

FRD FURUKAWA FURUKAWA ROCK DRILL USA

Breaker/Attachment
Division

Meeting the Equipment Needs of the Mining and Construction Industries.



Improved Breaker Design Increases Productivity

Furukawa's latest small **Fxa** series breakers result from changes to just three internal components -- the piston, cylinder liner and seal retainer. As a result, the **Fxa** series is harder-hitting and increases productivity.

Nearly all components are interchangeable, and you can continue to use the same working steel...same seal kit...and same front bushing.

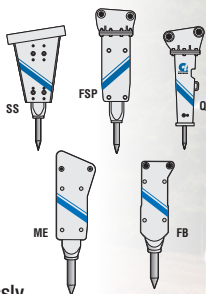
Features and Benefits:

- Mono-block design with only two moving parts reduces maintenance
- No thru-bolts to maintain or diaphragm to replace
- Field replaceable front wear bushing keeps tools in peak performance
- Wide oil flow range for fast, hard-hitting performance and more carrier options
- A variety of mounting options that can accommodate any carrier or application
- Field replaceable long front head bushing keeps steel in proper alignment for maximum service life
- Oval retaining pin for increased steel contact and double service life (Fx45a/Fx55a only)

5 Configurations:

FB Version (Fx15a-Fx35a) ME Version (Fx35a-Fx55a):

Breakers assembled with full-length side plates for direct mounting to mini-excavators and small rubber tire backhoes, not utilizing quick couplers.



SS Version (Fx35a-Fx55a):






Breakers assembled in a one-piece bracket incorporating a universal quick-attach feature expressly for skid steer application. No flexibility in carriers utilized.

FSP Version (Fx35a-Fx55a): Breakers assembled in side plates that require a bolt-on top cap or universal quick-attach bracket for carrier mounting. Allows flexibility of utilization between mini-excavators, rubber tire backhoes and skid steers.

Qt Version (Fx35a-Fx55a): Breakers totally encased in a protective, welded 'box' designed to reduce noise levels that require a bolt-on top cap or universal quick-attach bracket for carrier mounting. Allows flexibility of utilization between mini-excavators, rubber tire backhoes and skid steers.

Fx15a/25a/35a/45a/55a



IMPACT ENERGY CLASS	<i>Fx15a</i> - 150 ft lb	<i>Fx25a</i> - 275 ft lb	<i>Fx35a</i> - 375 ft lb	<i>Fx45a</i> - 550 ft lb	<i>Fx55a</i> - 800 ft lb
Weight in lbs (kg)*					
FB/ME configuration	130 (59)	181.5 (82.33)	278 (126)	n/a	n/a
SS configuration	n/a	n/a	549 (247)	784 (356)	840 (381)
FSP configuration**	n/a	n/a	460 (209)	606 (275)	714 (324)
Qt configuration**	n/a	n/a	470 (213)	550 (250)	720 (327)
Length in inches (mm)*					
FB/ME configuration	36.63 (930)	43.5 (1,106)	49.38 (1,254)	n/a	n/a
SS configuration	n/a	n/a	51 (1,295)	57.5 (1,461)	61 (1,549)
FSP configuration**	n/a	n/a	50 (1,270)	54 (1,372)	60 (1,524)
Qt configuration**	n/a	n/a	48.5 (1,232)	52.75 (1,340)	57.5 (1,461)
Working Steel***					
Diameter in inches (mm)	1.42 (36)	1.77 (45)	2.05 (52)	2.36 (60)	2.68 (68)
Replaceable length measured from front head in inches (mm)	7 (175)	8.5 (215)	9 (225)	9.5 (240)	10 (250)
General Specifications					
Blows per minute (variable)	600 ~ 1,500	600 ~ 1,500	600 ~ 1,500	600 ~ 1,100	500 ~ 1,100
Previous oil flow range gpm (lpm)	2.6 ~ 5.8 (10 ~ 22)	4.75 ~ 8.5 (18 ~ 32)	6 ~ 11 (24 ~ 42)	7.9 ~ 14.8 (30 ~ 56)	10.5 ~ 19 (40 ~ 72)
Increased oil flow range gpm (lpm)	2.6 ~ 7.4 (10 ~ 28)	4.7 ~ 9.2 (18 ~ 35)	6 ~ 14 (23 ~ 53)	7.9 ~ 15.9 (30 ~ 60)	10.5 ~ 22.5 (40 ~ 85)
Operating pressure psi (MPa)	1,450 ~ 2,030 (10 ~ 14)	1,450 ~ 2,030 (10 ~ 14)	1,740 ~ 2,320 (12 ~ 16)	1,740 ~ 2,320 (12 ~ 16)	1,740 ~ 2,320 (12 ~ 16)
Qt configuration; 85 dB(A) @	n/a	n/a	7.5 - meters	7.5 - meters	8.0 - meters
Recommended carrier range in U.S. tons	0.55 ~ 1.65	1.1 ~ 2.75	1.65 ~ 4.41	2.75 ~ 6.1	4.4 ~ 7.7
Carrier Options					

