEARCAT 450
METERS	SCALE ON HOPPER	SCALES ON HOPPER	SCALES ON HOPPER
	PUMP USED AS METER	CORALIOUS METER	CORALIOUS METER
DISCHARGE PUMP SIZE	BEARCAT AR450	BEARCAT AR450	BEARCAT AR450
REACTION TANK	ATTACHED	ATTACHED	SEPARATE TANK
REACTION TANK SIZE	ONE 4,000 GALLON TANK	ONE 6,000 GALLON TANK	TWO 5,000 GALLON TANKS
CONTROLS	ONE 24" SCREW AUGER	THREE 16" SCREW AUGERS	AUTO AND MANUAL FROM BLENDER
TANK HEATING	ONE DIRECT FIRE 0.5 MBTU	HOT OIL & 2 .5M BTU BURNER	HOT OIL AND DIRECT FIRE ▶ 0.5M BTU
FRAME	---	---	SEA CONTAINER FRAME ENCLOSURE
PUMP FOR HOT MIX PLANT	---	---	BEARCAT 960
METERS	---	---	3" CORALIOUS METER



HORIZONTAL MIXER

The D&H horizontal mixing chamber is an innovative solution to mixing asphalt, rubber, polymer, or any dry powder. The unit generates greater agitation as product is pressure-fed through the mixing auger.

- 85-gallon, heat-jacketed, single-chamber mixing chamber
- 3 different mixing stages powered by motor and gearbox
- 200 rpm single speed electric motor
- Insulated and skinned, 4" drain valve, overflow
- Vertical outlet pipe assures all material are mixed consistently before discharge to the reaction tank



AMERICAN BLENDER	AMERICAN DUAL HOPPER BLENDER
45TPH STANDARD; 60TPH OPTIONAL	45TPH STANDARD; 60TPH OPTIONAL
TRAILER	TRAILER
YES	YES
AUTOMATED & MANUAL	AUTOMATED & MANUAL
HORIZONTAL OR VERTICAL	HORIZONTAL OR VERTICAL
50m ³	50m ³
3M BTU or 4M BTU	3M BTU or 4M BTU
600 CUBIC FEET	400 CUBIC FEET
N/A	200 CUBIC FEET
BEARCAT 600	BEARCAT 600
SCALES ON HOPPER	SCALES ON HOPPER
CORALIOUS METER	CORALIOUS METER
BEARCAT AR450	BEARCAT AR960
SEPARATE TANK	SEPARATE TANK
TWO 15,000 GALLON TANKS	TWO 15,000 GALLON TANKS
AUTO AND MANUAL FROM BLENDER	AUTO AND MANUAL FROM BLENDER
HOT OIL AND DIRECT FIRE ▶ 0.5M BTU	HOT OIL AND DIRECT FIRE ▶ 0.5M BTU
SEA CONTAINER FRAME ENCLOSURE	SEA CONTAINER FRAME ENCLOSURE
BEARCAT 960	BEARCAT 960
3" CORALIOUS METER	3" CORALIOUS METER

ADVANTAGES

- Horizontal mixing chambers featuring three-stages of mixing at 200 rpm
- Capability to refill hoppers without the need to stop blending process
- 100% manual backup controls for operation
- Remote access to PLC
- Printing capabilities
- Operations can be run with as little as a two man crew (operator and groundman)
- Ability to operate plant on electricity and fuel
- Capable of processing using multiple materials
- Capability of adding liquid additives to the asphalt



CONTAINERIZED PLANTS

Containerized blending units and reaction tanks provide great value by offering ocean transport anywhere in the world quickly and inexpensively. Upon arrival at your port of entry, they can be quickly loaded on a flatbed for immediate transport to the field. D&H Equipment constructs the certified 40' sea container frame in-house around our quality blenders and tanks. We help our customers worldwide make better asphalt.



- **Containerized Blender:**

- Manual controls as well as automated controls are available
- Production at 20 TPH · Hot Oil Heater: 2 M BTU max 290°C · Heat Exchange: 30°C per pass
- Horizontal Mixing Chamber
- Temperature-corrected mass flow meter

- **Containerized Reaction Tank:**

- Two-compartment agitated reaction tank
- 1– 19,000 liter capacity tank per compartment
- Top-mounted agitation (*see insert on page 8 for more information*)
- Heating: Direct fire of 0.3M BTUs and/or Hot oil heated
- Metering: 4" positive displacement pump with a 3" temperature corrected mass flow meter with in-line viscosity readout

