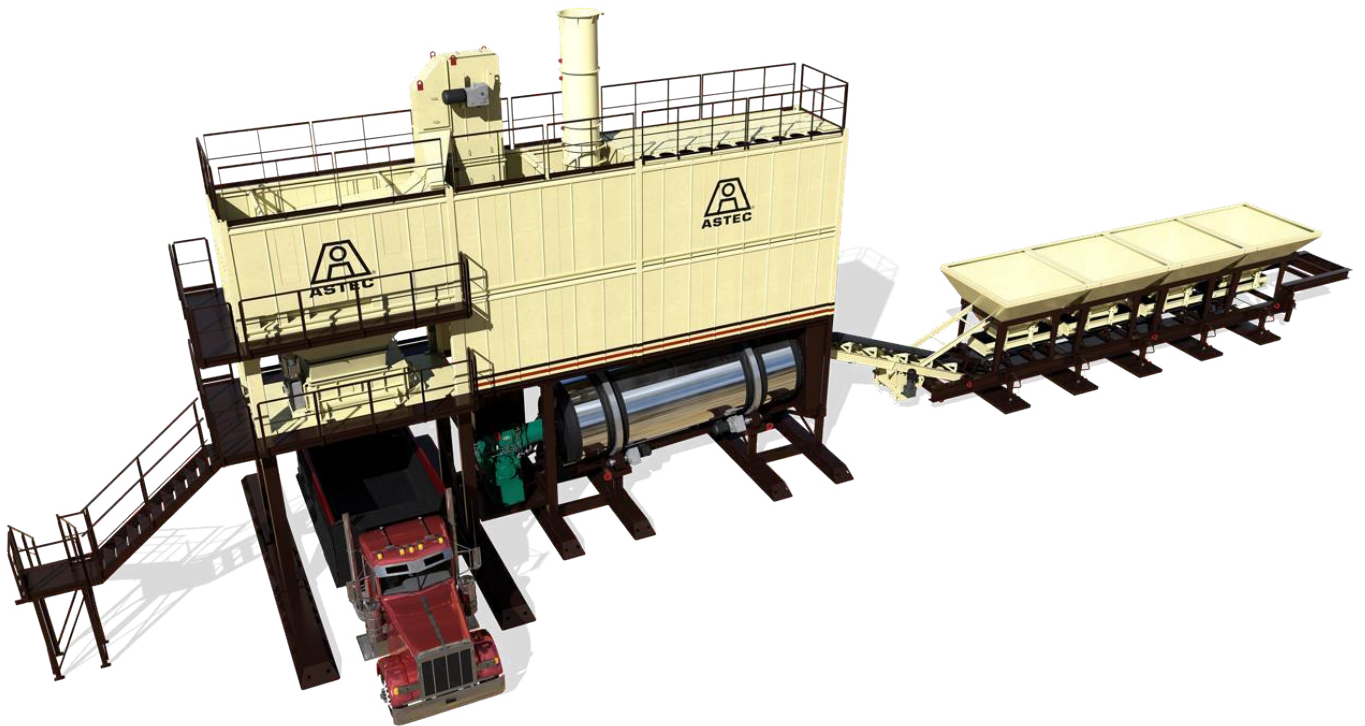




## INFRASTRUCTURE SOLUTION



*(Image for illustration purposes only)*

## **BG 1000 Hyper Modular Batch Type Asphalt Plant Facility for**

BUILT TO **CONNECT**

## **Product Description**

ASTEC BG 1000 Batch type mixing asphalt plant, with Automatic controls, computer system, printer and remote assistance capability.

Fully modern control system, with option to have remote assistance via internet (supplied by customer). Offering both manual and automatic operations.

## **SCOPE OF WORK**

The scope of works for this project include the supply of the referred equipment. Post supplies assist you in assembly, site installation, commissioning and as per below mentioned terms and conditions of sale.

## **Specifications**

### **PRODUCTION OUTPUT AND PARAMETERS**

#### **PLANT TYPE: MODEL: BG 1000**

Industry's best mix quality

Highest efficiency thanks to the patented Dryer designs.

Best in class emission

Lowest energy requirement (Built with technology that reduces your power consumption and power generator requirements).

Highly Modular Relocatable with steel base.

Minimal to almost Zero civil works

Requires the least area for set up.

Easily sets up with small capacity crane.

All units are easy to assemble and mount.

#### **PRODUCTION CAPACITY:**

Overall Rated Capacity: 60-80 T/Hr @ 3 % moisture content

Drying Capacity: Max. 80 T/Hr @ 3 % moisture content

Mixing capacity: 80 T/Hr max.