Notes

* Weights and lengths for all configurations include standard Working Steel (less mounting & Hose Whips)

** Weights and lengths for FSP's & Qt's include a Universal Top Cap (less mounting & Hose Whips)

*** All working steels are interchangeable with the previous F-Series

CARRIER OPTIONS

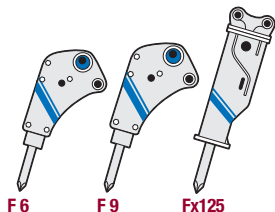


■ MEDIUM SERIES HYDRAULIC BREAKERS

Features and Benefits:



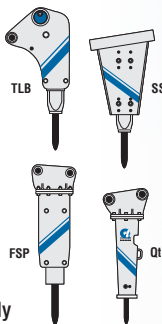
- The TLB version is available with Furukawa's patented Switch Hitch side plate mounting system. An indexing disc inserted in the side plate can be easily changed to accommodate quick-couplers for many backhoes.
- Longer thrust bushing improves piston alignment during impact and incorporates grease holes to evenly distribute grease in the front head.
- CD designed side bolt threads (only applies to F6 and F9) provide even load distribution and greater surface contact between the nut and bolt reducing the chances of thru-bolt failure.
- Increased front head wall thickness for added service life.
- The new Fx125 for backhoes and excavators has eliminated a problem that has long plagued the breaker industry – thru-bolts with the development of the mono-block design.



4 Configurations:

TLB Version:

Breakers assembled with full-length side plates for direct mounting to mini-excavators and small rubber tire backhoes, not utilizing quick couplers.



SS Version (F6 only):




Breakers assembled in a one-piece bracket incorporating a universal quick-attach feature expressly for skid steer application. No flexibility in carriers utilized.

FSP Version: Breakers assembled in side plates that require a bolt-on top cap or universal quick-attach bracket for carrier mounting. Allows flexibility of utilization between mini-excavators, rubber tire backhoes and skid steers.

Qt Version: Breakers totally encased in a protective, welded 'box' designed to reduce noise levels that require a bolt-on top cap or universal quick-attach bracket for carrier mounting. Allows flexibility of utilization between mini-excavators, rubber tire backhoes and skid steers.