AUTOLOADER

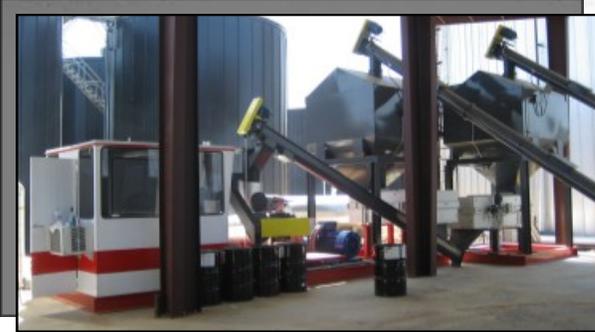
Make your containerized equipment ultra-portable. Move containers without requiring a crane, forklift, or other equipment. The hydraulic-powered system folds in and out to be utilized or stored when needed.

- 10 HP hydraulic motor, 22,000 psi system
- 40,000lbs total lifting capacity to max height of 66"
- 4 hydraulic cylinders, each is 72" with a 10,000 lbs lifting capacity



POLYMER PLANTS

D&H can custom build polymer plants to your specific application with flow rates ranging from 10—70 TPH. Our skid-mounted models allow economical ocean shipping and our portable models can be fabricated for terminal blending or for blending on-site by contractors. The Supraton mill is known worldwide for superior quality milling properties of shearing polymer into asphalt.



- Custom built to your specifications with flow rates from 10 - 70 TPH
- Single-pass milling capability
- Horizontal mixing design
- Supraton Mill:
 - Severe-duty quality of the mill allows as much as 20% solid content in mixture
 - Hardened carbon alloy conical tools within unit are progressively shaped for three shearing/mixing stages
 - Heat jacketing on casted housing ring and the carbon alloy stator support assures proper and smooth flow rates
 - Milled polymer exits machine at less than 0.2 mm
 - KEVLARPACK brand packing material seals unit along with FKM (Viton A) static seals material
 - Hydraulic gap control
- Range of control options including automatic, semi-automatic, and manual controls along with recording capacities
- Flow meters for all materials
 - Concentrate
 - Single-pass
 - Circulation process

REACTION TANKS &



D&H Equipment, LTD builds a wide variety of asphalt/bitumen tanks. We build every tank to meet our customers' specifications and needs. From asphalt storage, to reaction tanks, to concentrate tanks for polymers, D&H can supply you with a solution.

Reaction tanks are needed in the production of asphalt rubber. After passing through the blending system, the asphalt rubber must "cook" inside the reaction tank (typically for 30 minutes up to 1 hour). During this time, the rubber is allowed to chemically react with the asphalt. Also at this time, agitation inside the tank ensures the product is reacting uniformly and produces a consistent blend.



STORAGE TANKS



TANK OPTIONS

- **Size:** options up to 32,000 gallon (121,000 L) capacity
 - **Tank Layout Options:** Vertical or Horizontal
 - **Heating:** Direct fire, Internal hot oil, External hot oil, or Electric heating
 - **Insulation:** 3" standard for horizontal tanks or 6" standard for vertical tanks
 - * *Insulation amount can also be customized to customer's specifications*
 - **Level Controls:** Gauge board, Radar, or Capacitance
 - **Valves:** Manual or Automatic valves at customer's request
 - **Railings and Ladders:** Full OSHA-approved railings & ladders on vertical tanks
 - **Pumps:** Offload and Circulation pumps
 - **Metering:** Various flow meters including coriolis and gear meters
-
- **Agitation for Horizontal Tanks:**
 - Horizontal screw with top-mounted agitation (see insert below) or vertical mixer
 - **Agitation for Vertical Tanks:**
 - Vertical mixer or side-mounted propeller-type mixer

**TOP MOUNTED
AGITATION**

D&H Equipment's top-mounted agitation consists of an up-mounted motor and gearbox with a 90° angle mounted inside the tank to turn a screw auger.

Advantages:

- No shaft coming out the side of the tank
- Eliminates leaking from shaft seals, saving maintenance costs, labor, and equipment downtime
- Reduces the overall length of the tank since the motor does not have to be mounted at the end of the tank anymore

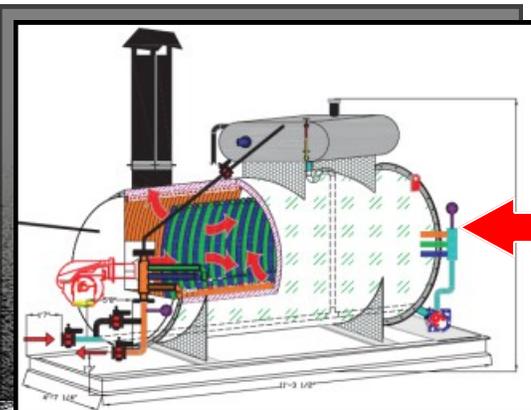


HEATERS

A single circuit D&H design is utilized for efficiently heating thermal oil to use in asphalt blending plants, asphalt storage tanks, and a variety of industrial applications. The superior design with two coils in the combustion chamber and a third coil for returning radiant heat allows the maximum absorption of heat output.

