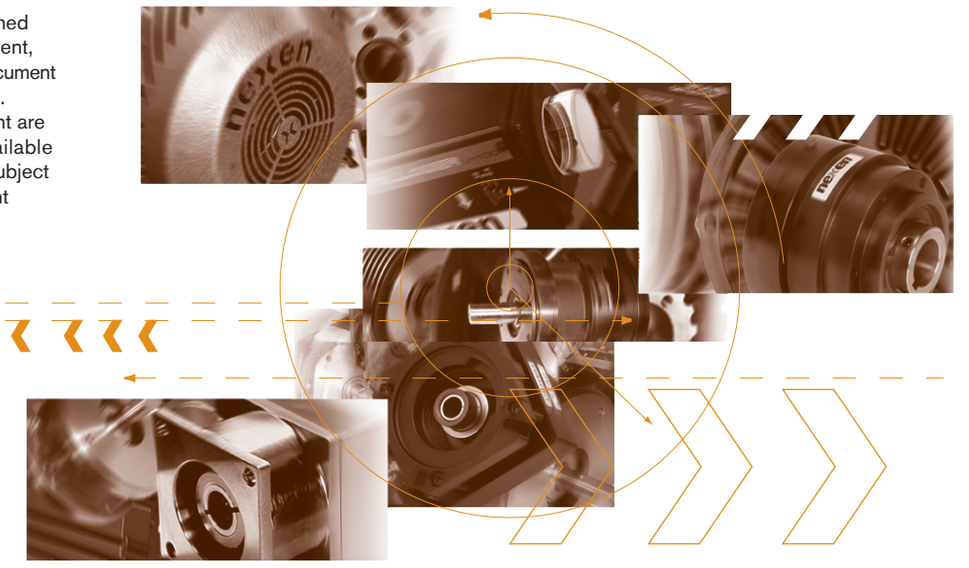
In accordance with Nexen's established policy of constant product improvement, the specifications contained in this document are subject to change without notice. Technical data listed in this document are based on the latest information available at the time of printing and are also subject to change without notice. For current information, please consult:
www.nexengroup.com



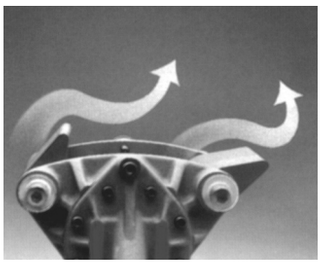
TENSION CONTROL BRAKES

This Section Contains: . . . .Page

NEXEN XTB TENSION CONTROL BRAKES

Cool performance for hotter profits.

The new airflow path design that keeps the XTB brake cool.



The caliper fins redirect dissipated heat out into space

It's just one feature of this brake that will help generate hotter profits. Its lower weight and rotational inertia will simplify installation and reduce web waste. Quick change components make maintenance a snap. Plus, Nexen technical service, parts and accessories are only a phone call away. No other tension control brake in the industry has such a comprehensive package of features. Affordably priced, the XTB series comes in various sizes to fit your application.

With all these features, it makes you wonder why you'd consider using any other tension control brake.

Keeping cool with the XTB airflow path.

Unlike other brake designs that can direct heat back into the brake, shaft and bearings, the XTB maximizes heat dissipation by deflecting it away from the brake components.

This unique airflow design uses fins on the rotor, hub back and calipers to throw dissipated heat into space, not into the brake or shaft. The design also helps draw cooler air around and over the brake.The new, one-piece lightweight rotor pulls cool air into the brake and draws it over the air hoses so they don't overheat and crack.

Note that air hoses run along the inner, not outer, circumference of the calipers. This keeps hose lengths to a minimum, to help protect them and keep them cool.

The airflow path then directs the air over the caliper fins. These fins redirect air out and away from the assembly.

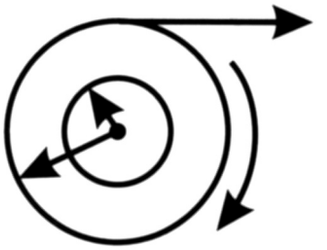
Fins on the back of the hub also draw cool air back over the calipers to help cool the friction material and hoses.

Tests run with the brakes at maximum torque show the XTB shaft temperature at 140° F, (60° C), the shaft temperature of a competitive brake at 240° F, (115° C) .

Recommended shaft bearing temperatures are normally around 170 ° F, (76° C). If this heat is not directed away, it travels back into the brake and up the shaft to the bearings. This can cause brake fade, shaft crystallization and bearing seal meltdown.

Less weight for lower rotational inertia

Not only is Nexen's rotor lighter than other brake rotors, the entire brake weighs 40% of what other brakes weigh for



Unwind roll dynamics

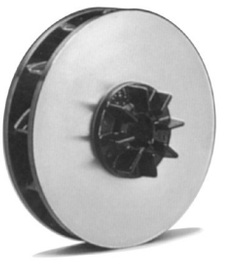
$RPM = V/2\pi R$ V = product velocity (constant)
R = unwind roll radius

$I = wk^2$ I = inertia
w = weight
k = radius

up to 2/3 less rotational inertia. Lower weight and lower rotational inertia are critical because of the dynamics of the unwind roll. Tension is constant and the radius is changing constantly. Lower rotational inertia makes the XTB more precise at lower torques. This is especially important when running delicate materials that require precise tension, such as tissue or nylon.

Lower rotational inertia for less web waste

The XTB has up to 2/3 less rotational inertia than other brakes. Rotational inertia creates undesirable tension that can break your web before your material runs all the way to the core. And your web will break even earlier when running delicate materials.



Fins on the one-piece rotor help deflect hot air and draw cool air over the brake.

Why waste several hundred feet of product every roll due to breakage?

Precisely control each caliper pneumatically or electronically

There are 2 pistons that activate the friction pads on each caliper. Choose up to 9 calipers per brake, depending upon brake size.

Precise control of the air pressure to the calipers generates the low to high torque range. High torque maintains the tension needs on a large roll of material. Low torque yields the delicate control needed near the core.

You get this precision control by using Nexen's Three Stage Caliper Control to divide the number of XTB calipers into three groups, or stages.

Pneumatically control these stages individually or in combination. This gives you the effect of having several brakes with different torque ranges.

For the ultimate in precision unwind control, combine the Three Stage Caliper Control with a Nexen Electronic Tension Control System. Don't risk downtime by using another brake you can't accurately control.

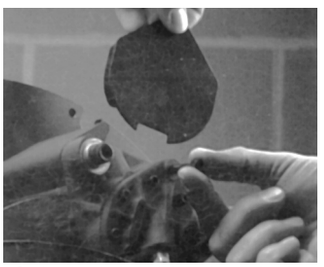
For precise control, choose a Nexen pneumatic or electronic controller.

Choose from a full line of controllers

Choose either single caliper or three stage caliper control for pneumatic control. For electronic control, choose from several models that vary by programability, readout and control sophistication. Please consult Nexen for the best controller for your application.

Less weight for easier installation

40% less weight also makes XTB brakes easier to install and maintain. You will not need to adjust pad overhang or shim the pads for proper installation. A lighter brake also puts less strain on shafts, unwind rolls, bearings and stands.

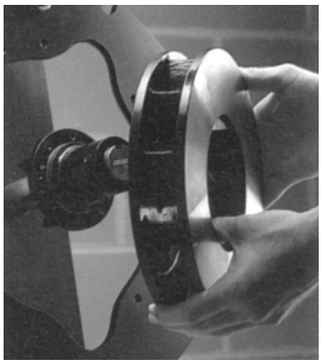


Spring-loaded retaining pins make the friction pads easy to change

Friction pads change quickly without tools, springs or cotter keys.

Change the caliper friction pads by releasing two spring-loaded friction facing retaining pins that hold them in place. Replace them in seconds without tools, leaf springs, hitch pins. Pad retaining rod, pins or clips. There are no screws or cotter keys to remove or drop into the machinery. You do not even have to remove the caliper from the brake to change the friction pad.

Friction pads are completely interchangeable, so you won't need to stock different size pads for different size brakes. These features will maximize your uptime and keep maintenance simple.



Remove the disc without removing or disassembling the brake.

Change the disc without removing the brake from the shaft

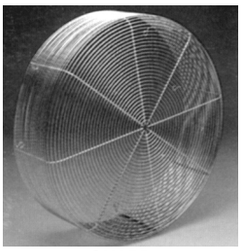
Changing the disc on other brakes is no simple task. You must remove the brake from the shaft and mark the location for the new disc. Then you must disassemble it until you have enough access to remove the old disc. With the XTB, you can change the disc by pulling it from the shaft without removing the entire brake. The new disc can be installed without marking the disc location because the hub stays locked and located on the shaft.

XTB Cooling Enhancement

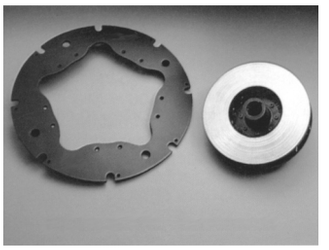
Increase heat dissipation at lower RPMs for increased performance without upgrading brake size. This squirrel cage fan mounts on the brake guard and blows air onto the hub and deflects heat out through the disc. Use it at lower RPMs when the rotor is less effective at dissipating heat because of the lower speed. Works on all XTB tension control brakes. Operates on 110 volts. Don't buy a larger brake just to get higher heat dissipation specifications. Try this cooling enhancement first!

Nexen Kits and Accessories

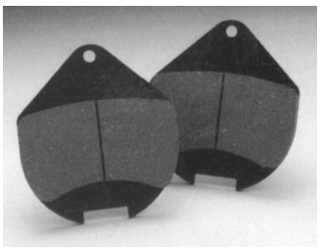
For information on Nexen kits, accessories or parts, including complete assemblies or individual rotors, hubs, mounting plates, friction pad kits or brake guards, call 800-843-7445.



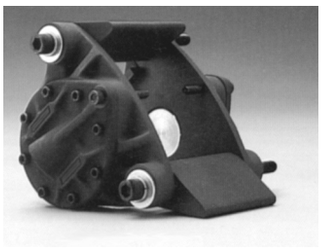
GUARD



ROTOR/HUB/MOUNTING PLATE ASSEMBLY



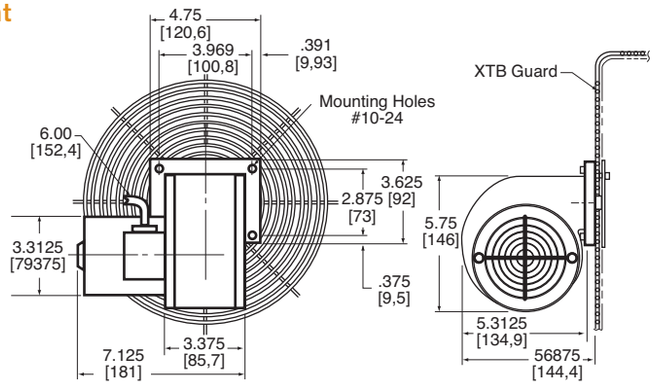
FRICTION PAD KIT



CALIPER ASSEMBLY

Cool performance for hotter profits

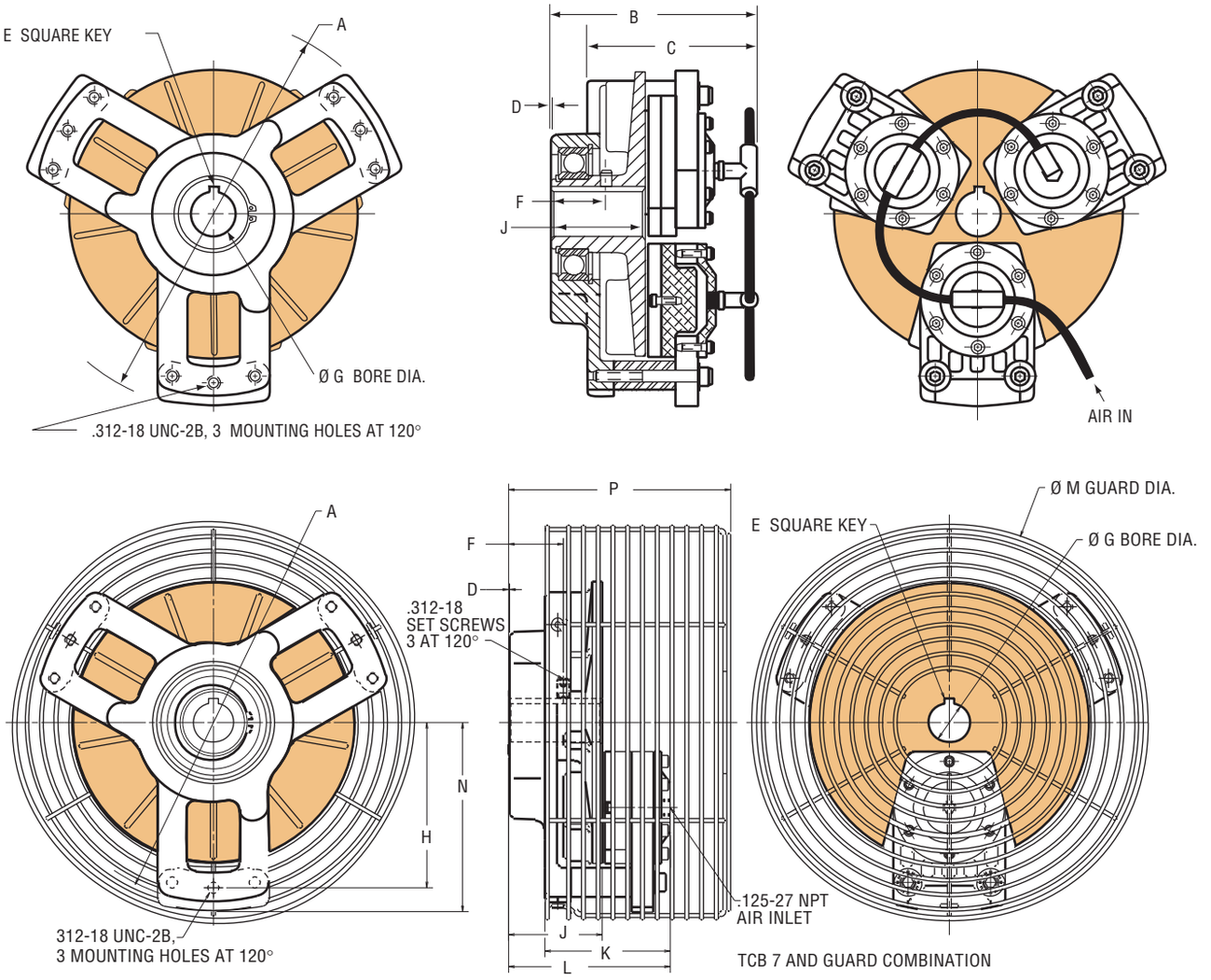
The XTB brake gives you superior heat dissipation for worry-free performance, less weight for lower rotational inertia, and easier installation and maintenance. All this plus technical service from the folks who have been designing and manufacturing pneumatically actuated brakes for over 50 years. Add this to a full line of web controlling products with technical service to match and you won't go anywhere else for your web tension needs.