F6/9/Fx125



IMPACT ENERGY CLASS	F6 - 1,000 ft lb	F9 - 1,500 ft lb	Fx125 - 2,000 ft lb
Weight in lbs (kg)*			
TLB Version	700 (317)	1,120 (508)	1,348 (611.4)
SS Version	939 (426)	n/a	n/a
FSP Version	875 (397)**	1,121 (554)**	n/a
Qt Version	958 (434)**	1,403 (636)**	1,820 (825.5)
Length in inches (mm)*			
TLB Version	57 (1,448)	63.25 (1,606)	77 (1,956)
SS Version	63 (1,600)	n/a	n/a
FSP Version	56.5 (1,435)**	75.5 (1,918)**	n/a
Qt Version	55.25 (1,403)	74.5 (1,461)	94.25 (2,394)
Working Steel***			
Diameter in inches (mm)	3 (76.2)	3.5 (90)	4.33 (110)
New length measured from front head (in)	17.75 (451)	19.5 (495)	26.75 (680)
Replaceable length measured from front head (in)	12.25 (311)	13.75 (349)	15.94 (405)
General Specifications			
Adjustable BPM	650 ~ 1,500	550 ~ 900	400 ~ 650
Acceptable GPM Range (LPM)	13 ~ 40 (50 ~ 150)	17 ~ 30 (65 ~ 114)	18.5 ~ 31.5 (70 ~ 119)
Acceptable PSI Range (Bar)	1,450 ~ 2,030 (100 ~ 140)	1,700 ~ 2,150 (120 ~ 150)	2,320 ~ 2,610 (160 ~ 180)
85 dB(A) Qt version @	10 - meters (Qt)	11 - meters (Qt)	12 - meters (Qtv)
Recommended Carrier Range in U.S. tons	6 ~ 7	7 ~ 10	10 ~ 15
Carrier Options			



Notes

* Weights and lengths for all configurations include standard Working Steel (less mounting & Hose Whips)

** Weights and lengths for FSP's & Qt's include a Universal Top Cap (less mounting & Hose Whips)

*** All working steels are interchangeable with the previous F-Series

■ LARGE Fx SERIES HYDRAULIC BREAKERS with Qtv Technology

Features and Benefits:

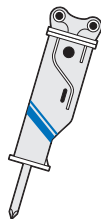
- Increased hydraulic flow range for use on a wider range of carriers
- Mono-block design eliminates a separate cylinder, front head and thru-bolts
- Improved Dust Intake Prevention system increases reliability
- Replaceable cylinder liner with concentric porting keeps piston aligned for maximum impact performance
- Improved valve design reduces hydraulic fluid temperatures which increases performance
- Longer thrust bushing for increased internal alignment also insures direct impact with piston
- 3-point sealing system prevents internal contamination
- Redesigned piston increases surface contact to working steel
- Improved dampening system keeps breaker properly secure in cradle to reduce wear
- Qtv cradle designed for improved protection, sound suppression and dampening
- Increased and improved lubrication to critical components
- Square body design for superior strength

Why? NO THRU-BOLTS.

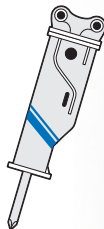
NO Torquing Thru-Bolts

NO Broken Thru-Bolts

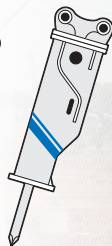
NO Downtime due to Broken Thru-Bolts



Fx175 Qtv



Fx225 Qtv



Fx275 Qtv



Fx375 Qtv



Fx475 Qtv

Fx175/225/275/375/475 Qtv Series



IMPACT ENERGY CLASS	Fx175 Qtv - 3,250 ft lb	Fx225 Qtv - 4,250 ft lb	Fx275 Qtv - 5,250 ft lb	Fx375 Qtv - 6,500 ft lb	Fx475 Qtv - 8,500 ft lb
Weight in lbs (kg)*	3,084 (1,402)	3,734 (1,694)	3,758 (1,705)	5,390 (2,444)	7,021 (3,185)
Length in inches (mm)*	100 (2,540)	113 (2,870)	119 (3,026)	135 (3,249)	146 (3,708)
Working Steel					
Diameter in inches (mm)	4.72 (120)	5.31 (135)	5.51 (140)	6.10 (155)	6.69 (170)
New length measured from front head in inches (mm)	27.36 (695)	29.02 (737)	30.3 (770)	31.89 (810)	32.68 (830)
Replaceable length measured from front head in inches (mm)	16.14 (410)	16.93 (430)	17.72 (450)	19.30 (490)	20.08 (510)
General Specifications					
Adjustable BPM	450 ~ 600	350 ~ 550	350 ~ 550	300 ~ 450	250 ~ 350
Acceptable GPM Range (LPM)	26 ~ 42 (98 ~ 158)	33 ~ 50 (124 ~ 189)	38 ~ 58 (144 ~ 220)	45 ~ 69 (170 ~ 261)	53 ~ 79 (200 ~ 299)
Acceptable PSI Range (Bar)	2,320 ~ 2,610 (160 ~ 180)	2,320 ~ 2,610 (160 ~ 180)	2,320 ~ 2,610 (160 ~ 180)	2,320 ~ 2,610 (160 ~ 180)	2,320 ~ 2,610 (160 ~ 180)
85 dB(A)@	13 - meters	14 - meters	14 - meters	19 - meters	22 - meters
Recommended Carrier in U.S. Tons	13 ~ 22	21 ~ 26.5	21 ~ 33	28 ~ 44	39 ~ 61
Carrier Options	■	■	■	■	■

