

# Cat<sup>®</sup> FB140

## FEEDER BREAKER

### Specifications

#### General Specifications

Gross Vehicle Weight	29 483 kg to 49 895 kg	75,000 lb to 110,000 lb
Seam Height	1371 mm and higher	54 in and higher
Processed Material	Run of mine coal with high percentage rock content	
Material Throughput FB140	1385 tonne/hr	1,526 ton/hr
FB140 Narrow	1187 tonne/hr	1,308 ton/hr
Breaker Tip to Tip Diameter	635 mm, 686 mm and 813 mm	25 in, 27 in and 32 in
Breaker Pick Force – Variable (Maximum)	60 000 kg	130,000 lb
Material Compressive Strength (Maximum)	200 MPa	30,000 psi
Total Horsepower (Maximum)	260 kW	350 hp
Intake End Design	Ram car, 3 way dump, hopper with sideboards	
Tractive Effort (Maximum)	56 700 kg	125,000 lb
Tram Speed	0 to 13.7 m/min	0 to 45 fpm
Flexibility of Configuration	High	

#### Frame Plate Specifications

Main Frame Side Plate	AR steel
Top Deck Plate	HR steel and CCO
Breakershaft Impact Plate	HSLA steel and CCO
Bottom Deck Plate	AR steel

#### Conveyor Chain Specifications – Standard

Ultimate Strength	90 720 kg	200,000 lb
Pitch	89 mm	3.5 in
Pin Diameter	24 mm	0.94 in
Flight Dimension	64 mm T × 127 mm W	2.5 in T × 5 in W
Flight Construction	One piece solid barstock	
Flight Attachment Method	Mounts to extended pins on the chain	
Take Up Method	Grease cylinder with steel shims	

#### Conveyor Chain Specifications – Optional

Ultimate Strength	127 000 kg	280,000 lb
Pitch	95 mm	3.75 in
Pin Diameter	29 mm	1.13 in
Flight Dimension	70 mm T × 127 mm W	2.75 in T × 5 in W
Flight Construction	One piece solid barstock	
Flight Attachment Method	Mounts to extended pins on the chain	
Take Up Method	Grease cylinder with steel shims	

#### Headshaft Specifications

Shaft Diameter	127 mm	5 in
Bearing Bore	125 mm	4.94 in
Drive Attachment Method	Splined	

#### Tailshaft Specifications

Shaft Diameter	100 mm	3.94 in
Bearing Bore	100 mm	3.94 in
Chain Engagement	Roller	

# FB140 Feeder Breaker

## Crawler Specifications

Drive Method	Torque hub, 36:1 planetary reduction	
Hydraulic Tram Motor	Low speed, high torque Geroler 311 cc or 398 cc	
Pad Width	381 mm or 508 mm 15 in or 20 in	
Take Up Method	Grease cylinder with steel shims	
Tractive Effort (Maximum)	45 360 kg	100,000 lb
Tram Speed	0 to 13.7 m/min	0 to 45 fpm
Ground Pressure	16 452 kg/m <sup>2</sup> to 21 445 kg/m <sup>2</sup>	23.4 psi to 30.5 psi
Grade (Maximum)	15%	
Freewheel Tow Specification	134 m/min (5 mph) unlimited distance	
Parking Brake	Yes	
Overload Protection Method	Hydraulic relief set at 155 bar (2,250 psi)	

## Breakershaft Specifications

Shaft Diameter	203 mm or 254 mm	8 in or 10 in
Bearing Bore	157 mm or 203 mm	6.19 in or 8 in
Breakershaft RPM	52 to 67	
Bit to Flight Clearance	25 mm to 177 mm	1 in to 7 in
Adjustment Method	Manually adjustable, 50 mm (2 in) increments	
Breaker Pick Force – Variable (Maximum)	60 000 kg	130,000 lb
Breaker Tip to Tip Diameter	635, 686 and 813 mm	25, 27 and 32 in
Breaker Bit Description	Carbide tip hardface protection tapered shank	
Overload Protection Method	Underspeed Sensor	

## Power Unit Specifications

Electric Motor	200HP/AC/3PH/TEFC/MINE DUTY	
Gear Reducer	15:1 right angle triple reduction 262 Mech. HP	
Electric Motor/Reducer Coupling	Flexible element coupling	
Overload Protection Method	Friction disc clutch and amp overload relay	
Drive Chain	ASA 180-2 roller chain	
Driven/Drive Sprocket Ratio	32/14	
Main Hydraulic Pump	Axial piston open loop load sense 165 cc	
Piggyback Hydraulic Pump	Priority flow fixed disp. gear 16 cc or 25 cc	
Electric Motor/Pump Coupling	Flexible element coupling	
Drive Chain Tensioning Method	Grease cylinder with steel shims	

## Conveyor Drive Specifications

Gear Reducer	29:1 parallel triple reduction 220 Mech. HP	
Conveyor Hydraulic Motor	Radial piston motor 250 cc	
Overload Protection Method	Hydraulic relief and high pressure switch	
Conveyor Chain Speed	0 to 31 m/min	0 to 102 fpm