General Dimensions and Specifications

MODEL	HOH 1.0	HOH 2.0	HOH 3.0	HOH 4.0	HOH 5.0	HOH6.0
DATA						
Heat supply BTU	1,200,000	2,050,000	3,072,500	4,100,000	5,120,000	6,150,000
Power kw	350	600	900	1200	1500	1800
Thermal efficiency	83%	83%	83%	83%	83%	83%
Design PSI	100	100	155	155	155	155
Design pressure Mpa	0.7	0.7	1.1	1.1	1.1	1.1
Maximum working temperature	600°F	600°F	600°F	600°F	600°F	600°F
Medium circulating volume GPM	175	255	440	440	440	700
Medium circulating volume m3/h	40	58	100	100	100	160
Medium volume in furnace ft3	14	21	21	28	42	74
Medium volume in furnace m3	0.4	0.6	0.6	0.8	1.2	2.1
Fuel Consumption g.p.h.(oil)	8.5	14.6	22	29	36.5	44
Fuel Consumption kg/h.(oil)	36	71	92	122	153	180
CIRCULATING PUMP						
Type :Sterling (Sihi)	40-160	50-160	65-200	65-200	65-200	80-200
Flow rate gpm	175	300	480	525	550	650
Flow rate m3/h	40	60	100	100	100	160
feet of head	131	124	180	230	262	196
Delivery lift m	40	38	55	70	80	60
DIMENSIONS						
Overall size (Feet)	4' x 7'10"	5'8" x 9'10"	6' x 11' 7"	6'6" x 13'4"	6'6" x 14'4"	7'10" x 14'2"
Overall size (Meters)	1.2 x 2.4	1.7 x 3	1.82 x 3.5	1.9 x 4	1.95 x 4.3	2.4 x 4.3
Standard Burner Riello	RL28-2	RL-70M	RL70M	RL100M	RL130M	190M
Optional Burner Powerflame	Power flame	Power flame	Power flame	Power flame	Power flame	Power flame
CR or new Nova2	CR2-0-15	CR2-0-20B	CR3-0-20	CR4-0-25	CR4-0-30	CR5-0-30



Coil Design

Qty 2
Inside Coils



Outside
Coils

3 Pass
Heat Transfer



Refractory on both ends of the tank lasts longer than the competitor's ceramic fiber blanket.

D&H triple pass coil design exceeds others due to two coils in the combustion chamber and a third coil for the returning radiant heat.

All D&H heaters are built for 600°F (315°C) high temperature. We also can provide the following options for each heater:

- Burners fired by No. 2 fuel, natural gas, combination oil/gas, or propane
- Lox Nox burners to 9ppm
- Remote dialer
- Manifold with auxiliary pumps for dedicated circuits
- Oversized expansion tank

Consult factory for larger model specifications.

Standard incoming power 480 VAC / 3 phase / 60 Hz. For all other incoming power, please consult factory.

HEAT EXCHANGERS



- Shell and tube design type
- Conforms to ASTM standards
- Flanged head for easy access when cleaning tubes
- Depending upon size, we have single pass shell and multiple pass tube

**FULLY AUTOMATED
CONTROLS**



This sophisticated blending control system is designed for operator comfort and precision with complete automation. It includes the ability to reload hoppers on-the-fly without the need to stop and start for each batch. The interlock for the hot mix plant and meter pump control is recorded for varying percentage of binder and tonnage output.

Our cabins come with a built in modem or sim card reader. This allows for our technicians to remotely access and diagnose any software issues quickly and get you back to blending. We work closely with our controls supplier on every job to ensure you get the reliability and tools you need to make the best product possible.

We insulate and climate control the cabin. Large windows provide great views of the production as you manage operations inside.