Note * Total weight and total length include standard working steel and universal top cap less mounting pins and bushings.

CARRIER OPTIONS



EXTRA LARGE SERIES HYDRAULIC BREAKERS

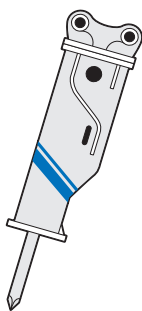
Features and Benefits:

> Fx800

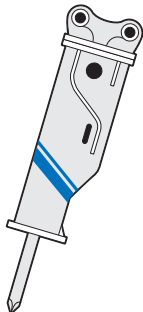
- Improved internal hydraulic routing increases performance and reduces energy loss
- Compatible with carriers ranging from 48.5 to 83 tons
- Large diameter 7.48" (190 mm) working steel maximizes rock breaking
- Modified thru-bolt design with larger thread diameter requires less maintenance
- Enhanced front head durability extends breaker-life longevity

> Fx1070

- Wide carrier range from 65 tons to 110 tons for use on a large variety of excavator models
- Large diameter working steel at 8.27" (210 mm)
- High back-head pressure (201-221 psi at 75 degrees to 95 degrees)



Fx800 Qtv



Fx1070 Qtv

Fx800/Fx1070



IMPACT ENERGY CLASS	Fx800 Qtv - 12,000 ft lb	Fx1070 Qtv - 15,000 ft lb
Weight in lbs (kg)*	10,742 (4,872)	14,550 (6,600)
Length in inches (mm)*	155.7 (3,955)	149.60 (3,800)
Working Steel		
Diameter in inches (mm)	7.48 (190)	8.27 (210)
New length measured from front head in inches (mm)	33.85 (860)	38.5 (978)
Replaceable length measured from front head in inches (mm)	21.25 (540)	25.25 (641)
General Specifications		
Adjustable BPM	250 ~ 330	200 ~ 375
Acceptable GPM Range (LPM)	66 ~ 90 (250 ~ 340)	52 ~ 99 (200 ~ 375)
Acceptable PSI Range (Bar)	2,320 ~ 2,610 (160 ~ 180)	2,320 ~ 2,610 (160 ~ 180)
85 dB(A)@	17 - meters	17 - meters
Recommended Carrier in U.S. Tons	48.5 ~ 83	65 ~ 110
Carrier Options	■	■

Note * Weight and length for all versions include standard working steel and "Universal" top cap.

CARRIER OPTIONS

EXCAVATOR



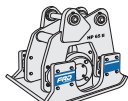
■ PLATE COMPACTORS

Features and Benefits:

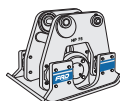
- Eliminates costly trench boxes and shoring
- Drives sheeting for retaining walls
- Rubber shocks absorb vibration protecting the carrier's boom
- Available with O.E.M. bolt-on top cap or floating boss design
- The TLB version is available with Furukawa's patented Switch Hitch side plate mounting system. An indexing disc inserted in the side plate can be easily changed to accommodate quick-couplers for many backhoes
- HP35's designed for use in narrow trenches with a footprint of only 12"
- HP65 II 18" is designed for use in 18" ditches or wider
- Unprecedented range of hanger brackets
- Wider range of impulse force: 3,000 lbs to 7,800 lbs