## Hydraulic Specifications

Main Hydraulic Pump	Axial piston open loop load sense 165 cc	
Piggyback Hydraulic Pump	Priority flow fixed disp. gear 16 cc or 25 cc	
Hydraulic Tram Motor	Low speed, high torque Geroler 311 cc or 398 cc	
Conveyor Hydraulic Motor	Radial piston motor 250 cc	
Control Valve Stack	Proportional spool valve load sense 8 section	
Conveyor Circuit Relief Pressure	345 bar	4,800 psi
Tram Circuit Relief Pressure	155 bar	2,250 psi
Hydraulic Hose Rating	345 bar	5,000 psi
Hydraulic Hose Fitting Type	JIC and face seal	
Oil Reservoir	567 L	150 gal
High Oil Temperature Switch Setting	74° C	165° F
High Oil Pressure Switch Setting	345 bar	5,000 psi
Reservoir Low Oil Level Switch	Yes	
Reservoir Oil Thermometer and Sight Glass	Yes	
High Pressure Filter	5 micron rating	
Return Pressure Filter	5 micron rating	
Oil Reservoir Breather Element	5 micron rating	
Heat Exchanger Style	Air over oil and/or water over oil	
Hydraulic Cylinder, Frame Lift and Tilt	Double acting, 305 mm (12 in) stroke	
Hydraulic Fluid Cleanliness Level	ISO 4406 16/14/12	
Oil Reservoir Power Fill	Yes	

## Electrical Specifications

Electric Motor	200HP/AC/3PH/TEFC/MINE DUTY	
Belt Sequence Sensor	Detects operation of the conveyor belt and will stop the conveyor chain when the conveyor belt is not moving and will restart the conveyor chain when the conveyor belt restarts.	
Breakershaft Overload Protection	Underspeed sensor	
High Oil Temperature Switch	Yes	
High Oil Pressure Switch	Yes	
Reservoir Low Oil Level Switch	Yes	
Remote Conveyor Start Method	Standard – tilt switch Optional – photo eye, push button station and radio transmitter	
Radio Remote (Optional)	Wireless control of tram, tilt cylinder and lift cylinder sections of the hydraulic valve stack	
Main Electrical Enclosure	IP 65 rating	
Conveyor Speed Control	Dust tight and low pressure wash down	
Circuit Overload Protection	Potentiometer	
Contact Type	Circuit breaker	
Electric Motor Protection	Vacuum	
	Electronic amp overload relay	

## Electrical Specifications (continued)

Programmable Logic Control (PLC) (optional)

Basic Operating Principal of PLC (if equipped) –

- Monitor the operating status of the feeder and warn/shut down when machine damage will occur
- Control the conveyor speed based on breakershaft electric motor current draw to protect components during high loads and conveyor jams
- Facilitate above ground communication and control through ethernet connections.

Typical Functions to be Monitored by PLC (if equipped):

- Hydraulic oil temperature
- Hydraulic oil level
- Component temperatures such as electric motor, gear reducer, bearings
- Hydraulic system pressure
- Hydraulic pump suction vacuum
- Breakershaft electric motor current draw, 3 phase current and 3 phase voltage
- Conveyor chain speed
- Hour meter for preventative maintenance scheduling
- Counter for number of times the hauler vehicles dump and time between dumps for statistical data gathering during operations time studies
- Power consumption

Electrical Safety Features

Emergency Stop Button	Quantity one, located on main electrical enclosure cover
Panic Strip, Intrinsically Safe	Quantity two, one centrally located on each side of feeder
Tram/Conveyor Mode Switch	Provide lockout of hydraulic functions <ul style="list-style-type: none"> <li>• Tram Mode – conveyor function disabled</li> <li>• Conveyor Mode – tram/cylinder function disabled</li> </ul>
Neutral Start Switch	Machine will not start unless tram levers are in neutral
Radio Remote Deadman Switch	Remote operation of the machine cannot occur without deadman switch being engaged
Siren/Flashing Light	Siren will sound upon initial machine start up and prior to each restart of the conveyor chain. The light will flash the entire time there is power on the machine.

## Fire Suppression Specifications

Manufacturer/Type	Approved Ansul dry chemical inspected by certified Ansul technician
Discharge Points	8 required
Activation Points	2
Chemical Cylinders	2 @ 7.5 kg (20 lb) each
Pressure Cylinders	2 pressure actuators