Ordering Information

Model	Product Number	Shipping Wt. Lbs.[kg]
XTB Cooling Enhancement	835175	6.0 [2,7]

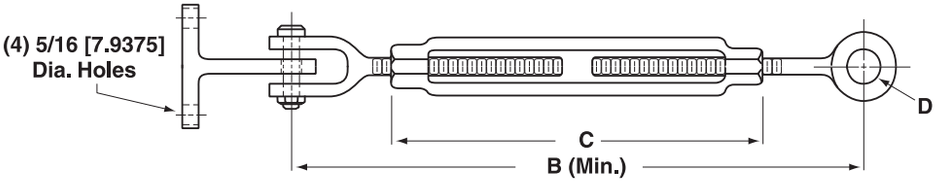
TCB 7 *Tension Control Brakes*



Note: Dimensions in INCHES [MM]

MODEL	A	B	C	D	E *	F	G	H	J	K	L	M	N	P
TCB 7	Ø 9.25	5.32	4.38	.03	.25 STD	1.41	1.125 $^{+.001}_{-.000}$	4.25	2.41	3.23	4.16	10.23	4.87	5.71
	Ø [235]	[135]	[111]	[0,76]	[6,35]	[35,8]	[28,6 $^{+,03}_{-,00}$]	[108,0]	[61,2]	[82,0]	[105,7]	[259,8]	[123,6]	[145,1]

* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.



TORQUE ARM

Dimension	A	B	C	D
CUSTOMARY, INCH	14-3/8	10-3/8	7-1/8	17/32
METRIC, MM	[365,13]	[263,53]	[180,98]	[13,49]

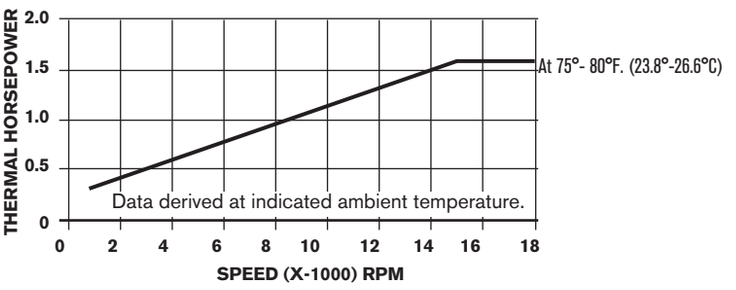
TCB 7 *Tension Control Brakes*

TCB 7 TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.35 (Std)	
	80 PSI	1 PSI	80 PSI	1 PSI
1	80	2	140	4
2	160	4	280	8
3	240	6	420	12

Note: Rated torque may vary depending on operating conditions. Friction coefficients are nominal

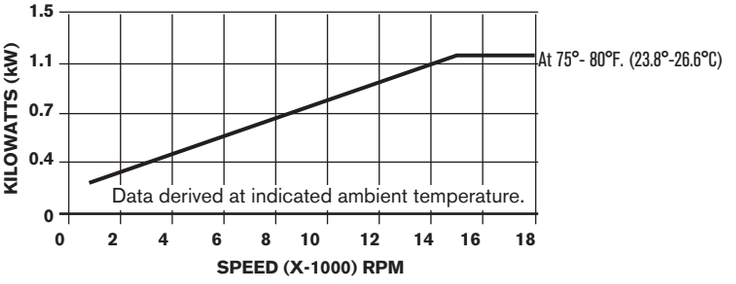
THERMAL DISSIPATION VS RPM



TCB 7 TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.35 (Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	9	0,2	16	0,5
2	18	0,5	32	0,9
3	27	0,7	48	1,4

METRIC THERMAL DISSIPATION VS RPM



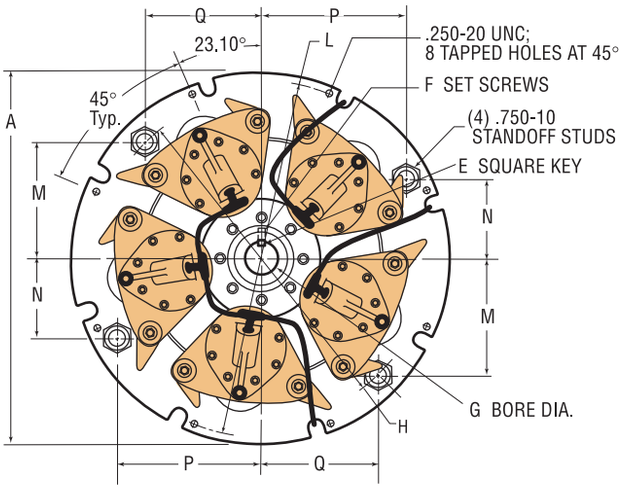
TCB 7 ORDERING INFORMATION

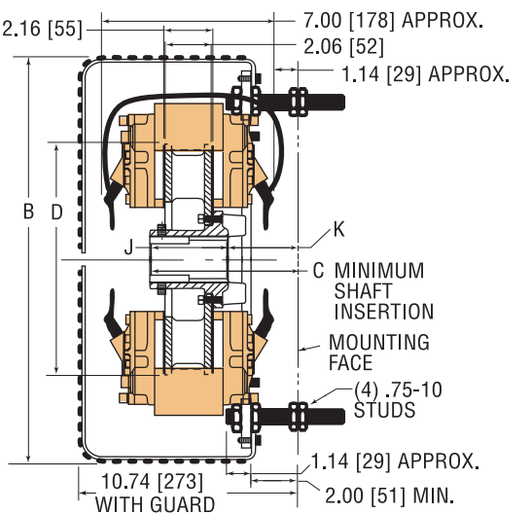
Model	Product Number	Speed Up To RPM [MM]	Coefficient of Friction	Hub Bore Diameter INCHES [MM]	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. lbs. [Kg]
TCB 7	835122	4000	0.35 (Std.) [9]	1.125 [28,575]	0.229 [0,010]	16.0 [0,51]
TCB 7	835129	4000	0.22 (LoCo) [5,58]	1.125 [28,575]	0.229 [0,010]	16.0 [0,51]

TCB 7 ACCESSORIES

For Model	Product Number	Description	Shipping Wt. lbs. [Kg]
TCB 7 with Std. Bore	835123	Bushing 0.75" (19,05 mm) Bore	1.0 [0,45]
	835124	Bushing 0.875" (22,23 mm) Bore	1.0 [0,45]
	835125	Bushing 1.0" (25,40 mm) Bore	1.0 [0,45]
	835165	Torque Arm (For TCB 7 only)	1.0 [0,45]
	835127	Facing Kit, Standard	1.5 [0,68]
	835128	Facing Kit, LoCo	1.5 [0,68]
	835186	Guard	15.0 [6,80]
	835182	Ring Guard	–

XTB 10A & XTB 10 *Tension Control Brakes*





Note:
Dimensions in
INCHES
[MM]

MODEL	A W/OUT GUARD	B WITH GUARD	C	D	E *	F	G BORE RANGES * STD.	MIN.	MAX	H	J	K	L	M	N	P	Q
XTB 10A & XTB 10	16.00 [406]	17.25 [438]	6.30 [160]	10.0 [254]	.312 STD [8]	(3) .375-16 [9,525]	1.375 [35]	1.125 [29]	1.625 [41]	14.05 [357]	3.313 [84]	2.99 [76]	15.19 [386]	4.97 [126]	3.43 [87]	6.13 [156]	4.97 [126]

* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.

XTB 10A & XTB 10 TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	80 PSI	1 PSI	80 PSI	1 PSI
1	458	6	662	9
2	916	11	1340	16
3	1374	17	2010	25
4	1832	23	2680	34
5	2290	29	3350	42

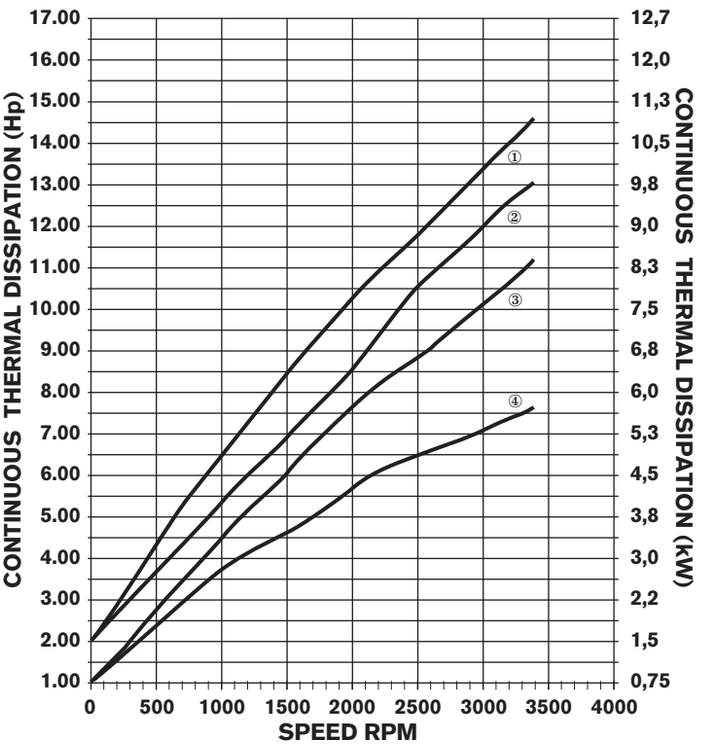
Note: Rated torque may vary depending on operating conditions.
Friction coefficients are nominal

XTB 10A & XTB 10 TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	52	0,7	76	0,9
2	104	1,2	151	1,8
3	155	1,9	227	2,8
4	207	2,6	303	3,8
5	259	3,3	378	4,7

Torque Values for Ultra LoCo "Facings
Multily "LoCo" torque by 0.67 for the torque with Ultra LoCo facings.

Cross Drilled XTB 10A vs. XTB 10 THERMAL HORSEPOWER vs. SPEED (Speed Limited to 3400 RPM)



① XTB 10A, Optimum HP_t, Cross-Drilled Rotor ② XTB 10, Optimum HP_t, Standard Rotor
③ XTB 10A, Optimum Facing Wear, Cross-Drilled Rotor ④ XTB 10, Optimum Facing Wear, Standard Rotor

XTB 10A & XTB 10 *Tension Control Brakes*

BORE AND KEYWAY DIMENSIONS

Bore Range	Key (Square)	Keyway Tolerance
1.125 – 1.250 [28,58 – 29,21]	0.250 [6,35]	+.002 –.000 [+0,05 – 0,0]
1.312 – 1.375 [33,32 – 34,92]	0.312 [7,92]	+.002 –.000 [+0,05 – 0,0]
1.437 – 1.625 [36,50 – 41,28]	0.375 [9,53]	+.002 –.000 [+0,05 – 0,0]

Note: Bushings not acceptable for XTB applications. Bore sizes not indicated are available (see Min./Max. ranges on dimensional drawing).

ORDERING INFORMATION

XTB Tension Controlled Brakes are custom assembled for each application. Consult with Nexen Technical Service to determine your exact needs.

Quantity	Description	Shipping Wt. Lbs. [Kg]
1	Rotor, Hub, & Mounting Plate Assembly	See below
1–5	Caliper Assemblies as required	See below
1–5	Friction Facing Kits as required	See below
1	Guard (Product No. 835446)	17 [7,7]

ROTOR, HUB & MOUNTING PLATE

Best thermal dissipation if brake is ordered for direction of rotation. Reduce by 10% for 0-500 RPM and reduce by 25% for 501-1800 RPM.

Model (CCW)	Hub Bore Diameter INCHES [MM]	Product Number	Model (CW)	Hub Bore Diameter INCHES [MM]	Product Number	Max. RPM	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. Lbs. [Kg]
XTB 10A XTB 10	1.125 [28,57]	835651 835402	XTB 10A XTB 10	1.125 [28,57]	835650 835401	4000	1.69 [0,07]	39 [17,7]
XTB 10A XTB 10	1.375 [35]	835653 835404	XTB 10A XTB 10	1.375 [35]	835652 835403	4000	1.69 [0,07]	39 [17,7]
XTB 10A XTB 10	1.625 [41,2]	835655 835406	XTB 10A XTB 10	1.625 [41,2]	835654 835405	4000	1.69 [0,07]	39 [17,7]

NOTE: XTB 10A Rotors are Cross-Drilled for Optimum Thermal Dissipation.

CALIPER ASSEMBLIES

Each caliper assembly has two caliper halves. Order one caliper assembly for each caliper position. The number of caliper positions is determined by your torque requirements.