HP35 ME



HP65 II



HP75

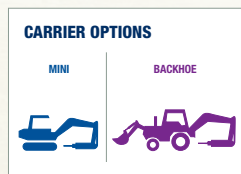


HP35 ME/65 II/75



COMPACTION MODEL	HP35 ME	HP65 II 18"	HP65 II 24"	HP75
Impulse Force lbs (kg)	3,000 (1,361)	6,500 (2,948)	6,500 (2,948)	7,800 (3,538)
Cycles Per Minute	2,000	2,000	2,000	2,000
Operating Pressure PSI (Bar)	2,000 (138)	2,000 ~ 2,400 (138 ~ 165)	2,000 ~ 2,400 (138 ~ 165)	1,800 ~ 2,200 (124 ~ 152)
Hydraulic Flow Req'd GPM (LPM)	7.5 (28)	12-15 (45-57)	12-15 (45-57)	18-22 (68-83)
Approximate Weight in lbs (kg)*	350 (159)	742 (336)	850 (385)	850 (385)
Approximate Height in inches (mm)*	20 (508)	27.5 (702)	27.5 (699)	27.5 (699)
Width in inches (mm)	12 (305)	18 (457)	24 (610)	24 (610)
Pin Spacing in inches (mm)	As required	As required	As required	As required
Mounting Pin Diameter	As required	As required	As required	As required
Base Plate Dimensions in inches (WxL) (mm)	12 x 26 (305 x 660)	18 x 34 (457 x 864)	24 x 34 (610 x 864)	24 x 34 (610 x 864)
Compaction Area sq. ft. (sq. m)	2.2 (.20)	4.25 (.39)	5.7 (.53)	5.7 (.53)
Hose Size in inches (mm)				
Pressure Line in inches (mm)	0.5 (13)	0.75 (19)	0.75 (19)	0.75 (19)
Return Line in inches (mm)	0.5 (13)	0.75 (19)	0.75 (19)	0.75 (19)
Carrier Options	■ ■	■ ■	■ ■	■ ■

Note * Weight and Height are specific for HydraPaks with Flat Top (FT) Hanger Assemblies, less mounting bracket.
For accurate weight and height for models utilizing a different or specific hanger arrangement, please contact our Engineering Department.



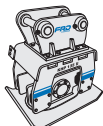
■ PLATE COMPACTORS

Features and Benefits:

- Drives sheeting for retaining walls
- Furukawa compactor/drivers feature special rubber shock absorbers which protect the boom by isolating it from the Hydra-Pak vibrations and a cross-over check valve protects the motor
- Available with O.E.M. bolt-on top cap



HP135 II



HP135 Ft II



HP210 II



HP210 Ft II



**HP135 II/135 Ft II/
210 II/210 Ft II**



COMPACTION MODEL	HP135 II	HP135 Ft II	HP210 II	HP210 Ft II
Impulse Force lbs (kg)	13,500 (6,124)	13,500 (6,124)	21,000 (9,525)	21,000 (9,525)
Cycles Per Minute	2,000	2,000	2,000	2,000
Operating Pressure PSI (BAR)	2,000 (138)	2,000 (138)	2,000 (138)	2,000 (138)
Hydraulic Flow Req'd GPM (LPM)	30 (114)	30 (114)	48 (182)	48 (182)
Weight lbs (kg)*	1,335 (606)	1,400 (635)	2,150 (975)	2,180 (989)
Height in inches (mm)*	34 (864)	27 (686)	39.5 (1,003)	32 (813)
Width in inches (mm)	28 (711)	28 (711)	34 (864)	34 (864)
Pin Spacing in inches (mm)	15.75 (400)	O.E.M.	18.70 (475)	O.E.M.
Mounting Pin Diameter	As required	As required	As required	As required
Base Plate Dimensions in inches (WxL) (mm)	28 x 40 (711 x 1,016)	28 x 40 (711 x 1,016)	34 x 46 (864 x 1,168)	34 x 46 (864 x 1,168)
Compaction Area sq. ft. (sq. m)	7.8 (.72)	7.8 (.72)	10.8 (1.0)	10.8 (1.0)
Hose Size in inches (mm) Pressure Line in Inches (mm) Return Line in Inches (mm)	0.75 (19) 1 (25)	0.75 (19) 1 (25)	1 (25) 1.25 (32)	1 (25) 1.25 (32)
Carrier Options	■	■	■	■