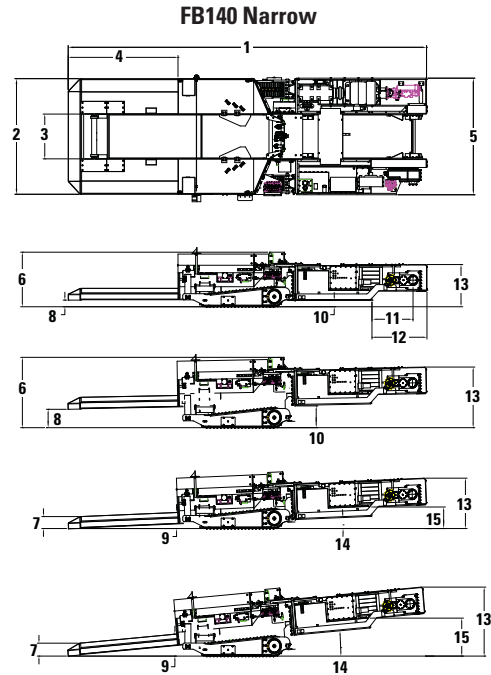
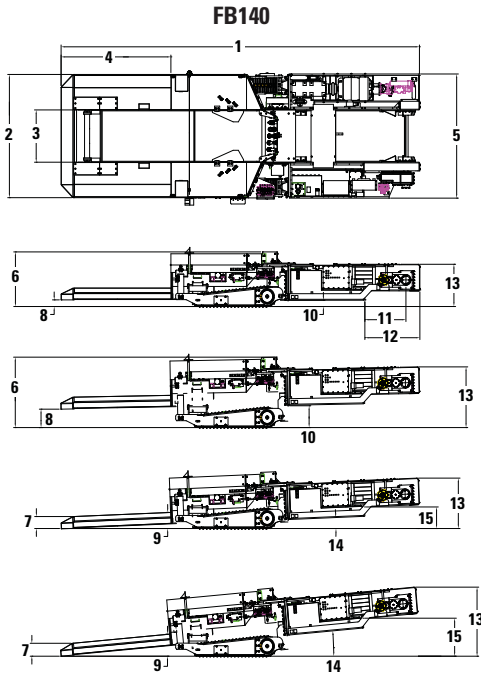
## Dust Suppression Specifications

Type of Sprays	Conical
Number of Sprays and Location	Six total located at upper hose crossover, three spraying inby and three spraying outby
Activation Method	Standard – pendulum switch Optional – electro-hydraulic solenoid activated by forward hydraulic pressure on conveyor motor
Filtration	“Y” strainer at inlet
Pressure Regulator	Adjustable 0 to 8.6 bar (0 to 125 psi)
Machine Washdown Hose	Connected to “Y” strainer clean out connection

## Greasing System Specifications

Grease Delivery Method	Manual
Number of Manifolds	Quantity three, main, electric motor and gear reducer
Main Manifold Location	Near the operator’s station
Main Manifold Serviced Components	Tailshaft, breakershaft, and headshaft
Electric Motor and Reducer Manifold Location	Near the electric motor and reducer

# FB140 Feeder Breaker



Minimum  
Tram Height

Maximum  
Tram Height

Minimum  
Dump Position

Maximum  
Dump Position

## Dimensions (All dimensions are approximate.)

		FB140		FB140 Narrow	
1 Overall Length (Maximum)		10 528 mm	34 ft 6.5 in	10 528 mm	34 ft 6.5 in
2 Receiving End Width		3353 mm	11 ft	3149.6 mm	10 ft 4 in
3 Conveyor Width		1422 mm	56 in	1219 mm	48 in
4 Length – Front of Hopper to Back Plate		3226 mm	127 in	3226 mm	127 in
5 Overall Width		3378 mm	11 ft 1 in	3175 mm	10 ft 5 in
6 Height with 305 mm (12 in) Sideboards	Minimum Tram Height	1486 mm	58.5 in	1486 mm	58.5 in
	Maximum Tram Height	1916 mm	75.43 in	1916 mm	75.43 in
7 Height of Hopper	Minimum Dump Position	326 mm	12.83 in	326 mm	12.83 in
	Maximum Dump Position	352 mm	13.84 in	352 mm	13.84 in
8 Ground Clearance – Receiving End	Minimum Tram Height	181 mm	7.12 in	181 mm	7.12 in
	Maximum Tram Height	501 mm	19.71 in	501 mm	19.71 in
9 Distance Ground to Top of Hopper	Minimum Dump Position	438 mm	17.26 in	438 mm	17.26 in
	Maximum Dump Position	601 mm	23.65 in	601 mm	23.65 in
10 Ground Clearance	Minimum Tram Height	171 mm	6.75 in	171 mm	6.75 in
	Maximum Tram Height	593 mm	23.35 in	593 mm	23.35 in
11 Distance from Head Shaft to Main Frame		1207 mm	47.5 in	1207 mm	47.5 in
12 Distance from Discharge to Main Frame		1616 mm	63.63 in	1616 mm	63.63 in
13 Frame Height	Fixed	1149 mm	45.25 in	1149 mm	45.25 in
	Maximum Tram Height	1651 mm	65.01 in	1651 mm	65.01 in
	Minimum Dump Position	1372 mm	54 in	1372 mm	54 in
	Maximum Dump Position	1879 mm	73.98 in	1879 mm	73.98 in
14 Discharge Angle	Minimum Dump Position		2°		2°
	Maximum Dump Position		5°		5°
15 Ground Clearance – Discharge End	Minimum Dump Position	587 mm	23.10 in	587 mm	23.10 in
	Maximum Dump Position	1034 mm	40.71 in	1034 mm	40.71 in

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