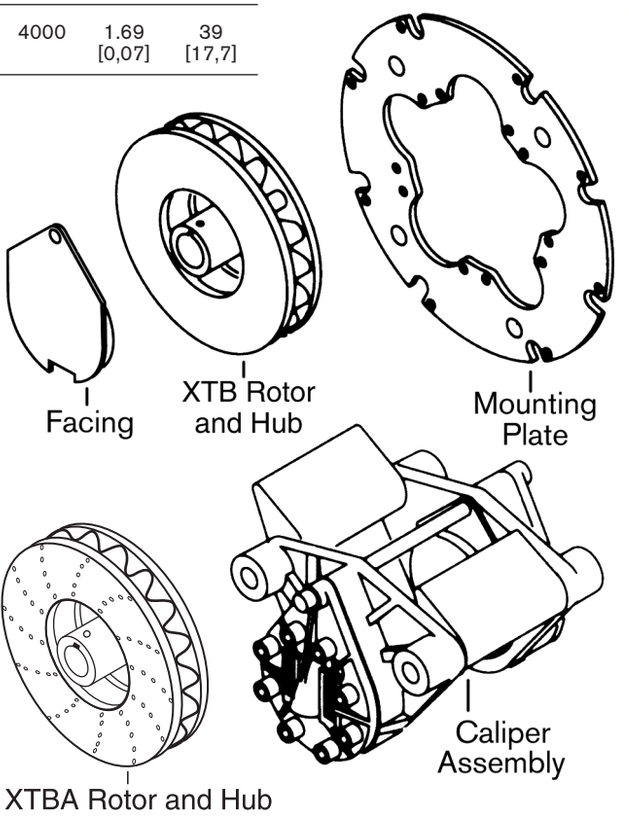
Model	Product Number	Description	Shipping Wt. Lbs. [Kg]
XTB 10	835451	1 Caliper Assembly	4.5 [2]

FACING KITS–ALL MODELS

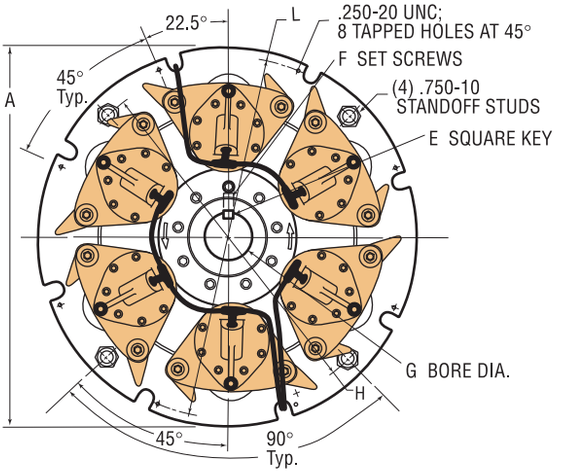
Facing kits contain two asbestos-free facings of organic, low coefficient of friction, standard coefficient of friction or low dust Kevlar®. One facing kit per caliper assembly is required.

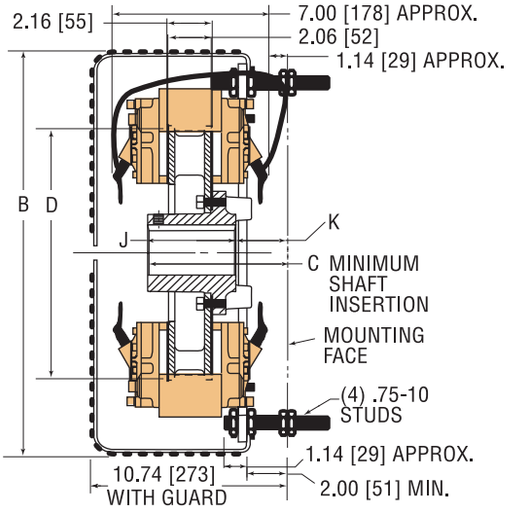
Facing Kits	Ultra LoCo (0.10) Product No.	LoCo (0.15) Product No.	STD. (0.30) Kevlar® Product No.	Shipping Wt. Lbs. [Kg]
1	835643	835471	835631 ①	1.00 [0,45]

① Use 'Optimum Facing Wear' Thermal Curves.
Kevlar® is a registered trademark of DuPont Company.



XTB 12A & XTB 12 *Tension Control Brakes*





Note:
Dimensions in
INCHES
[MM]

MODEL	A W/OUT GUARD	B WITH GUARD	C	D	E *	F	G BORE RANGES * STD.	MIN.	MAX	H	J	K	L
XTB 12A & XTB 12	17.81 [452]	19.06 [484]	6.64 [118]	12.0 [305]	.375 STD [9,525]	(3) .500-13 [12.7]	1.625 [41]	1.250 [32]	2.125 [54]	16.0 [4064]	4.125 [105]	2.52 [64]	17.00 [432]

* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.

XTB 12A & XTB 12 TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	80 PSI	1 PSI	80 PSI	1 PSI
1	573	7	837	10
2	1145	14	1674	21
3	1718	21	2511	32
4	2290	29	3348	42
5	2863	36	4186	52
6	3435	43	5022	63

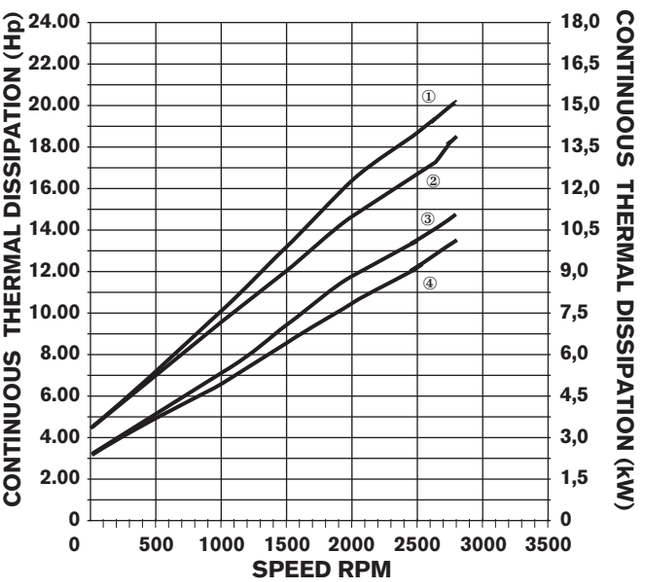
Note: Rated torque may vary depending on operating conditions.
Friction coefficients are nominal

XTB 12A & XTB 12 TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	65	0,8	95	2,3
2	129	1,6	189	2,3
3	194	2,4	284	3,6
4	259	3,3	378	4,7
5	324	4,1	473	5,9
6	388	4,9	568	7,1

Torque Values for Ultra LoCo "Facings
Multily "LoCo" torque by 0.67 for the torque with Ultra LoCo facings.

Cross Drilled XTB 12A vs. XTB 12
THERMAL HORSEPOWER vs. SPEED
(Speed Limited to 2800 RPM)



① XTB 12A, Optimum HP_t, Cross-Drilled Rotor ② XTB 12, Optimum HP_t, Standard Rotor
③ XTB 12A, Optimum Facing Wear, Cross-Drilled Rotor ④ XTB 12, Optimum Facing Wear, Standard Rotor

XTB 12A & XTB 12 *Tension Control Brakes*

BORE AND KEYWAY DIMENSIONS

Bore Range	Key (Square)	Keyway Tolerance
1.250 [29,21]	0.250 [6,35]	+.002 –.000 [+0,05 – 0,0]
1.312 – 1.375 [33,32 – 34,92]	0.312 [7,92]	+.003 –.000 [+0,07 – 0,0]
1.437 – 1.750 [36,50 – 44,45]	0.375 [9,53]	+.003 –.000 [+0,07 – 0,0]
1.812 – 2.125 [46,02 – 53,98]	0.500 [12,7]	+.003 –.000 [+0,07 – 0,0]

Note: Bushings not acceptable for XTB applications. Bore sizes not indicated are available (see Min./Max. ranges on dimensional drawing).

ORDERING INFORMATION

XTB Tension Controlled Brakes are custom assembled for each application. Consult with Nexen Technical Service to determine your exact needs.

Quantity	Description	Shipping Wt. Lbs. [Kg]
1	Rotor, Hub, & Mounting Plate Assembly	See below
1–6	Caliper Assemblies as required	See below
1–6	Friction Facing Kits as required	See below
1	Guard (Product No. 835447)	17 [7,7]

ROTOR, HUB & MOUNTING PLATE

Best thermal dissipation if brake is ordered for direction of rotation. Reduce by 10% for 0-500 RPM and reduce by 25% for 501-1800 RPM.

Model (CCW)	Hub Bore Diameter INCHES [MM]	Product Number	Model (CW)	Hub Bore Diameter INCHES [MM]	Product Number	Max. RPM	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. Lbs. [Kg]
XTB 12A XTB 12	1.25 [32]	835657 835412	XTB 12A XTB 12	1.25 [32]	835656 835411	3300	3.60 [0,15]	60 [27,2]
XTB 12A XTB 12	1.625 [41,2]	835659 835414	XTB 12A XTB 12	1.625 [41,2]	835658 835413	3300	3.60 [0,15]	60 [27,2]
XTB 12A XTB 12	2.125 [54]	835661 835416	XTB 12A XTB 12	2.125 [54]	835660 835415	3300	3.60 [0,15]	53 [24,0]

NOTE: XTB 12A Rotors are Cross-Drilled for Optimum Thermal Dissipation.

CALIPER ASSEMBLIES

Each caliper assembly has two caliper halves. Order one caliper assembly for each caliper position. The number of caliper positions is determined by your torque requirements.

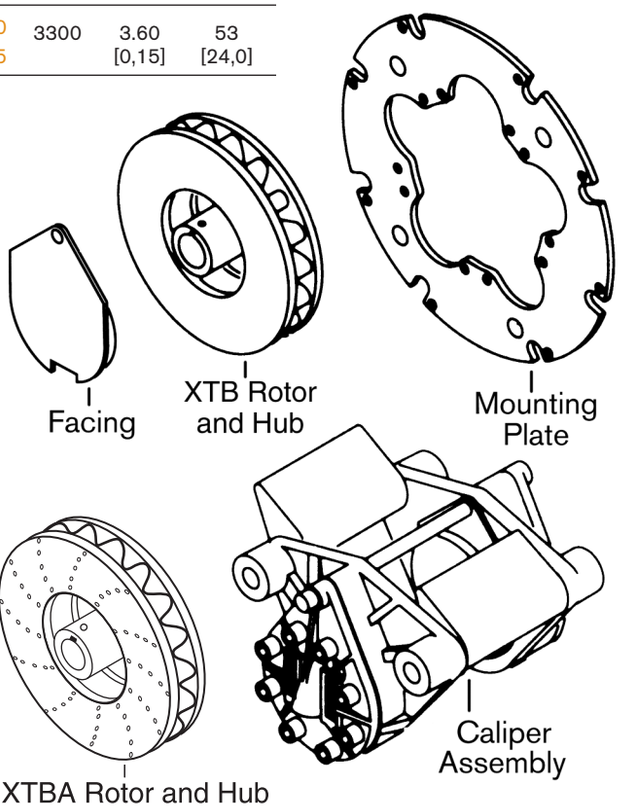
Model	Product Number	Description	Shipping Wt. Lbs. [Kg]
XTB–12	835451	1 Caliper Assembly	4.5 [2]

FACING KITS–ALL MODELS

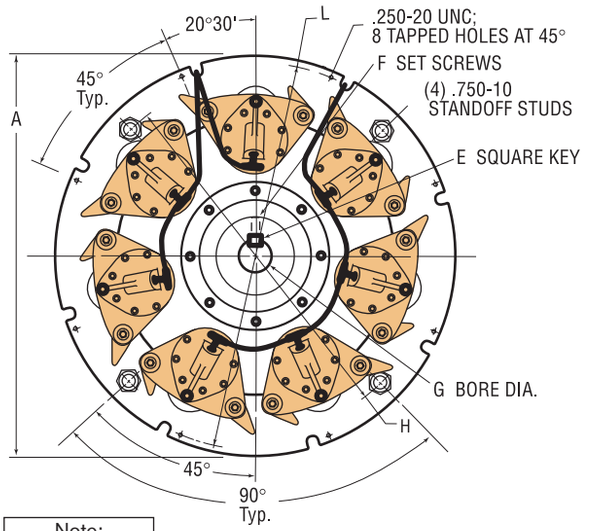
Facing kits contain two asbestos-free facings of organicUltra LoCo, low coefficient or friction, or standard coefficient of friction low dust Kevlar®. One facing kit per caliper assembly is required.

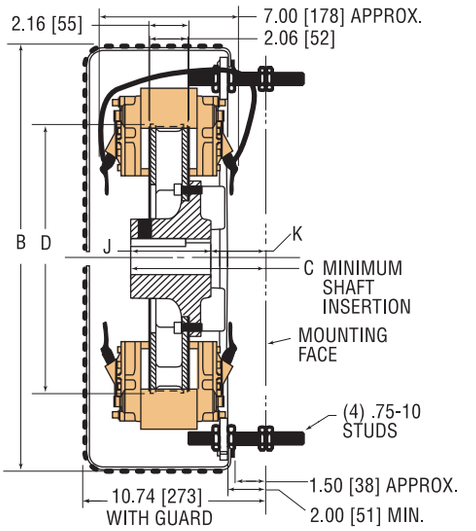
Facing Kits	Ultra LoCo (0.10) Product No.	LoCo (0.15) Product No.	STD. (0.30) Kevlar® Product No.	Shipping Wt. Lbs. [Kg]
1	835643	835471	835631①	1.00 [0,45]

① Use 'Optimum Facing Wear' Thermal Curves.
Kevlar® is a registered trademark of DuPont Company.



XTB 14A & XTB 14 *Tension Control Brakes*





Note:
Dimensions in
INCHES
[MM]

MODEL	A W/OUT GUARD	B WITH GUARD	C	D	E *	F	G BORE RANGES * STD.	MIN.	MAX	H	J	K	L
XTB 14A & XTB 14	20.75 [527]	22.06 [560]	6.64 [169]	14.0 [356]	.500 STD [12,7]	(3) .500-13 [12,7]	1.937 [49]	1.625 [41]	2.500 [63,5]	18.5 [470]	4.125 [105]	2.52 [64]	20.00 [508]

* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.