Note * Weight does not include pins and bushings for all models or bolt-on top cap for Ft models

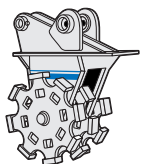
CARRIER OPTIONS



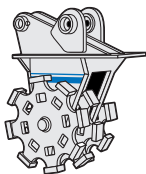
■ COMPACTION WHEELS

Features and Benefits:

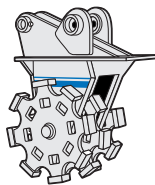
- Static wheel models available in pad foot design to accommodate various soil conditions
- Can reach safely into trenches without costly shoring equipment
- CW series open wheel design allows for deep penetration into lifts for greater compaction
- Cast manganese steel wheels – super strong, one-piece with no welds to fatigue and break
- Floating Top-Mount Boss – Our 'floating boss' mounting system incorporates standard mounting hardware while meeting 'OEM Pin Centers' for specific carrier mounting. This eliminates the long delays associated with OEM specific top caps
- Sealed high-strength composite bearings – The composite bearings are capable of carrying extremely high loads and are far less susceptible to contamination than ball or roller bearings
- All units come standard with grade plates for initial leveling



CW18 III



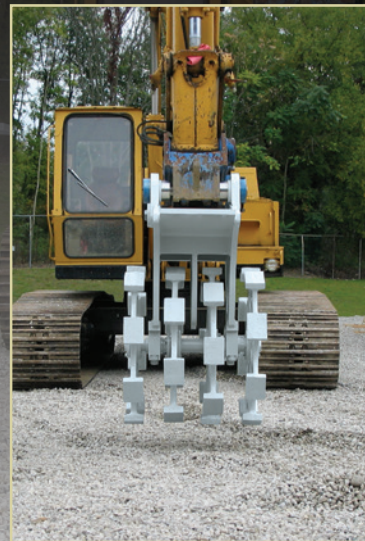
CW24 III






CW36 III



CW18 III/24 III/36 III



COMPACTION WHEEL	CW18 III	CW24 III	CW36 III
Weight in lbs (kg)	1,200 (544)	2,380 (1,080)	3,350 (1,520)
Wheel Width in inches (mm)	17 (432)	23 (580)	35 (889)
Height in inches (mm)	47.50 (1,200)	59 (1,499)	57.25 (1,450)
Bracket Spacing in inches (mm)	10.75 (273)	15 (400)	17 (430)
Wheel Diameter in inches (mm)	30 (762)	40 (1,000)	40 (1,000)
Number of Wheels	3	3	4
Foot Configuration	Pad Foot	Pad Foot	Pad Foot
Carrier Options			



The "floating boss" meets 'OEM Pin Centers' for specific excavator attachment.

CARRIER OPTIONS



■ TEFRA COUPLER

The Tefra Auto Coupler allows you to quickly and safely change attachments creating a very versatile base machine and more productive work environment. The coupler features a patented safety mechanism that eliminates the need for manual locking pins found on competitive couplers. The primary safety system consists of a uniquely designed set of hooks powered by a single cylinder and high specification hydraulic controls that lock the attachment securely into place. Our secondary locking system is an Active Protection System (the APS) consisting of 2 separate powerful springs (coil and leaf) that apply pressure to the hooks to ensure attachment retention at all times.