#### **PLANT IS RATED AT THE BELOW CONDITIONS**

Cold feed aggregates: 3% moisture content

Density of aggregates: 1600 kg/m<sup>3</sup>

Residual moisture content at dryer outlet: <0.5%

Final product temperature: 160 deg C

Ambient temperature: above 20 deg C

Diesel fuel calorific value: maximum 10200 K Cal/kg

## **AGGREGATES**

Aggregates type in accordance with International Standards

Maximum size: 40 mm

Specific Heat: 0.21 K Cal/kg

Density min: 1.65 T/m<sup>3</sup> (bulk)

Physical characteristics: Non-hygroscopic and Non-porous

The dryer drum production rate is calculated by summing the aggregates capacity at the drum outlet and the capacity of the fines reclaimed by the dust collection system.

### **MIX RECIPE**

The production is rated at the following percentages of components used:

Aggregates: 90%

Imported filler: 5% max

Bitumen: 7% max

Sand content (0-3mm): 30-40%

Fines content maximum (<75 µm) : 10%

Bitumen content max : 7 %

Residual moisture content (%) H<sub>2</sub>O < 0, 5%

Nominal output temperature: 160 Deg C

Variations of the above-mentioned parameters, particular ambient conditions or properties of the aggregates can alter production rates.

### **FUEL SPECIFICATIONS**

Burner Fuel: Natural Gas with a Lower Heating Value of 35006 KJ/m<sup>3</sup>

Burner Fuel: Natural Gas with a Higher Heating Value of 38638 KJ/m<sup>3</sup>

Burner Fuel: Diesel Oil PCI 42480 KJ/kg

Allowance has been made to include a waste fuel oil heater to reduce the viscosity of waste oil, subject to compatibility of the waste oil specification.

### **Scope of Supply**

All units are dimensioned for easy transportation.

The plant can be easily upgraded to produce recycled mixes anytime in the future, with simple recycle add on features.

### Cold Aggregates Feeding Bin



- ☒ 4 x Cold feed bins, 7.0 m<sup>3</sup> each. Volumetric bins
- ☒ Inverted Pyramid with ideal slopes
- ☒ 4 units with individually controlled VFD
- ☒ An -bridging device on bin for sand bin
- ☒ Loading width 3.0 m
- ☒ Hoppers made from high quality 5mm steel
- ☒ Easy-set-up extensions
- ☒ Adjustable gates for manually regula ng material flow
- ☒ Powered by high efficiency low power consuming geared-motor arrangement
- ☒ No-Flow indicators and controls on each bin
- ☒ supplied with steel base for easy set up
- ☒ Safety grids on upper part of bin for protec on
- ☒ **Extractor belts**
- ☒ Extractor belts with 20-60 T/Hr capacity
- ☒ Belt Tensioning device
- ☒ VFD steeples controls for feeding conveyor
- ☒ High strength belt
  
- ☒ **Mineral flow control system Alarm.**
- ☒ Each bin equipped with alarm no-flow indicators to indicate shortage of materials or an accidental interrup on of minerals out flow in one or more hopper.
  
- ☒ Transport width 2.3 m max

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### Collec ng Conveyor

- ☒ Steel wire reinforced collec ng conveyor
- ☒ 2 layers steel lined rubber belt
- ☒ Belt width: 500 mm
- ☒ Collec ng capacity 100 T/Hr
- ☒ Equipped with Belt Scrapers
- ☒ High efficiency rollers on efficient bearings