XTB 14A & XTB 14 TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	80 PSI	1 PSI	80 PSI	1 PSI
1	687	9	1116	14
2	1374	17	2233	28
3	2061	26	3348	42
4	2748	34	4464	56
5	3435	43	5580	70
6	4122	52	6697	83
7	4809	60	7813	98

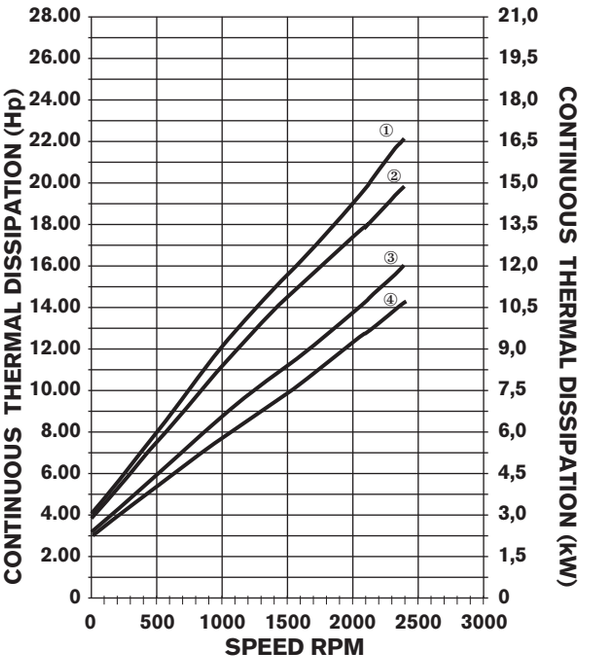
Note: Rated torque may vary depending on operating conditions.
Friction coefficients are nominal

XTB 14A & XTB 14 TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	78	1	126	1,5
2	155	1,9	252	3,1
3	233	2,9	378	4,7
4	311	3,8	505	6,3
5	388	4,9	630	7,8
6	466	5,9	757	9,5
7	543	6,8	883	11,1

Torque Values for Ultra LoCo "Facings
Multily "LoCo" torque by 0.67 for the torque with Ultra LoCo facings.

Cross Drilled XTB 14A vs. XTB 14 THERMAL HORSEPOWER vs. SPEED (Speed Limited to 2400 RPM)



① XTB 14A, Optimum HP_t, Cross-Drilled Rotor ② XTB 14, Optimum HP_t, Standard Rotor
③ XTB 14A, Optimum Facing Wear, Cross-Drilled Rotor ④ XTB 14, Optimum Facing Wear, Standard Rotor

XTB 14A & XTB 14 *Tension Control Brakes*

BORE AND KEYWAY DIMENSIONS

Bore Range	Key (Square)	Keyway Tolerance
1.250 [29,21]	0.250 [6,35]	+.002 –.000 [+0,05 – 0,0]
1.312 – 1.375 [33,32 – 34,92]	0.312 [7,92]	+.003 –.000 [+0,07 – 0,0]
1.437 – 1.750 [36,50 – 44,45]	0.375 [9,53]	+.003 –.000 [+0,07 – 0,0]
1.812 – 2.125 [46,02 – 53,98]	0.500 [12,7]	+.003 –.000 [+0,07 – 0,0]

Note: Bushings not acceptable for XTB applications. Bore sizes not indicated are available (see Min./Max. ranges on dimensional drawing).

ORDERING INFORMATION

XTB Tension Controlled Brakes are custom assembled for each application. Consult with Nexen Technical Service to determine your exact needs.

Quantity	Description	Shipping Wt. Lbs. [Kg]
1	Rotor, Hub, & Mounting Plate Assembly	See below
1–7	Caliper Assemblies as required	See below
1–7	Friction Facing Kits as required	See below
1	Guard (Product No. 835448)	17 [7,7]

ROTOR, HUB & MOUNTING PLATE

Best thermal dissipation if brake is ordered for direction of rotation. Reduce by 10% for 0-500 RPM and reduce by 25% for 501-1800 RPM.

Model (CCW)	Hub Bore Diameter INCHES [MM]	Product Number	Model (CW)	Hub Bore Diameter INCHES [MM]	Product Number	Max. RPM	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. Lbs. [Kg]
XTB 14A XTB 14	1.625 [41,2]	835663 835422	XTB 14A XTB 14	1.625 [41,2]	835662 835421	3000	6.80 [0,28]	80 [36,3]
XTB 14A XTB 14	1.9375 [49,2]	835665 835424	XTB 14A XTB 14	1.9375 [49,2]	835664 835423	3000	6.80 [0,28]	82 [37,2]
XTB 14A XTB 14	2.50 [64]	835667 835426	XTB 14A XTB 14	2.50 [64]	835666 835425	3000	6.80 [0,28]	77 [35,0]

NOTE: XTB 14A Rotors are Cross-Drilled for Optimum Thermal Dissipation.

CALIPER ASSEMBLIES

Each caliper assembly has two caliper halves. Order one caliper assembly for each caliper position. The number of caliper positions is determined by your torque requirements.

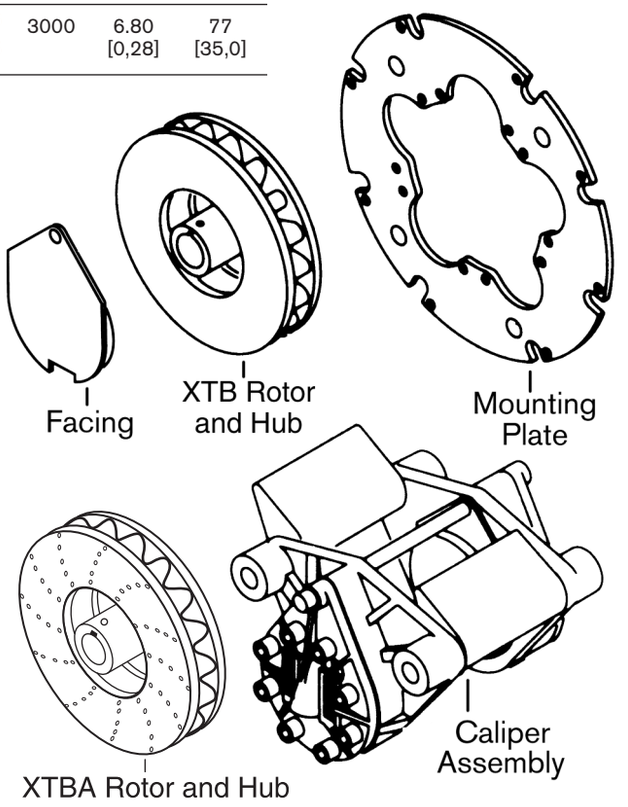
Model	Product Number	Description	Shipping Wt. Lbs. [Kg]
XTB 14	835451	1 Caliper Assembly	4.5 [2]

FACING KITS–ALL MODELS

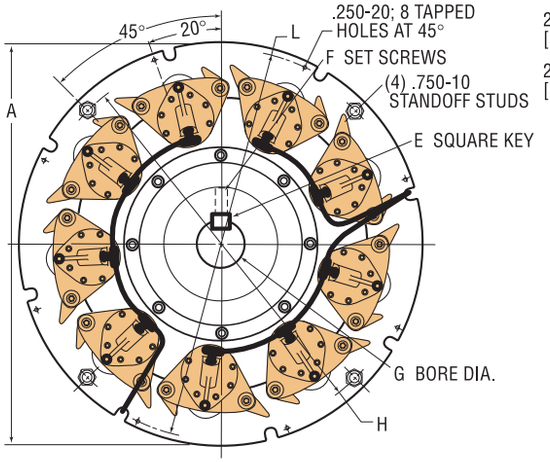
Facing kits contain two asbestos-free facings of organic Ultra LoCo, low coefficient of friction, or standard coefficient of friction low dust Kevlar®. One facing kit per caliper assembly is required.

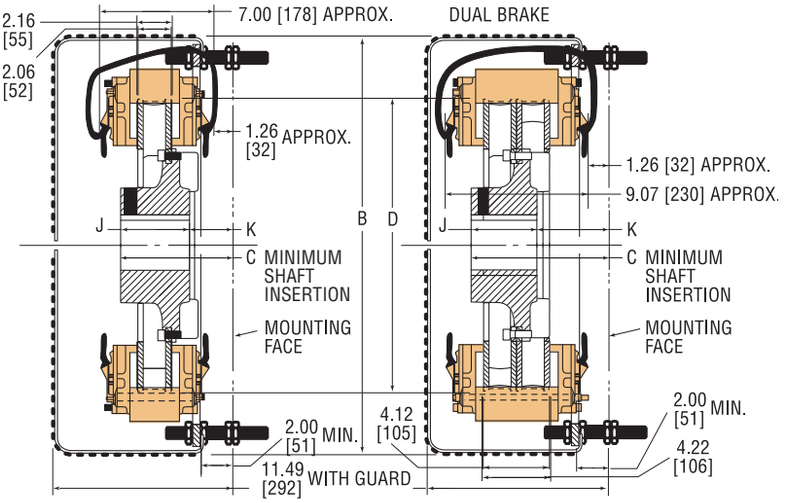
Facing Kits	Ultra LoCo (0.10) Product No.	LoCo (0.15) Product No.	STD. (0.30) Kevlar® Product No.	Shipping Wt. Lbs. [Kg]
1	835643	835471	835631①	1.00 [0,45]

① Use 'Optimum Facing Wear' Thermal Curves.
Kevlar® is a registered trademark of DuPont Company.



XTB 18A, XTB 18 & XTB 18 DUAL *Tension Control Brakes*





Note: Dimensions in INCHES [MM]

MODEL	A W/OUT GUARD	B WITH GUARD	C	D	E *	F	G BORE RANGES * STD.	G BORE RANGES * MIN.	G BORE RANGES * MAX	H	J	K	L
XTB 18A & XTB 18	24.50 [622]	25.88 [657]	7.29 [185]	18.0 [457]	.750 STD [19]	(3) .750-10 [19]	2.937 [74,5]	2.500 [63,5]	4.500 [114]	23.0 [584]	4.12 [105]	3.17 [80,5]	23.82 [605]
XTB 18 DUAL	24.50 [622]	25.88 [657]	8.64 [219]	18.0 [457]	.750 STD [19]	(3) .750-10 [19]	2.937 [74,5]	2.500 [63,5]	4.500 [114]	23.0 [584]	4.12 [105]	4.52 [115]	23.82 [605]

* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.

XTB 18A, XTB 18 AND XTB 18 DUAL TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	80 PSI	1 PSI	80 PSI	1 PSI
1	883	11	1363	17
2	1767	22	2726	34
3	2650	33	4089	51
4	3533	44	5453	68
5	4417	55	6816	85
6	5300	66	8180	102
7	6184	77	9543	120
8	7067	88	10906	137
9	7950	99	12269	153

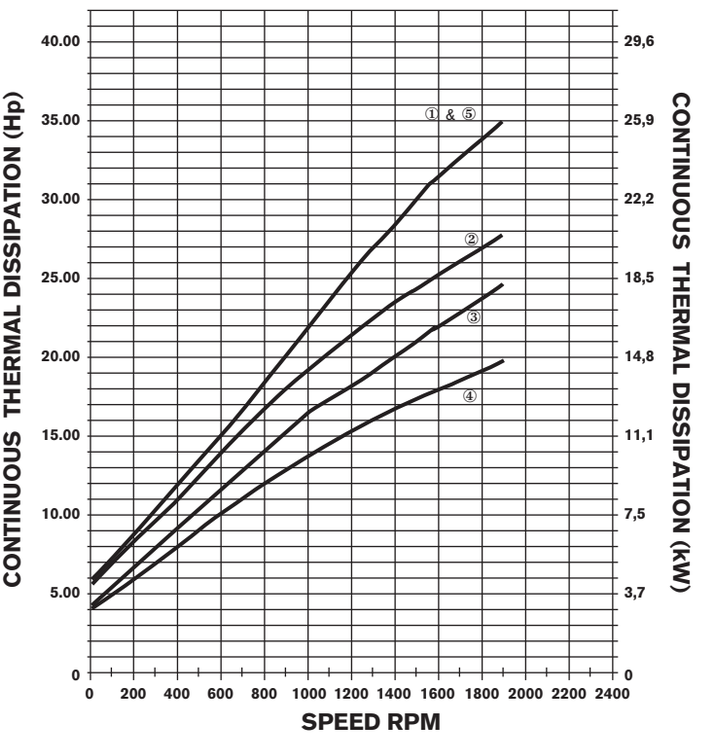
Note: Rated torque may vary depending on operating conditions.
Friction coefficients are nominal

XTB 18A, XTB 18 AND XTB 18 DUAL TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction			
	0.15 (LoCo)		0.30 (Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	100	1,2	154	2
2	200	2,5	308	4
3	299	3,7	462	6
4	399	5	616	8
5	499	6,2	771	10
6	599	7,5	925	12
7	699	8,7	1078	14
8	799	9,9	1232	16
9	898	11,2	1386	18

Torque Values for Ultra LoCo "Facings
Multily "LoCo" torque by 0.67 for the torque with Ultra LoCo facings.

Cross Drilled XTB 18A vs. XTB 18 & XTB 18 DUAL THERMAL HORSEPOWER vs. SPEED (Speed Limited to 1900 RPM)



① XTB 18A, Optimum HP_t, Cross-Drilled Rotor ② XTB 18, Optimum HP_t, Standard Rotor
③ XTB 18A, Optimum Facing Wear, Cross-Drilled Rotor ④ XTB 18, Optimum Facing Wear, Standard Rotor
⑤ XTB 18 Dual, Optimum Facing Wear, Standard Rotor

XTB 18A, XTB 18 & XTB 18 DUAL *Tension Control Brakes*

BORE AND KEYWAY DIMENSIONS

Bore Range	Key (Square)	Keyway Tolerance
2.500 – 2.750 [63,50 – 69,85]	0.625 [15,87]	+.003 –.000 [+0,076 –0,00]
2.812 – 3.250 [71,42 – 82,55]	0.750 [19,05]	+.003 –.000 [+0,076 –0,00]
3.312 – 3.750 [84,12 – 95,25]	0.875 [22,22]	+.004 –.000 [+0,101 –0,00]
3.812 – 4.500 [96,82 – 114,3]	1.000 [25,40]	+.004 –.000 [+0,101 –0,00]

Note: Bushings not acceptable for XTB applications. Bore sizes not indicated are available (see Min./Max. ranges on dimensional drawing).