PRIMARY LOCKING SYSTEM



SECONDARY LOCKING SYSTEM



Features and Benefits:

- A unique, fully patented major safety feature of the TEFRA Coupler
- The Smart Valve is a simple, patented, totally effective solution ensuring that the attachment and release sequence cannot be started until the Coupler is orientated towards the operator and close to the ground. This eliminates the possibility of an unsafe situation occurring
- The Smart Valves compact design means it can be totally enclosed within the hydraulic cylinder at the center of the Coupler - this protected position means it cannot be contaminated
- It requires no routine maintenance and works in conjunction with other warning systems such as audible indicators to ensure a safe and easy operation

TEFRA COUPLER



Coupler Model	Carrier Range in Tons*	Pin Diameter Pick-Up in inches (mm)	Bottom Frame Width in inches (mm)	Pin Pick-Up Range in inches (mm)
TAC30	3 – 4	1.4 – 1.6 (35 – 50)	4.6 (117)	6.4 – 8.5 (162 – 217)
TAC50	5 – 7	1.6 – 2.2 (40 – 55)	5.6 – 7.2 (143 – 183)	8.5 – 10.7 (216 – 272)
TAC70	8 – 9	1.7 – 1.9 (44 – 50)	6.4 – 7.2 (163 – 183)	11 – 14 (279 – 356)
TAC130	10 – 14	2.3 – 2.5 (60 – 65)	8.6 – 9.4 (218 – 238)	13.6 – 17.1 (345 – 435)
TAC160	15 – 18	2.7 – 3.1 (70 – 80)	11 – 11.7 (277 – 298)	15 – 20 (386 – 510)
TAC210	19 – 13	3.1 (80)	10.9 – 11.7 (277 – 298)	15 – 20 (386 – 510)
TAC260	24 – 28	3.1 (80)	11.7 (298)	15 – 20 (386 – 510)
TAC325	29 – 33	3.5 (90)	14.8 (378)	18 – 22.5 (455 – 572)
TAC350	34 – 39	3.5 – 3.9 (90 – 100)	15.75 (400)	20.3 – 25.6 (517 – 650)
TAC450	40 – 50	3.9 – 4.3 (100 – 110)	17.4 (442)	20.3 – 25.6 (517 – 650)

* **NOTE:** Confirm all carrier and coupler compatibility with FRD USA engineering.

- Tefra couplers in 50 ton/65 ton/75 ton and 100 ton can be made to special order.
- We can also manufacture Mix and Match Tefra couplers to fit any special attachment size.



Built-in Safety with Redundant Locking Systems

Furukawa's Tefra coupler features a patented safety mechanism that eliminates the need for a manual locking pin. You get better productivity and increased machine utilization, without compromising safety. The coupler can be disengaged only when in the "full curl" position.



■ ENCORE RECERTIFICATION PROGRAM

Features and Benefits:

MAINTENANCE AS EASY AS I, II OR III.

The new Encore Recertification Program from FRD USA shifts the burden and expense of routine breaker maintenance onto factory-trained FRD technicians and away from overworked, understaffed service departments.

Designed to extend the life of your FRD hydraulic breakers, the unique Encore Recertification Program offers three distinct service levels, each incorporating various maintenance options. From routine tool inspection to complete overhaul, you choose the level that best suits your needs.

ADDITIONAL PROGRAM BENEFITS

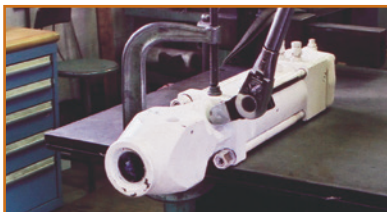
The Encore Recertification Program offers dealers and their customers even more flexibility with these additional benefits:

- Purchase one program tier, but retain the option to upgrade to the next tier while paying only for the level of service that is performed
- Purchase any additional parts required for proper repair – without additional installation charges

Encore
RECERTIFICATION PROGRAM

ENCORE *Recertification Program*





All tools are cleaned then disassembled for inspection of critical parts.



After disassembly, all parts are inspected for wear to determine replacement needs.



In tiers II and III tools are reassembled to factory specifications and re-painted.



Decals and model identification are applied prior to shipment.

YOU CHOOSE THE LEVEL THAT BEST SUITS YOUR NEEDS

Tier I: Offers a detailed inspection report including digital photographs complete with test firing.