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### Charging Conveyor

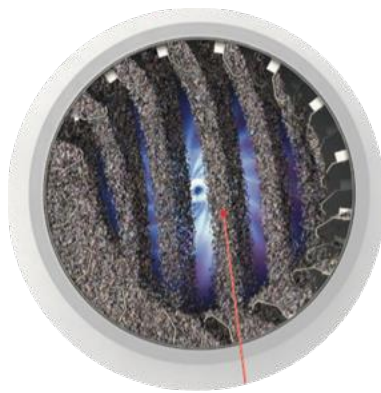
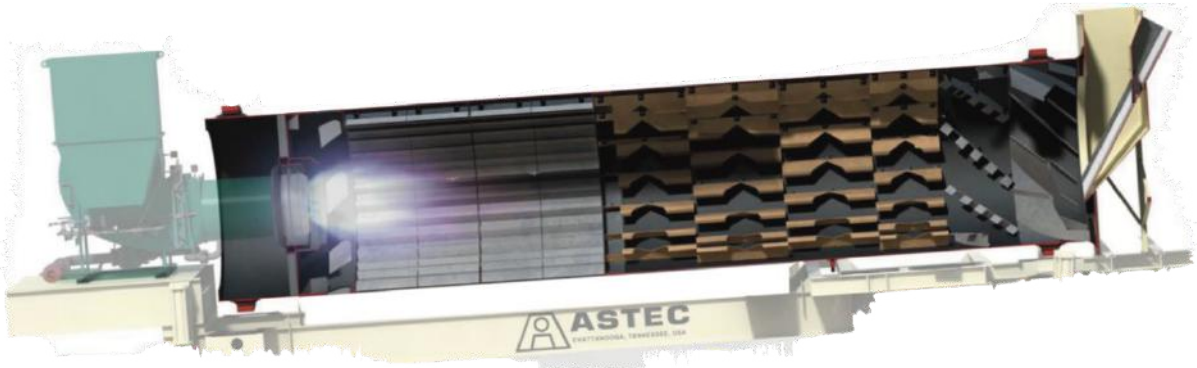
- ☒ Charging belt made from jointless rubber conveyor
  - ☒ Steel cord rubber belt
  - ☒ Capacity 100 T/Hr
  - ☒ Belt width 400 mm
  - ☒ High quality rollers
  - ☒ Scarper arrangement
  - ☒ Low height requirements
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**OverSize Removal Screen**

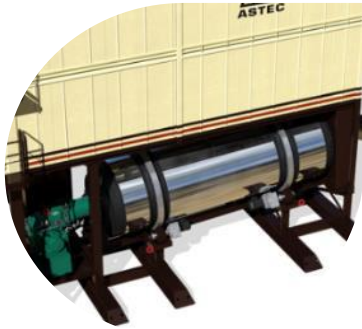
OverSize grizzly screen with fully enclosed vibrators  
44 mm x 44 mm screen opening size  
Diverted chute for rejection of over size  
High efficiency springs

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**High Efficiency Dryer drum  
1.5 m Diameter  
(Largest drying volume in the  
class)**



Dryer drum with 1.5 m diameter dryer  
High **efficiency patented** V-Flights designs  
Insulated 50 mm high grade rock wool and clad with  
Aluminium  
Drive 5.5 KW x 4 – direct shaft mounted gear boxes  
Production capacity: 80 T/Hr @ 3 % moisture content  
Aggressively drying type flights  
Specially designed and constructed drum rings  
Thrust wheels for arresting dryer movement  
Drum shell made from specially alloyed steel  
Dryer exit flights made in Hardox wear resistant steel  
Spring mounted dryer drum rings for smoother dryer  
drum rotations  
Specially designed ASTEC Combustion zone – reduces  
combustion zone wear & increases dryer life by 3 times,  
compared to competitors.  
Four wheeled heavy duty friction drive – no chains to  
maintain.  
Special dryer drum inlet seals to prevent loss of heat  
Heavy duty cross braced dryer for stability  
Low chassis height allows easy access and maintenance  
Easy burner maintenance platform  
Dryer outlet made from Hardox steel for wear resistance  
Infrared temperature sensor for dryer outlet  
temperature measurement  
Dryer drum frame integrated and cross braced  
Dimensioned for easy transport on trailers

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**HIGH EFFICIENCY MODULATING  
BURNER UNIT (AI)**

Complete mono-bloc dryer drum burner  
**Suitable for Diesel / Light Diesel Oil**  
Atomizer unit  
Low noise with silenced operation  
Operating with Auto and manual override.  
Burner controls - tracks dryer's pre-set temperature and adjusts the firing accordingly.  
High efficiency combustion technology  
Self-ignition system with electrical / pilot flame  
All necessary pressure meters, pressure switch, indicators, safety devices and controls  
Integral high efficiency fan,  
Flame detection using UV sensors with interlocks on pump and valves  
Controls coupled with Aggregate set temperature and stack set temperature  
Burner blower and exhaust fan interlocks for pre-purge operations  
Burner system status indication on the controller

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**DUAL STAGE  
High Efficiency Bag house type  
pollution control unit**



Two stage pollution control unit  
Primary inertial large size dust separator  
Traps large sized dust  
Specially designed bags and cages for long life  
Specially treated Meta-Aramid filtration media  
Automatic bag cleaning and operating  
Vario-controls for best filtration arrangement  
High efficiency Exhaust fan, 30.0 KW minimum power  
Enhanced performance and ratings  
Lower power consumption fan  
Stack height around 10 m from GL.  
Dust emission: Less than 20 mg/Nm<sup>3</sup>  
Overheating protection with temperature sensor