ORDERING INFORMATION

XTB Tension Controlled Brakes are custom assembled for each application. Consult with Nexen Technical Service to determine your exact needs.

Quantity	Description	Shipping Wt. Lbs. [Kg]
1	Rotor, Hub, & Mounting Plate Assembly	See below
1–9	Caliper Assemblies as required	See below
1–9	Friction Facing Kits as required	See below
1	XTB 18 Guard (Product No. 835444)	17 [7,7]
1	XTB 18 Dual Guard (Product No. 835445)	17 [7,7]

ROTOR, HUB & MOUNTING PLATE

Best thermal dissipation if brake is ordered for direction of rotation. Reduce by 10% for 0-500 RPM and reduce by 25% for 501-1800 RPM.

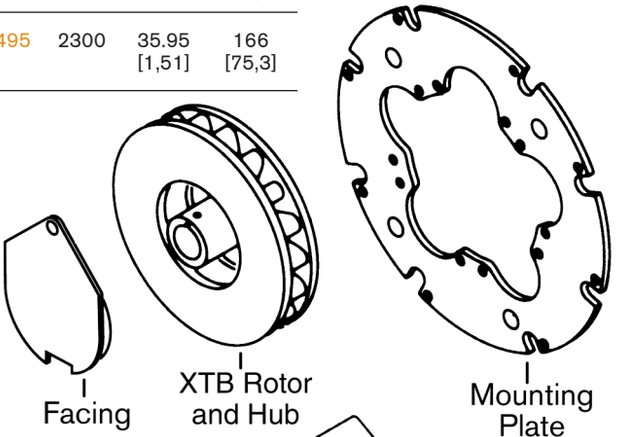
Model (CCW)	Hub Bore Diameter INCHES [MM]	Product Number	Model (CW)	Hub Bore Diameter INCHES [MM]	Product Number	Max. RPM	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. Lbs. [Kg]
XTB 18A XTB 18	2.50 [63,5]	835669 835432	XTB 18A XTB 18	2.50 [63,5]	835668 835431	2300	20.14 [0,84]	123 [55,7]
XTB 18 DUAL	2.50 [63,5]	835671 835492	XTB 18 DUAL	2.50 [63,5]	835670 835491	2300	35.95 [1,51]	168 [76,2]
XTB 18A XTB 18	2.9375 [74,6]	835673 835434	XTB 18A XTB 18	2.9375 [74,6]	835672 835433	2300	20.14 [0,84]	122 [55,3]
XTB 18 DUAL	2.9375 [74,6]	835494	XTB 18 DUAL	2.9375 [74,6]	835493	2300	35.95 [1,51]	167 [75,7]
XTB 18A XTB 18	4.50 [114]	835436	XTB 18A XTB 18	4.50 [114]	835435	2300	20.14 [0,84]	121 [54,9]
XTB 18 DUAL	4.50 [114]	835496	XTB 18 DUAL	4.50 [114]	835495	2300	35.95 [1,51]	166 [75,3]

NOTE: XTB 18A Rotors are Cross-Drilled for Optimum Thermal Dissipation.

CALIPER ASSEMBLIES

Each caliper assembly has two caliper halves. Order one caliper assembly for each caliper position. The number of caliper positions is determined by your torque requirements.

Model	Product Number	Description	Shipping Wt. Lbs. [Kg]
XTB 18	835451	1 Caliper Assembly	4.5 [2]
XTB 18 DUAL	835500	1 Caliper Assembly	5 [2,3]

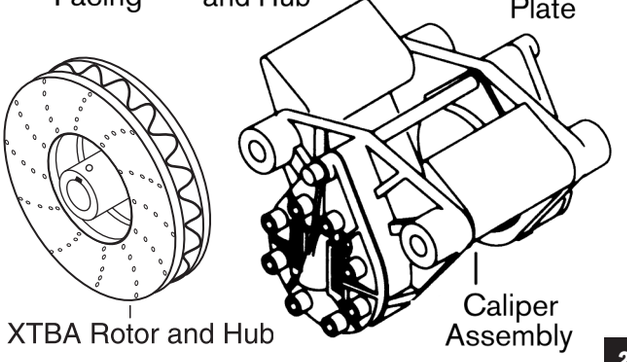


FACING KITS–ALL MODELS

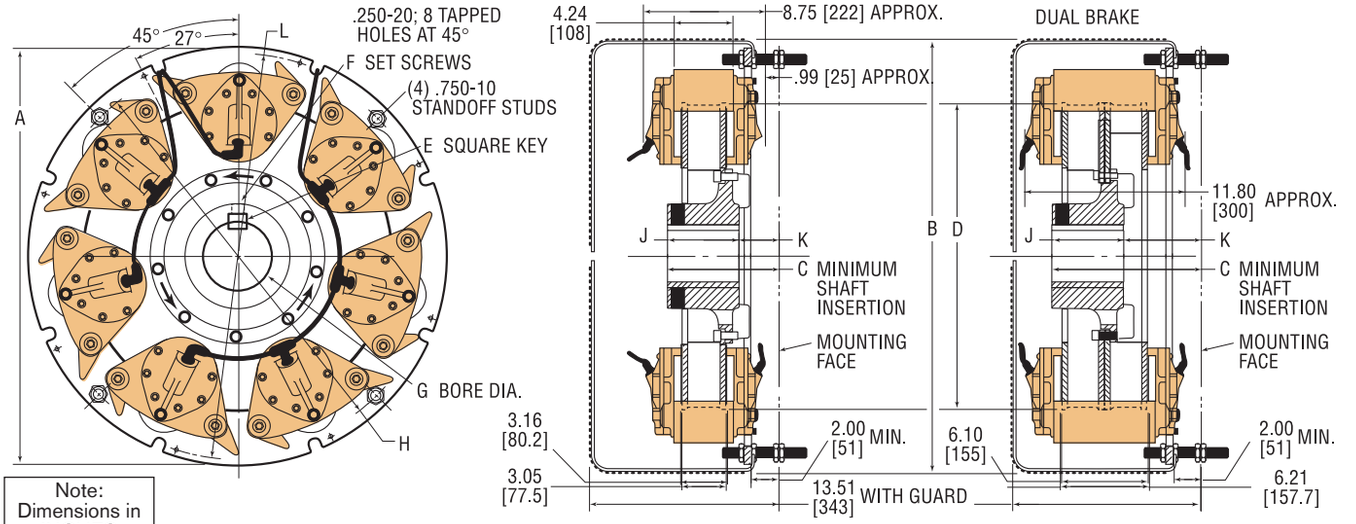
Facing kits contain two asbestos-free facings of organic Ultra LoCo, low coefficient of friction, or standard coefficient of friction low dust Kevlar®. One facing kit per caliper assembly is required.

Facing Kits	Ultra LoCo (0.10) Product No.	LoCo (0.15) Product No.	STD. (0.30) Kevlar® Product No.	Shipping Wt. Lbs. [Kg]
1	835643	835471	835631①	1.00 [0,45]

① Use 'Optimum Facing Wear' Thermal Curves.
Kevlar® is a registered trademark of DuPont Company.



XTB 22 & XTB 22 DUAL *Tension Control Brakes*



Note: Dimensions in INCHES [MM]

MODEL	A W/OUT GUARD	B WITH GUARD	C	D	E *	F	G BORE RANGES * STD.	G BORE RANGES * MIN.	G BORE RANGES * MAX	H	J	K	L
XTB 22	29.93 [760]	31.18 [792]	7.98 [203]	22.0 [56]	.875 STD [22]	(3) .875-9 [22]	3.750 [95]	2.500 [63,5]	5.000 [127]	28.10 [714]	5.12 [130]	2.86 [73]	29.12 [740]
XTB 22 DUAL	29.93 [760]	31.18 [792]	10.64 [270]	22.0 [56]	.875 STD [22]	(3) .875-9 [22]	3.750 [95]	2.500 [63,5]	5.000 [127]	28.10 [714]	5.12 [130]	5.52 [140]	29.12 [740]

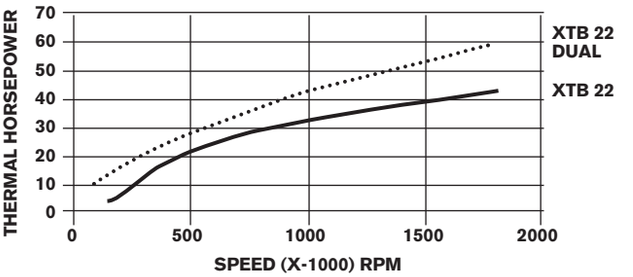
* Bored-to-size rotors available upon request. See Bore & Keyway Dimensions.

XTB 22 AND XTB 22 DUAL TORQUE (INCH POUNDS)

Number of Calipers	Coefficient of Friction 0.15 (LoCo) 80 PSI	0.15 (LoCo) 1 PSI	0.35 (Std) 80 PSI	0.35 (Std) 1 PSI
1	2160	27	5040	63
2	4400	55	10267	128
3	6560	82	15307	191
4	8800	110	20533	257
5	10960	137	25573	320
6	13200	165	30800	385
7	15360	192	35840	448

Note: Rated torque may vary depending on operating conditions.
Friction coefficients are nominal

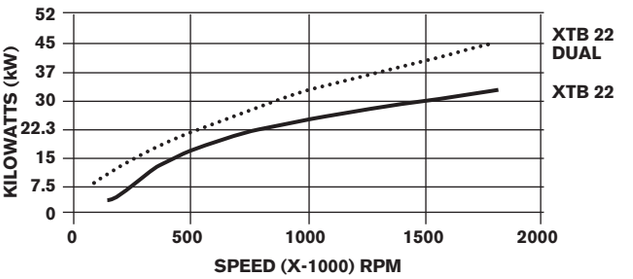
THERMAL DISSIPATION VS RPM



XTB 22 AND XTB 22 DUAL TORQUE (NEWTON METERS)

Number of Calipers	Coefficient of Friction 0.15 (LoCo) 550 kPa	0.15 (LoCo) 7 kPa	0.35 (Std) 550 kPa	0.35 (Std) 7 kPa
1	244	3	569	7,1
2	497	6,2	1160	14,4
3	741	9,2	1729	21,5
4	994	12,4	2320	29
5	1238	15,4	2889	36
6	1491	18,6	3480	44
7	1735	21,6	4049	50

METRIC THERMAL DISSIPATION VS RPM



XTB 22 & XTB 22 DUAL *Tension Control Brakes*

BORE AND KEYWAY DIMENSIONS

Bore Range	Key (Square)	Keyway Tolerance
2.500 – 2.750 [63,50 – 69,85]	0.625 [15,87]	+.003 –.000 [+0,076 –0,00]
2.812 – 3.250 [71,42 – 82,55]	0.750 [19,05]	+.003 –.000 [+0,076 –0,00]
3.312 – 3.750 [84,12 – 95,25]	0.875 [22,22]	+.004 –.000 [+0,101 –0,00]
3.812 – 4.500 [96,82 – 114,3]	1.000 [25,40]	+.004 –.000 [+0,101 –0,00]
4.562 – 5.000 [115,8 – 127]	1.250 [31,75]	+.004 –.000 [+0,101 –0,00]

Note: Bushings not acceptable for XTB applications. Bore sizes not indicated are available (see Min./Max. ranges on dimensional drawing).

ORDERING INFORMATION

XTB Tension Controlled Brakes are custom assembled for each application. Consult with Nexen Technical Service to determine your exact needs.

Quantity	Description	Shipping Wt. Lbs. [Kg]
1	Rotor, Hub, & Mounting Plate Assembly	See below
1–7	Caliper Assemblies as required	See below
1–7	Friction Facing Kits as required	See below
1	Guard (Product No. 835449)	17 [7,7]

ROTOR, HUB & MOUNTING PLATE

Best thermal dissipation if brake is ordered for direction of rotation. Reduce by 10% for 0-500 RPM and reduce by 25% for 501-1800 RPM.

Model (CCW)	Hub Bore Diameter INCHES [MM]	Product Number	Model (CW)	Hub Bore Diameter INCHES [MM]	Product Number	Max. RPM	Rotor Inertia Lb.Ft² [Kgm²]	Shipping Wt. Lbs. [Kg]
XTB 22	2.50 [63,5]	835541	XTB 22	2.50 [63,5]	835540	1800	69.48 [2,92]	297 [134,7]
XTB 22 DUAL	2.50 [63,5]	835551	XTB 22 DUAL	2.50 [63,5]	835550	1800	133.71 [5,63]	350 [158,8]
XTB 22	3.75 [95,25]	835543	XTB 22	3.75 [95,25]	835542	1800	69.48 [2,92]	290 [131,5]
XTB 22 DUAL	3.75 [95,25]	835553	XTB 22 DUAL	3.75 [95,25]	835552	1800	133.71 [5,63]	340 [154,2]
XTB 22	5.00 [127]	835545	XTB 22	5.00 [127]	835544	1800	69.48 [2,92]	279 [126,6]
XTB 22 DUAL	5.00 [127]	835555	XTB 22 DUAL	5.00 [127]	835554	1800	133.71 [5,63]	329 [49,2]

CALIPER ASSEMBLIES

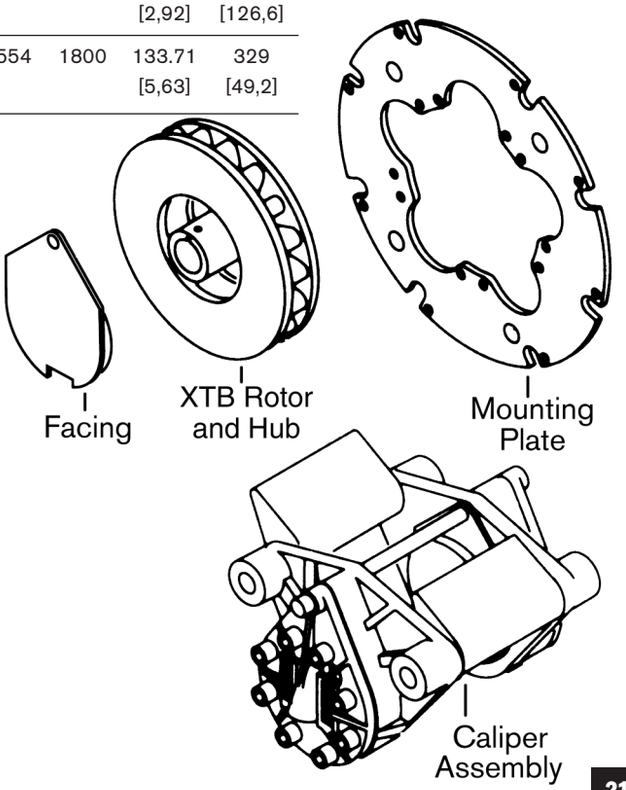
Each caliper assembly has two caliper halves. Order one caliper assembly for each caliper position. The number of caliper positions is determined by your torque requirements.