Tier II: In addition to the inspection report, tier II includes all seals, a diaphragm, hose whips, four (4) backhead bolt or thru-bolts (as applicable) and related hardware. We'll even polish the piston and cylinder before reassembly. Your unit will be returned with a three-month warranty, fully assembled with all bolts factory-torqued, all nitrogen chambers properly charged and the breaker painted and decaled.

Tier III: The ultimate maintenance package, this level includes all services from tiers I and II, but adds many more features. We'll replace the thrust ring and front cover (if applicable) retainer pin(s), grease fitting, hose whips and all bushings, and provide you with a choice of one standard working steel. In addition, tier III includes a six-month limited warranty and free return freight.

MECHANICAL THUMBS/PNEUMATIC BREAKERS

Features and Benefits:

- Thumbs are equipped with a twist-resistant 'Inverted Y' stiff arm
- Expanded range of heavy-duty thumbs permits installation on mini-excavators, rubber-tired backhoes and excavators
- All steel tines are fabricated with AR400 (abrasion resistant) steel, serrated and gusseted. AR400 is 38% stronger, 46% harder and resists wear better than commonly used T-1 Steel
- Three versatile, ridged positions to adapt to a variety of working conditions
- Pins are machined out of hardened steel alloy
- Overall thumb width never exceeds the carrier's minimum bucket width eliminating potential interference during operation
- Thumbs fold flush and maintain a low profile when pinned flat against mounting bracket
- No additional parts required to hold thumb in retracted position



MT Series



CARRIER OPTIONS



MINI



BACKHOE





EXCAVATOR

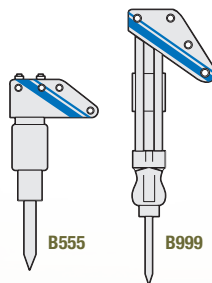
MECHANICAL THUMB	MT3X10	MT8X16	MT16X33	MT16X33 HD	MT33X40	MT40X55	MT55X65	MT65X80	MT80X120
Carrier Range x 1,000 lbs (kg)	3 - 10 (1 - 5)	8 - 16 (4 - 7)	16 - 33 (7 - 15)	16 - 33 (7 - 15)	33 - 40 (15 - 18)	40 - 55 (18 - 25)	55 - 65 (25 - 29)	65 - 80 (29 - 36)	80 - 120 (36 - 54)
Width in inches (mm)	8 (203)	12 (305)	18 (457)	18 (457)	18 (457)	24 (610)	30 (762)	34 (864)	36 (914)
Length in inches (mm)	28 (711)	40 (1,016)	48 (1,219)	48 (1,219)	52 (1,321)	58 (1,473)	62 (1,575)	63 (1,600)	73 (1,854)
Weight in lbs (kg)	108 (49)	371 (168)	535 (243)	710 (322)	820 (372)	996 (452)	1,410 (640)	2,452 (1,112)	3,105 (1,408)
Pin Diameter in inches (mm)	2.00 (50)	2.00 (50)	2.00 (50)	2.00 (50)	2.00 (50)	2.00 (50)	2.50 (64)	3.00 (76)	3.00 (76)
Tine Thickness in inches (mm)	0.50 (13)	0.75 (19)	0.75 (19)	1.00 (25)	1.00 (25)	1.00 (25)	1.25 (32)	1.50 (38)	2.00 (50)
# of Tines	2	2	3	3	3	4	4	4	4
Carrier Options	■	■ ■	■	■	■	■	■	■	■

B555/B999 AIR RAMS

Features and Benefits:

- > Automatic valve provides maximum power with a minimum of air consumption
- > Piston impacts tappet not working steel, protecting the piston from damage
- > Air cushions reduce impact action of piston and tappet reducing wear and tear of critical internal parts

AIR RAM MODEL	B555	B999
Impact Energy Class	500 ft lb	1000 ft lb
Weight in lbs (kg)	502 (228)	950 (431)
Chuck Size in inches	2.5 or 3.0	3.5
Blows per minute	600	600
Cu. ft./Min. Required	175	250
Carrier Options		



CARRIER OPTIONS

SKIDSTEER



MINI



BACKHOE



EXCAVATOR



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