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**Reclaimed filler silo**

11.5 Ton reclaimed dust silo  
Dust recycling material transfer screws  
Level indicators  
System's unique design and powerful transmission does not need fluidifying system or aerators.  
Dust reject system

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**Batching tower BG 1000****Features**

Easy transportation in 2.3 m wide  
Sturdy frame and legs  
Easy set up design  
Dust extraction unit from tower

Hot elevator with 100 T/Hr capacity

Specially designed buckets

Heavy Duty Chains

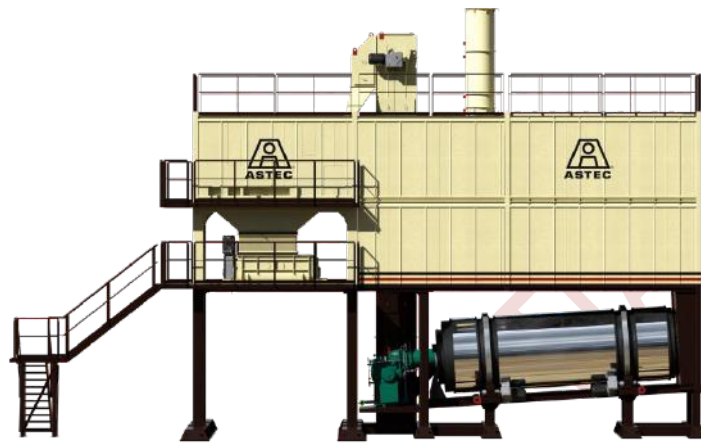
Screen by-pass

Powered by a geared motor without belts and chains

Anti-roll back arrangement

Easy inspection and maintenance doors

Bearings in specially alloyed cast high wear resistant material



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Vibrating screen fully enclosed

Allows separation of up to 4 aggregate sizes

Ripple flow type with vibrator

Capacity 100 T/Hr

Zero maintenance fully enclosed components for vibrators

Extra fine sieve size allows best control on air voids and pavement performance

Screen bypass arrangement

Overflow chutes

Enclosed and dust proof arrangement

Screen mesh made in special heat and abrasion material

Easily removable design

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Hot bins 13.0 T capacity  
Complete with level indicators  
Four compartments with bypass function  
Made from 6 mm alloy steel  
Sample extraction port from each bin  
Hot bin walls supplied with wear resistant liners  
Trap material to material liners  
Non-skid catwalks and protection  
Stairs as per international safety norms  
Thermo-couple in the sand bin for temperature measurement

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**Weighing and Feeding**

Aggregate, Bitumen and filler weighing system  
Aggregate with precision weighing  
Max Batch size 1000 kg  
Filler weigh hopper with precision weighing  
120 Kg capacity  
Bitumen weigh hopper with precision weighing  
100 kg capacity  
Feeding pump with three-way valve  
Electrically heated and insulated bin  
Spray pump for quick discharge into the mixer  
Thermo-couple for bitumen temperature control  
Load cell assisted fully automatic

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## High efficiency 3D mixer

### Features

#### Twin shaft pug mill mixer

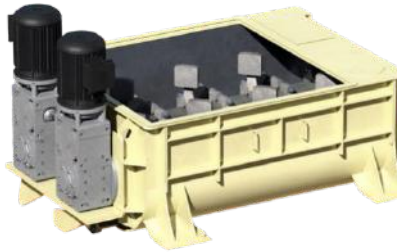
RUT ARRESTOR

POWER MIX

ZERO DRAG

FUTURE READY

ANTI AGEING



Mixer Capacity: 1000 kg

Max 1000 kg batch size

Powered with 2x15.0 KW geared motor

No pulleys, chains etc. completely maintenance free operations

Mixing cycle 45 seconds

Shafts designed and built-in high-quality alloy steel

Mixer paddles made from wear resistant steel

Replaceable design

Wear resisting design on arms

Wearing plate in high wear resistant steel

Mixer gate

Pneumatically controlled gate opening for quick emptying and segregation arresting.

Enclosed and evacuated covers and unit

Anti-ageing mixer unit

Ready for RAP addition in future.

Direct shaft mounted power gear

Extra power and RAP ready

Power spray

Enclosed connection between weighing bin and mixer unit

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## Control Centre



Modern control centre with Industrial Man Machine Interface

Control cabin Fully Air-conditioned with all round view

Centralized system, fully automatic with option to run on manual and semi-automatic modes

ASTECC Designed Siemens Industrial Interface

Remote connection options for reset, reconfigure and support

With ASTEC Operating system and controls

Latest state of the art PLC and modules Complete system built with European brand switch gear

Large single display for plant controls.

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**Electrical Cabling**

All wiring in suitable protective cable trays and pipelines.