Model	Product Number	Description	Shipping Wt. Lbs. [Kg]
XTB 22	835560	1 Caliper Assembly	14 [6,35]
XTB 22 DUAL	835570	1 Caliper Assembly	15.5 [7,00]

FACING KITS–ALL MODELS

Facing kits contain two asbestos-free facings of either standard or low coefficient of friction.
One facing kit per caliper assembly is required.

Facing Kits	LoCo (0.15) Product No.	STD. (0.35) Product No.	Shipping Wt. Lbs. [Kg]
1	835581	835580	2.00 [0,91]



BTBA TENSION CONTROL BRAKES

BTBA Brakes Sizes 10 & 12

Nexen's BTBA delivers consistent tensioning in web control applications including corrugating, labeling, and printing. This innovative tension control brake offers a finned rotor with an integral fan for maximum heat dissipation. Low rotating inertia ensures proper tensioning regardless of roll size – even at core.

Designed with ease of assembly and maintenance in mind, these brakes feature long-life friction facings to limit replacement costs. The quick change feature on each facing shoe reduces downtime and maintenance expense. Intended for mounting on shaftless unwind stands and other shaft-end applications, the BTBA comes fully assembled and has a straight bore for fast and easy installation.

HIGH THERMAL CAPACITY IN A SMALL PACKAGE

The BTBA features design improvements that ensure maximum heat capacity. An integral fan works with the finned rotor to cool the brake, while Nexen's open-design guard allows heat to dissipate away from the brake quickly. Cross-drilled holes in the rotor further increase air flow for optimal heat dissipation.

EASY INSTALLATION - NO FLANGE REQUIRED

With simple electrical and pneumatic connections, the BTBA retrofits shaft-mounted brakes with a straight bore for quick and easy installation.

VERSATILE, PRECISE TENSION CONTROL

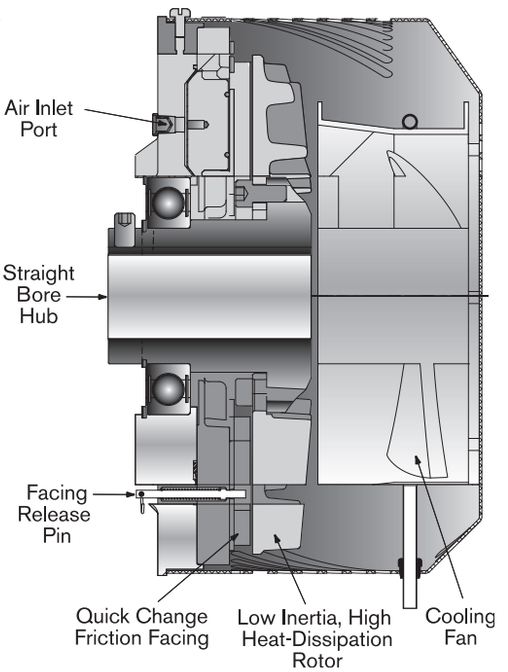
The BTB utilizes multiple actuators to achieve different
torque ranges across a wide range of applications.

DESIGN SIMPLICITY FOR EASY MAINTENANCE

The BTBA is the model of simplicity. Effortlessly replace facings by pulling the spring-loaded locking pin and lifting the facing out.

ADDITIONAL BTBA FEATURES

(BTBA 12 Shown)

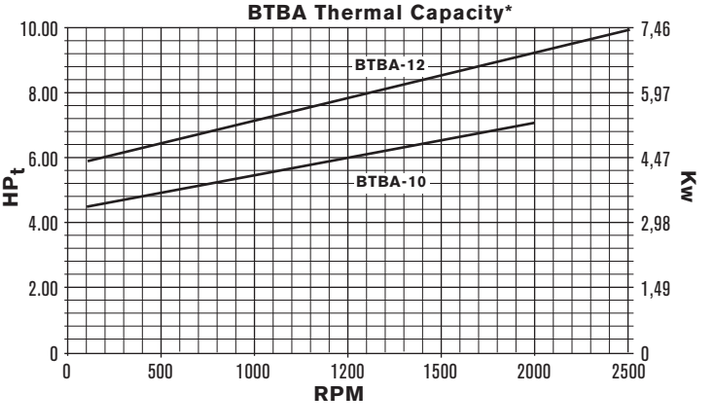


- High torque capacity: (Standard & LoCo Facings)
  BTBA-10 (Standard): 349.4 Nm [3092 in-lb]
  BTBA-10 (LoCo): 174.7 Nm [1546 in-lb]
  BTBA-12 (Standard): 587.6 Nm [5200 in-lb]
  BTBA-12 (LoCo): 356.0 Nm [3150 in-lb]
- Fan-cooled for maximum thermal capacity:
  BTBA-10: 5.6 kW [7.6 HPT]*
  BTBA-12: 7.5 kW [10.0 HPT]*
- Low inertia:
  BTBA-10: 0.04 kgm2 [0.94 lb-ft2]
  BTBA-12: 0.08 kgm2 [1.90 lb-ft2]
- Maximum speed:
  BTBA-10: 2000 rpm
  BTBA-12: 2500 rpm
- Pneumatically actuated, bidirectional rotation
- Compact outside diameter (OD)
- Shaft-mounted design
  - no precision flange required
- Diaphragm actuation - no seals to drag or o-rings to stick for improved low-end performance
- Torque control range of 50:1 using multiple actuators
- Simple connections: 120 VAC (optional 24 VDC) fan and 80 PSIG [5.5 bar] control air
- Thermal energy is dissipated into the atmosphere, not the machine frame, so your machine runs cooler.

THERMAL CAPACITY

Cross-drilled rotor with heat dissipating fins.

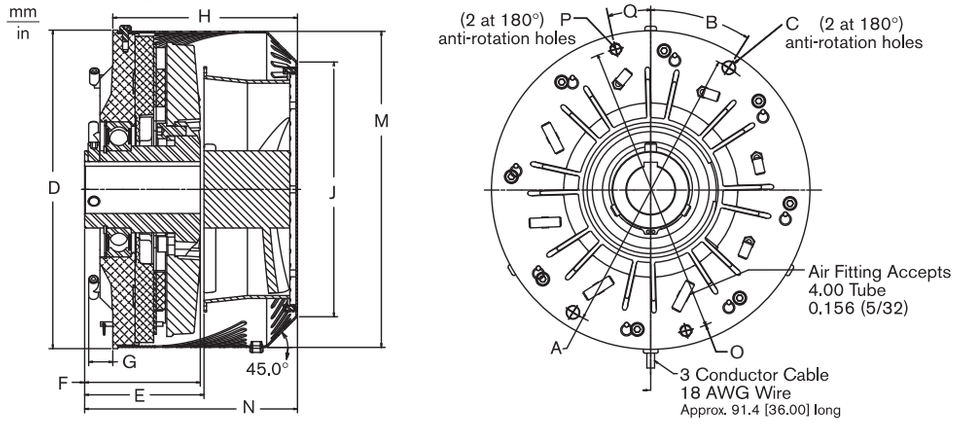
Utilizing a cross-drilled, finned rotor with an integral fan, the BTBA maximizes heat dissipation. Maximum ventilation holes in the guard allow heat to quickly dissipate away from the machine. This high thermal level helps ensure longer life and lower maintenance costs.



*Braking in the counterclockwise direction reduces thermals by 10 – 15%

BTBA 10 & 12 APPROXIMATE DIMENSIONS

DIMENSIONS BTBA 10 & 12



MODEL	A	B	C	D	E	F	G	H	J	M	N	O	P	Q
BTBA 10	ø240,00 [9.449]	10°	13,94 [0.531]	277,00 [10.91]	124,95 [4.919]	109,75 [4.321]	24,49 [0.964]	163,03 [6.418]	210,80 [8.30]	275,00 [10.83]	187,90 [7.40]	240,00 [9.449]	M12-1.75	110°
BTBA 12	ø300,00 [11.811]	42	m12-1,75	330,00 [12.99]	123,69 [4.870]	119,81 [4.717]	25,0 [0.98]	191,3 [7.53]	263,90 [10.39]	327,40 [12.89]	220,50 [8.68]	300,00 [11.811]	13,49 [0.531]	4.5°

SPECIFICATIONS

	BTBA 10	BTBA 12
INERTIA	0,04 kgm² [0.94 lb-ft²]	0,08 kgm² [1.90 lb-ft²]
SLIP TORQUE (STANDARD FACINGS)	339,0 Nm [3000 in-lb]	588,0 Nm [5200 in-lb]
THERMAL CAPACITY @ MAX RPM	5,6 [7.5 HP_t] @ 2000 rpm	7,5 kw [10.0 HP_t] @ 2500 rpm
FAN POWER	41W	61W
MAXIMUM AIR PRESSURE	5,5 bar [80 psi]	5,5 bar [80 psi]
SHIPPING WEIGHT	19,5 kg [43 lbs.]	30,8 kg [68 lbs.]

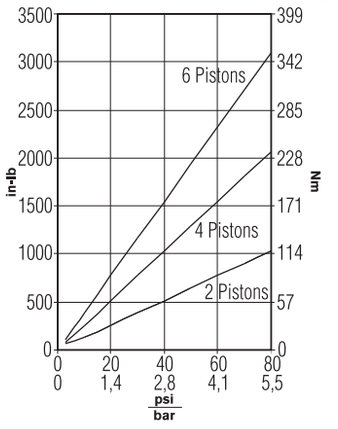
BTBA PART NUMBERS

Bore Sizes* mm [in]	Model	31,75 [1.250]	34,92 [1.375]	38,10 [1.500]	41,27 [1.625]	44,45 [1.750]	47,62 [1.875]	49 ,17 [1.938]	50,80 [2.000]
STANDARD FACINGS*	BTBA 10	927408	927420	927422	927424	927426	927428	927430	927407
	BTBA 12	927523	927525	927527	927529	927531	927533	927535	927537
LO CO FACINGS*	BTBA 10	927409	927421	927423	927425	927427	927429	927431	927432
	BTBA 12	927524	927526	927528	927530	927532	927534	927536	927538

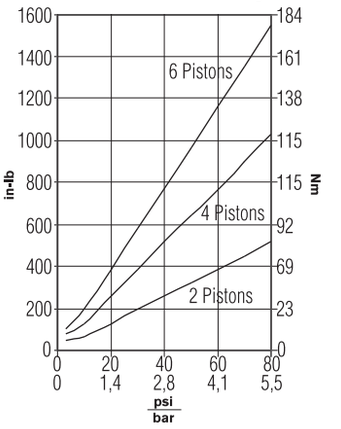
*Nexen also offers metric bore sizes and Kevlar® friction facings for each model. Contact the Custom Business Unit at 800-843-7445 for more information on BTBA Brakes with metric bores or Kevlar® Friction Facings.

TORQUE RATINGS Standard, Kevlar® and Low Coefficient (LoCo) Friction Facings

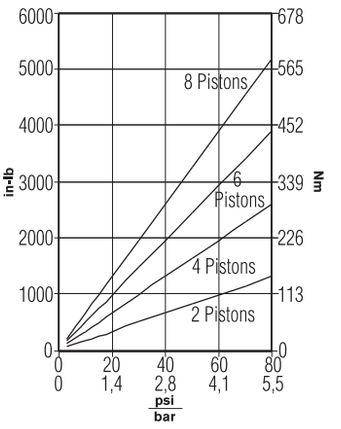
BTBA-10 with Standard or Kevlar® Facings



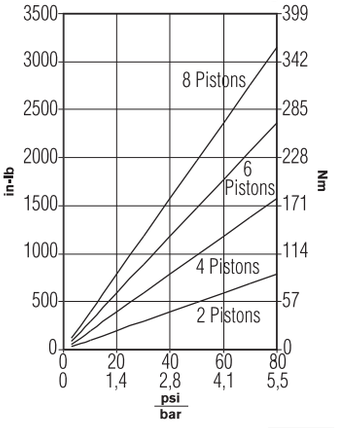
BTBA-10 with LoCo Facings



BTBA-12 with Standard or Kevlar® Facings



BTBA-12 with LoCo Facings



STB 600 AND 940 BRAKES

Superior tension control through a broad torque range.