- **Control Room:**
 - Air conditioning and heating
 - 360° view from control room
 - Large tinted, safety glass windows
 - Easy access to motor controls
- **Digital Read-Out:**
 - Oil levels on reaction tank
 - Position indicating control switches and lights for automated valves
 - Alarms for high and low levels
- **PLC Automation System:**
 - Touch screen
 - Variable rate control
 - Data logger records on print screen
 - Information is stored as a .CSV (Excel) file on a removable SD card
- **Complete manual backup**
 - Superior to competitors' backup systems which still rely on touchscreen



CONTROLS

SEMI AUTOMATED CONTROLS

Our semi-automated controls are a great alternative to help meet your budget. While the semi-automated option does not include all the features of a fully automated system, they do provide several added benefits over a pure manual control.



- Ability to reload hopper while you continue blending with no need to stop and start for each batch
- Manual AC controls
- Tracks AC flow and automatically adjusts rubber (SBS) flow to desired percentage input into system
- Stand up or remote-style enclosures

MANUAL CONTROLS

An economical option for single-hopper plants with a control house. The controls can be plugged into a remote location, limited only by the length of cable.

- **Weather-tight stand up and remote-style enclosures**
 - Variable Frequency Drives (VFDs)
 - Starters
 - Breakers
- **Hot Oil Heater Controls**
 - High media temperature limit
 - Heat trace pump
 - Modulating controller
 - Alarm reset
 - Burner lockout
 - Circulating pump
 - Low media pressure
 - Ignition lights
- **A/C flow totalizer**
- **A/C flow emergency stop**
- **Automated batch controls**
 - Touch screen
 - Variable rate control
 - Comprehensive product view flow rate and totalizer
 - Rubber/polymer continuous track of flow rates to achieve proper blend

D & H ADVANTAGES

EXPERIENCE

Our levels of experience run deep. For three generations, our family has worked in the contracting side of blending rubber asphalt and now includes more than 32 years working with and 20 years building rubber blending plants. We have taken our best knowledge of using crumb rubber and utilized it to make the most durable and user-friendly blenders on the market. The professional level of our management team members is equally impressive. Most team members (from our General Manager to welders and fabricators) bring 10, 15, or even 20+ years of experience in their areas of expertise. Combined, we have more than 200 years worth of reasons to make you feel comfortable with our “know how.”

EQUIPMENT

D&H Equipment, LTD offers a wide choice of models and configurations to meet various customer needs. The skid-mounted trial blender has a production rate of 10TPH with a 4,000 gallon reaction tank. The trailer-mounted combination blender has a production rate of 15 TPH with a 6,000 gallon reaction tank. The containerized blender has a 25 TPH production rate with a 38,000 gallon reaction tank (designed for a 2nd 40' sea container shipment). Our trailer-mounted 45 TPH USA Blender can consistently produce sufficient quantities to keep 30,000 gallon reaction tanks supplying asphalt rubber to the plant.

The motors, gear reducers and many of our machines' parts are universally available in cities throughout the world. This is a built-in advantage to our design. D&H heating coil design for our heaters includes high temperature resistance and exceeds industrial standards for fast, efficient heat. The valves we use are standardized to withstand high heat and we provide this feature at no extra cost.

TECHNICIANS

Our technicians work 100% of the time for D&H Equipment. When they are not in the field, they are in our facilities making field-tested improvements to our designs. We are consistently improving the equipment's' efficiency with a belief that innovation is forever on-going through open communication with customers and employees.

Each of our technicians has 10 to 20 years of experience with rubber blending plants. They are trained as experts in our highly-developed computer software. They are able to troubleshoot any mechanical scenario involving D&H equipment. Our technicians act as service personnel to the end-user and treat them with respect and politeness. We do not leave your job site until your personnel are completely comfortable running the equipment.

D&H service extends worldwide. Our technicians are available, with reasonable notice, to travel to you. We have serviced rubber blending plants and polymer blending plants from China to Portugal and from Brazil to Dubai.

TECHNOLOGY

D&H Equipment, LTD continues to stay on the cutting-edge of technology. We work with all of our vendors to offer the most efficient pumps, meters, and electrical components. Our control cabs feature automated as well as manual override controls, complete with digital displays and customized readouts. Our horizontal mixing containers create greater agitation of material and allow for safer, more contained flow of materials. The D&H Auto Loader can load containerized equipment onto a trailer without requiring a crane, loading dock, or forklifts. We have also designed a laboratory-sized foamer, the D&H AccuFoamer, for use in laboratory testing of asphalt rubber.

CURRENT CUSTOMERS

D&H Equipment, LTD provides our customers and end-users with high levels of quality, service, and value unmatched in our industry. We would be happy for you to contact any of our satisfied customers. Our extensive list of end-using customers is available upon request.

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