All wires & cables coded

Electrical devices and connectors suitable for dusty environs.

Housed in suitable IP protective dust and waterproof container.

Main switch with under voltage circuit breaker, short circuit-quick switch action release as well as built-in faulty current circuit breaker supplied as standard.

Overload protection safety arrangement.

Lighting arrestor to be supplied & installed by client at site to meet local site requirements

**All units rated for 400 V, 50 Hz power supply.**

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**Customers scope**

When not opting for Astec supplied bitumen tank and heating system.

The bitumen pipeline must be supplied up to the batching tower legs.

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## OPTIONS

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### Steel Base

The hyper modular plant is supplied with steel base which enable set up of the plant without major civil and foundations works

Steel base for cold feedbins, dryer drum, batching tower is supplied as standard.

The ground needs to be compacted and levelled, with a bearing capacity of not less than 10T/m<sup>2</sup>.

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### Foreign filler silo 15 T

15 MT storage

Filler weighing arrangement

Dust proof and fully enclosed

Filler feeding pipeline (customer to arrange for charging system)

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### IN LINE HOT MIX STORAGE SILO



30 MT storage silo

With option for reject / direct load out

Insulated with heavy duty 50 mm insulation

High level indicator

Pneumatically operating gates

Electrical heating on gate

Modular design.

Extended steel base

Elevated tower section

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To be supplied by the customer :

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**Air Compressor**

Package Air compressor with dryer

Storage tank 500 ltrs

15 kw power

Complete with valves

Filter

Lubricator

Instrumentation panel

Screw type air compressor of reputed brand.

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*Air compressors need, local support and spares and therefore it is recommended that you use your nearest compressor dealer to supply & support you with the spares and service.*

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**Schedule D : Delivery**

The ordered standard plant configuration will be delivered ex works within 12 weeks from the date of order and receipt of payment.

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**Schedule E: Warranty**

The offered equipment is covered under warranty against any manufacturing defects, for a period of 12 months from the date invoicing. The warranty doesn't cover operations which are not as per manufacturers recommendations, or arising from normal wear and tear, neither covers any electrical components Or damages caused due to any accidents due to non compliance to safety norms.

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**Schedule F : Customer scope (refer to standard Astec scope & Use)**

Arrange for necessary ground work.

Provide all inputs to the plant, including aggregates, bitumen, filler etc.. power, lubricants etc.

Supply all material handling equipment and man power

Fitters and electricians for setup of the plant

Loading equipment

Main electrical cable and change over station

Other parts not exclusively mentioned in this offer

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**Schedule E: Exclusions**

The following items are excluded from Astec's Installation Scope of Works:

Site allowances  
Site surveys  
Placement of equipment foundations  
Supply of embedded concrete foundation bolts and plates  
Trenching for underground conduit supply  
Telecom communication  
Local authority requirements, permits and submissions  
Site clearing and civil work  
Site drainage and access  
Mains power and connection to Astec's Power Room, Control Room and other permanent buildings including site main disconnect and metering system  
Plant fire services including extinguishers and ring mains  
Mains gas line or fuel line to burner connections  
Fuel tanks for burners (if required)  
Bundling of fuel tanks and bitumen storage tanks  
Ramps and retaining walls for bins  
Fencing and site security during installation to handover  
Equipment enclosures or access fencing guarding  
Bunker storage facility for raw materials (sands, gravels and RAP)  
Yard lighting and power points  
Ticket transfer system from control room to trucks (See options)  
Supply of bitumen for commissioning  
Supply of virgin aggregates for commissioning  
Testing of commissioning and test mixes  
Testing for environmental compliance  
Load cells for hot storage silos are not trade certified  
Grounding System for all equipment  
Handicap accessibility to the control center  
Lightning protection system (including wire and ground rods)  
Arc Flash Hazard Analysis  
Any modifications to existing equipment  
Any other equipment, services, controls, materials, permits, certifications, or other items not specifically identified in this contract including but not limited to Structural Observation, Structural Inspection, Electrical Observation and Electrical Inspection.

The following additional items will be required for placing the equipment into operation and are your responsibility:

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Baghouse compliance stack test in accordance with operating permit requirements  
Bundling of fuel tank and bitumen tanks in accordance with Standards  
Furnishing and installation of flexible or hard piped fill line between fuel delivery truck and fuel tank(s)  
Furnishing and installation of flexible or hard piped suction line between AC delivery truck and AC unloading pump(s)  
Gas regulator on incoming line  
Earthing system for all equipment  
Handicap accessibility to the control centre if required  
Lightning protection system (including wire and ground rods), where required

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