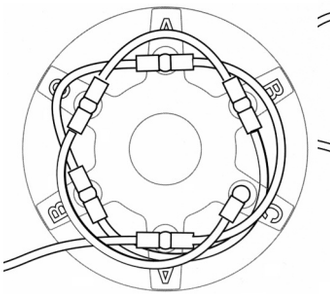


Diagram 1: Plumbing the 600/940 with no valves

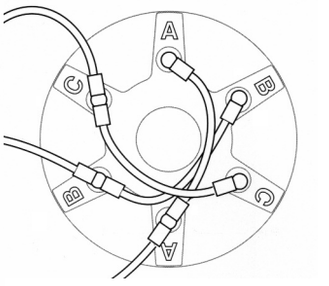


Diagram 2: Plumbing the 600/940 with three valves

The STB 600 and 940 Brakes allow superior torque control for your web with Nexen's line of patented tension control brakes. Three different sized piston sets can be actuated singly, or in any combination for a large number of torque-to-air pressure ranges.

This unique design gives you precise torque control without the problems associated with operating at low air pressures.

Ventilated rotor keeps the clutch and brake cool

The ventilated rotor creates an airflow path that draws cooler ambient air into the center of the rotor. The flow path directs air past the interface and dissipates heat radially away from the unit. This keeps the unit running cooler and longer for better performance.

Different piston sizes give you the widest range

Nexen's brakes actuate using a piston / diaphragm combination in three different sizes. There are no o-rings to stick, no seals to drag. There's nothing to hinder precise control of torque at lower operating pressures.

By engaging and disengaging various combinations of small, medium and large piston sets, you'll have a broad range of torque vs. Air pressure combinations. This gives you precise control over a wide range of torques and air pressures and lets you run a wider variety of materials on the same machine.

Features and benefits

- Fine torque control for precise tension control of web processes - 500:1 tension control range
- Field and dynamic programming of pressure/ torque characteristics for flexible operations
- Diaphragm operation — no seals to drag or o-rings to stick for great low pressure performance
- Different size piston sets
- Through-shaft mounting
- Compact size
- No rotary air unions required — eliminates "gun drilling" shafts

Variable torque ranges through the use of valves

Use air valves to engage combinations of pistons as shown in Diagram 2. Read the torque value for each piston set directly from the Torque vs. Air Pressure graph on the next page and add them.

Example: STB 600

Large piston set at 40 p.s.i. has a rated torque of 95 in-lb.
Medium piston set at 40 p.s.i. has a rated torque of 67 in-lb.
Small piston set at 40 p.s.i. has a rated torque of 41 in-lb.

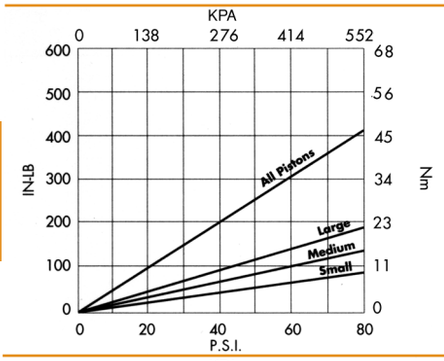
Total torque at 40 p.s.i.:
Large + Medium =
95 + 67 = 162 in-lb.
Small only = 41 in-lb.

The total torque range of the brake will equal the sum of the torques of the individual sets from 0 to maximum air pressure.

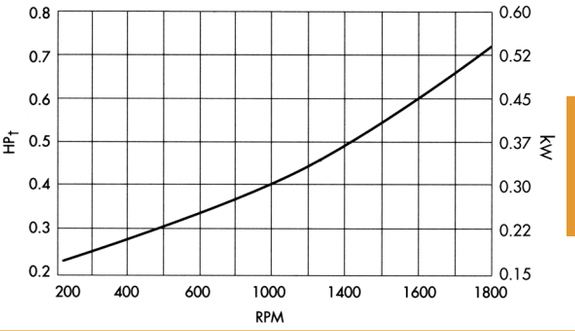
STB 600 AND 940 BRAKES

STB 600

Torque vs. Air Pressure

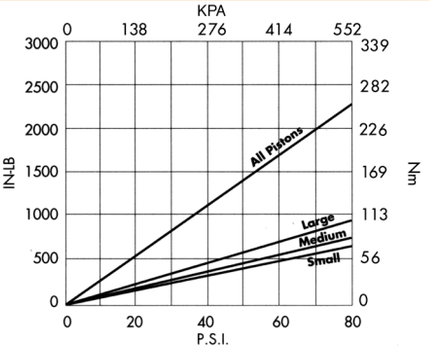


Thermal Horsepower vs. RPM

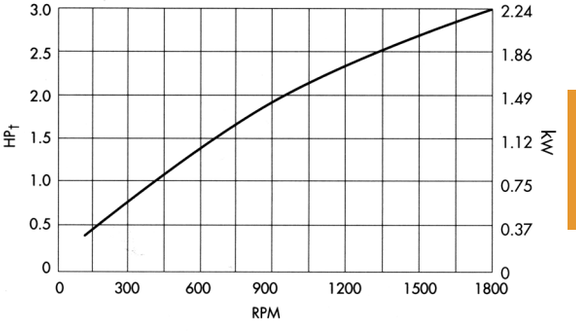


STB 940

Torque vs. Air Pressure



Thermal Horsepower vs. RPM



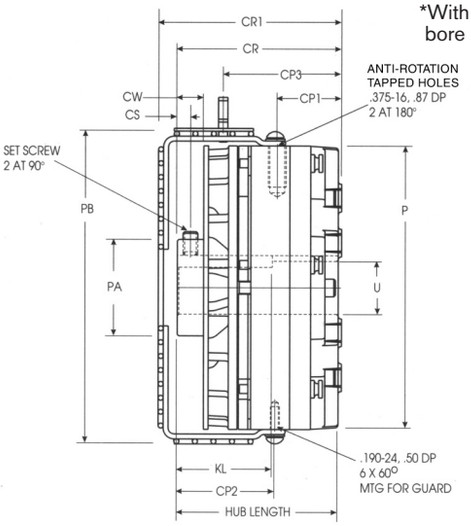
Specifications

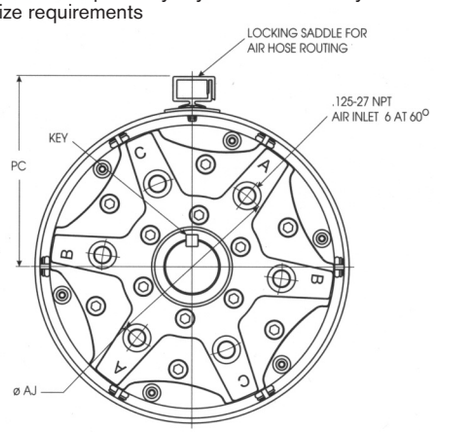
MODEL	PRODUCT NUMBER	MAX. RPM	TEE FITTING	ELBOWS	TUBING	BORE DIAMETER	SHIPPING WEIGHT
STB 600	927203	3600	5	3	60 Inch [1524 MM]	1.125* Inch [29 MM]	9.7 Lbs. [4,4 Kg]
STB 940	927207	2400	5	3	60 Inch [1524 MM]	1.938* Inch [49 MM]	31.3 Lbs. [14,2 Kg]

*With standard square keyways.. Consult factory for other bore size requirements

Dimensions

(Shown with recommended guard) Nexen recommends using adequate guarding on all brakes and clutches.





MODEL	PRODUCT NUMBER	AJ3.	CP1	CP2	CP3	CR	CR1	CS	CW	HUB LENGTH	KEY (SQ.)	KL	P	PA	PB	PC	SET SCREW	+.001 U -.001	OPTIONAL GUARD PRODUCT NUMBER
STB 600	927203	.8006 [20,34]	1.36 [35]	2.06 [53]	2.50 [64]	3.46 [88]	3.86 [98]	0.27 [6,9]	0.55 [14]	3.39 [86]	0.250 [6]	2.00 [51]	6.00 [152]	2.04 [52]	6.62 [168]	4.02 [102]	.312-18 [8]	1.125 [29]	927206
STB 940	927207	.140 [4]	1.78 [5]	2.52 [64]	3.01 [76]	4.51 [115]	4.93 [125]	0.37 [9]	0.74 [19]	4.44 [113]	0.500 [13]	3.00 [76]	9.40 [239]	3.33 [85]	10.02 [255]	5.72 [145]	.500-13 [13]	1.938 [49]	927210

MODEL	SHAFT INERTIA LB. Ft² [Kg. m²]	PILOT INERTIA LB. Ft² [Kg. m²]
STB 600	0.133 [0,006]	0.133 [0,006]

MODEL	SHAFT INERTIA LB. Ft² [Kg. m²]	PILOT INERTIA LB. Ft² [Kg. m²]
STB 940	0.725 [0,034]	0.955 [0,040]

ADVANCED SERIES STRAIGHT & TAPERED-BORE TENSION BRAKES S450A, S600A, S800A, S1000A, T450A, T600A, T800A, T1000A

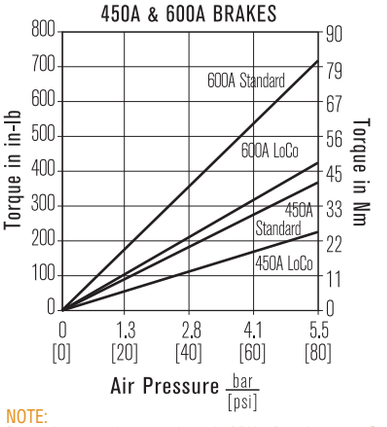
- Provide dependable, long-lasting torque for your unwind applications. The high thermal output and torque ratings of the advanced series make these units ideal for demanding tension operations.
- Full range of sizes to meet all unique specification requirements.
- Advanced Series offers both straight bore hubs or tapered bores for QD® mounting.
- Both models are available with Standard, Low Coefficient (LoCo) or Ultra LoCo friction facings to meet your torque requirements.
- ULTRA LoCo Models S-450A 827827, S-600 827926, S-800 824204, S-1000 824308
- Facings are split for fast and easy facing replacement, less downtime.
- **High Dynamic Torque** (at 5.5 bar [80 psi] air pressure) 42.3 – 331.3 Nm [374 – 2932 in-lb] with Standard Facings, 25.3 – 198.9 Nm [224 – 1760 in-lb] with LoCo Facings
- **High Thermal Capacity** SA-Brakes: 1.42 – 4.44 Kw [1.90 – 5.96 HPT] at 1800 rpm. TA-Brakes: 1.28 – 4.12 Kw [1.73 – 5.53 HPT] at 1800 rpm
- **Straight bore hub** in inch and metric sizes for easy mounting (SA only) Bore Range: 25 – 75 mm [1.125 – 2.938 in]
- **Tapered-bore hub uses QD bushings** for a variety of shaft diameters (TA only)
- **Variable mounting configurations** Flange mounting or shaft mounting with a torque pin (SA only), Shaft mounting with a torque pin (TA only)
- **Split facing** for easy replacement and low maintenance costs
- **High temperature o-rings**
- **High temperature bearing**
- **Brake guard for operator safety**

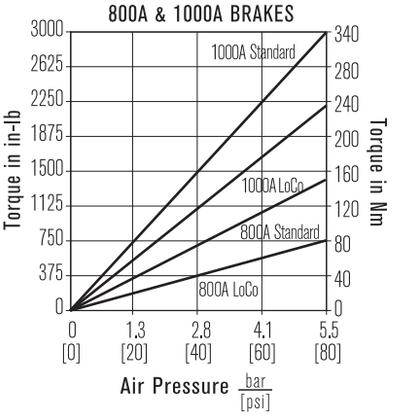
ADVANCED SERIES SA STRAIGHT-BORE & TA TAPERED-BORE TENSION BRAKES

SA Model	Brake	Max Bore (In)	Product Number	Max. Bore (mm)	Product Number	TA Model	Brake	Product Number**	QD® Bushing Type*
S-450A	Std.	1.125	827818	25,0	827820	T-450A	Std.	819003	JA
S-450A	LoCo	1.125	827819	25,0	827821	T-450A	LoCo	819004	JA
S-600A	Std.	1.375	827904	35,0	827907	T-600A	Std.	820604	SH
S-600A	LoCo	1.375	827905	35,0	827908	T-600A	LoCo	820605	SH
S-800A	Std.	1.938	828006	50,0	828008	T-800A	Std.	824202	SK
S-800A	LoCo	1.938	828007	50,0	828023	T-800A	LoCo	824203	SK
S-1000A	Std.	2.938	828108	75,0	828121	T-1000A	Std.	824305	E
S-1000A	LoCo	2.938	828109	75,0	828122	T-1000A	LoCo	824306	E

*QD bushings are customer furnished. ®QD is a Registered Trademark of Emerson Electric Company.
**For Ultra LoCo Friction Facings, contact Nexen Technical Support.

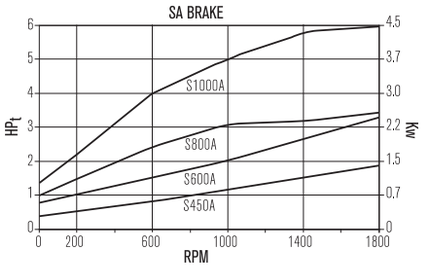
TORQUE VS. AIR PRESSURE

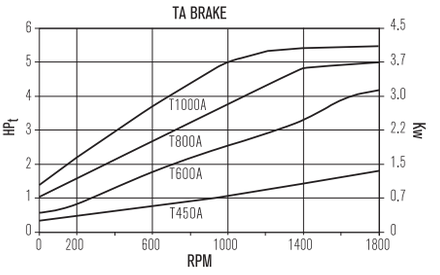




NOTE:
Dynamic torque is approximately 85% of static torque.Static torque is 60% of standard facing torque with LOCO friction facings.

THERMAL CAPACITY





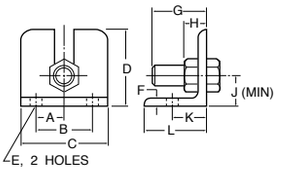
ACCESSORIES

Models	Component	Product Number	Shipping Wt. kg (Lbs)
S & T-450A	Torque Pin Bracket	819900	0,5 (1)
	Brake Safety Guard	817700	0,9 (2)
S & T-600A	Torque Pin Bracket	821400	0,9 (2)
	Brake Safety Guard	818300	0,9 (2)
S & T-800A	Torque Pin Bracket	823400	0,9 (2)
	Brake Safety Guard	826300	1,4 (3)
S & T-1000A	Torque Pin Bracket	825500	1,4 (3)
	Brake Safety Guard	828200	1,4 (3)

These accessories have the same dimensions as standard S-brakes.

SA & TA MODELS MAXIMUM RPM

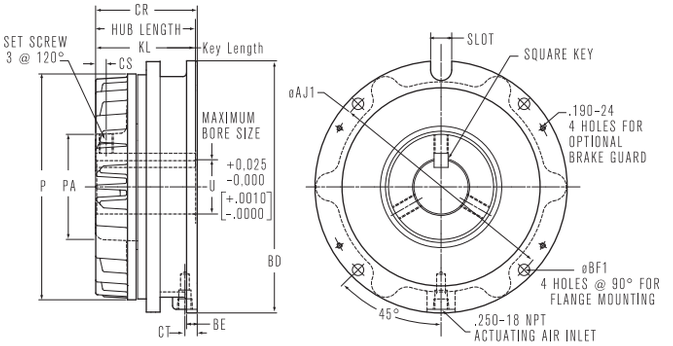
SIZE	MAX RPM
450	4500
600	4000
800	3500
1000	3000



TORQUE PIN BRACKET

MODEL	PRODUCT NUMBER	A	B	C	D	E	F	G	H	J	K	L
S & T- 450A	819900	0.75	1.50	2.25	2.00	0.406	0.25	1.50	0.50	0.75	1.00	2.00
S & T- 600A	821400	1.00	2.00	3.00	2.50	0.406	0.25	1.625	.625	1.12	1.00	2.00
S & T- 800A	823400	1.12	2.25	3.50	3.00	0.469	0.31	2.00	0.75	1.19	1.38	2.50
S & T- 1000A	825500	--	--	--	--	--	--	--	--	--	--	--

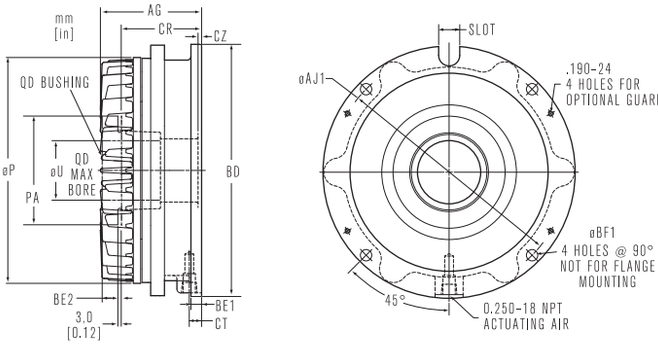
S-450A, S-600A, S-800A, S-1000A ADVANCED SERIES STRAIGHT-BORE BRAKES - APPROX. DIMENSIONS



MODEL	AJ1*	BD	BE	BF1	CR	CS	CT	(SQ)	KEY KL	P	PA	SET SCREWS	U +.001 -.000	SLOT WD	SLOT DP	HUB LENGTH
S450A	134,87 [5.310]	150,9 [5.94]	6,3 [0.25]	7,14 [0.281]	63,8 [2.51]	4,6 [0.18]	11,2 [0.44]	6,35 [0.250]	22,35 [0.88]	115,8 [4.56]	47,8 [1.88]	.250–20	28,575 [1.1250]	9,6 [0.38]	16,5 [0.65]	63,5 [2.50]
S600A	165,10 [6.500]	182,6 [7.19]	9,7 [0.38]	9,12 [0.359]	81,2 [3.19]	6,4 [0.25]	10,4 [0.41]	7,963 [0.312]	78,7 [3.10]	153,9 [6.06]	65,57 [2.58]	.375–16	34,925 [1.3750]	15,93 [0.63]	16,8 [0.66]	79,4 [3.13]
S800A	212,9 [8.38]	228,6 [9.00]	9,7 [0.38]	10,31 [0.406]	92,1 [3.63]	9,7 [0.38]	11,2 [0.44]	12,73 [0.500]	90,5 [3.56]	204,7 [8.06]	95,2 [3.75]	.500	49,212 [1.9375]	19,10 [0.75]	17,5 [0.69]	90,7 [3.57]
S1000A	277,8 [10.94]	301,8 [11.88]	12,7 [0.50]	13,49 [0.531]	103,1 [4.06]	9,7 [0.38]	18,3 [0.72]	19,08 [0.750]	100,0 [3.94]	255,5 [10.06]	127,0 [5.00]	.500	74,612 [2.9375]	22,3 [0.88]	23,1 [0.91]	100,8 [3.97]

*Four additional holes @ 90° apart and 15° from the centerline are present on the S1000A models.

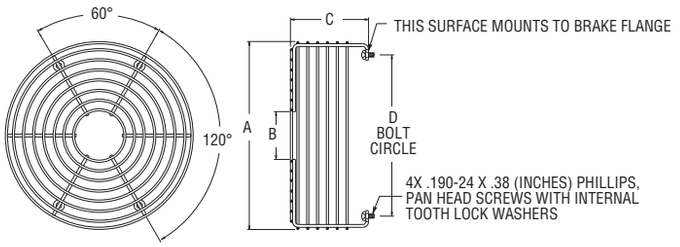
T-450A, T-600A, T-800A, T-1000A ADVANCED SERIES TAPERED-BORE BRAKES - APPROX. DIMENSIONS



Model	AG	øAJ1	øAJ2*	BD	BE1	BE2	øBF1	CR	CT	CZ	P	PA	øU	SLOT WD	SLOT DP
T450A	63.4 [2.50]	134.87 [5.310]	--	150.9 [5.94]	7.1 [0.28]	7.9 [0.31]	7.14 [0.281]	52.6 [2.07]	11.2 [0.44]	7.1 [0.28]	115.8 [4.56]	50.8 [2.00]	25.4 [1.000]	9.6 [0.38]	16.5 [0.65]
T600A	81.5 [3.21]	165.10 [6.500]	--	182.63 [7.19]	9.65 [0.38]	11.2 [0.44]	9.12 [0.359]	61.5 [2.42]	10.41 [0.41]	1.8 [0.07]	153.92 [6.06]	66.5 [2.62]	34.93 [1.375]	15.93 [0.63]	16.8 [0.66]
T800A	91.7 [3.61]	212.85 [8.380]	--	228.6 [9.00]	9.7 [0.38]	14.2 [0.56]	10.31 [0.406]	72.8 [2.87]	11.2 [0.44]	3.5 [0.14]	204.7 [8.06]	98.6 [3.88]	53.98 [2.125]	19.1 [0.75]	17.5 [0.69]
T1000A	106.4 [4.19]	277.80 [10.937]	279.40 [11.000]	301.8 [11.88]	12.7 [0.50]	22.4 [0.88]	13.49 [0.531]	86.5 [3.40]	18.3 [0.72]	1.4 [0.06]	255.5 [10.06]	152.4 [6.00]	73.02 [2.875]	22.3 [0.88]	23.1 [0.91]

*Four additional holes @ 90° apart and 15° from the centerline are present on the T1000A models.

Brake Safety Guard



MODEL	PRODUCT NUMBER	A	B	C	D
S-450A & T-450A	817700	6.56	1.652	2.69	5.25
S-600A & T-600A	818300	7.87	2.00	3.28	6.75
S-800A & T-8000A	826300	9.69	2.75	3.66	8.37
S-1000A & T-1000A	828200	9.69	2.75	3.66	8.37

Recommended Tensions for Typical Converting Applications

PAPER PRODUCTS

Suggested Tension Levels
(Based upon 3000 ft² ream)

Basis Weight	WIND Pounds/Lineal Inch	UNWIND Pounds/Lineal Inch
15	0.5	0.25
20	0.75	0.5
30	1	0.75
40	1.5	1
50	2	1.25
60	2.5	1.75
80	3	2
100	4	3
120	5	3.5
150	6	4
180	8	6
200	10	7

PAPER BOARD

(Measures as Point = 0.001 inch)

Point	WIND Pounds/Lineal Inch	UNWIND Pounds/Lineal Inch
8	3	2
12	4	2.75
15	5	3.25
20	7	4.75
25	9	6
30	11	7.25

FILMS AND FOILS

Material	Pounds/Mil/Inch
Acetate	0.50
Alum. Foil	1
Cellophane	0.75
Cellulose	0.5
Cryovac	0.1
Glassine	1.5
Polyester	0.75
Nylon	0.25
Polyethylene	0.25
Polystyrene	1
Pliofilm	0.1
Saran	0.1
Vinyl	0.1
Polypropylene	0.25

WIRE

AWG	Total Tension (Lbs)
8	30
10	20
12	12
14	9
16	6
20	5
24	4.5
30	1.25
36	0.25
40	0.1

Copper	Use Chart Value
Aluminum	Use Chart Value x 0.6
Multi-strand	Use tension per strand x number of strands

Please Note: This list is a guideline only. Actual tensions may vary depending upon the type of operation, for example, slitting tensions may be slightly lower, while coating and laminating tensions may be slightly higher than the values listed above.

(METRIC)

PAPER/PAPERBOARD

Weight (g/m2)	WINDING Tension (N/cm)	UNWINDING Tension (N/cm)
25	1,3	0,8
30	1,8	1,0
50	2,6	1,6
65	3,5	2,3
100	5,3	3,5
130	7,0	4,6
160	7,8	5,0
200	8,8	5,8
260	12,3	8,1
325	16,0	10,5
400	19,0	12,5

FILMS/FOILS

Material	Tension (N/u/mm)
Aluminum Foil	0,70
Cellophane	0,70
Acetate	0,35
Polyester (mylar)	0,50
Polyethylene (PE)	0,20
Polypropylene	0,20
Polystyrene	0,70
Saran	0,07
Vinyl	0,07

WIRE

Diameter (mm)	Total Tension (Kgs)
2,590	9
2,050	5
1,630	4
1,290	2,72
0,813	2,26
0,511	2
0,254	0,57
0,127	0,12
0,079	0,05

Copper	Use Chart Value
Aluminum	Use Chart Value x 0.6
Multi-strand	Use tension per strand x number of strands

TECHNICAL EVALUATION FOR BRAKES

General Selection Calculations

1. Fill in data for Roll Diameter, Web Speed, Web Width and Tension (See chart on page 220 for suggested tension levels for various materials).
2. If tension is given as pounds per mil per inch, (as newtons per micron per mm,) then web thickness is also required data.
3. Calculate maximum and minimum web tension ($T_W$max and $t_W$min).

Imperial System (Metric System)

4. Calculate Torque Requirement maximum and minimum. (Calculate Web Power, Total Power and Thermal Power.)
5. Calculate Effective Cooling Speed

Brake Selection

(Refer to torque and horsepower charts on page 217.)

1. Brake must dissipate Maximum Horsepower (Power) at the Effective Cooling Speed. Use the cooling enhancement if needed.
2. Brake must be able to rotate at maximum RPM.
3. Brake must deliver both the maximum and minimum torque within its normal control range.

Brake Selection Data Imperial System (Metric System)

Roll Diameter

Max._____ in. (_____ mm) (D)
Min. _____ in. (_____ mm) (d)

Web Width

Max. _____ in. (_____ mm) (W)
Min._____ in. (_____ mm) (w)

Web Thickness

Max. _____ Mils (M) (_____ Micron) (μ)
Min. _____ Mils (m) (_____ Micron) (μ)

Web Speed

Max._____ FPM (_____ mpm) (V)
Min._____ FPM (_____ mpm) (v)

Tension Data

Max._____ T ❑ total ❑ pli (N/mm) ❑ lb/mil/in (N/M/mm) (T)
Min. _____ t ❑ total ❑ pli (N/mm) ❑ lb/mil/in (N/M/mm) (t)

Brakes

Normal Stop Time ____Sec.
Emergency Stop Time ____Sec.

Web Tension (T_W) Calculation:

If tension (T) is given as:

Total Tension; $T_W = T =$ _____ lb (N)

$t_w = t =$ _____ lb (N)

PLI (N/mm); $T_W = W \times T =$ _____ lb (N)

$t_w = w \times t =$ _____ lb (N)

Lb/mil/in; $T_W = W \times M \times T =$ _____ lb

$t_w = w \times m \times t =$ _____ lb

N/μ/mm; $T_W = W \times \mu \times T =$ _____ (N)

$t_w = w \times \mu \times t =$ _____ (N)

Brake Torque Requirement (τ)

τMax = T_WMax x D ÷2

_____ x _____ ÷ 2 = _____ inch lbs.

τMax = T_WMax x D ÷(2000)

_____ x _____ ÷ 2 = _____ (Nm)

τMin. = t_wMin x d ÷ 2

_____ x _____ ÷ 2 = _____ inch lbs.

τMin. = t_wMin x d ÷ (2000)

_____ x _____ ÷ 2 = _____ (Nm)

Maximum Brake Horsepower HP_t (Power kW)

$\frac{TW \times V}{33000}$

_____ x _____ = _____ HP_t

$\frac{TW \times V}{(60000)}$

_____ x _____ = _____ (kW)

Maximum RPM

$\frac{V \times 12}{d \times \pi}$

_____ x 12 / x 3.14 = _____ RPM

or metric $\frac{V \times (1000)}{d \times \pi}$

_____ x (1000) / x 3.14 = _____ RPM

Minimum RPM

$\frac{v \times 12}{D \times \pi}$

_____ x 12 / x 3.14 = _____ RPM

or metric $\frac{v \times (1000)}{D \times \pi}$

_____ x (1000) / x 3.14 = _____ RPM

Effedtive Cooling Speed

Min. RPM + $\left(\frac{\text{Max. RPM} - \text{Min. RPM}}{3}\right)$

_____ + (– / 3) = _____

Nexen Engineering Service

Fax or e-mail to your Nexen Applications Engineer (Numbers listed on back cover of catalog)

Name _____ *Title:* _____ *Date:* _____ *Phone:* (____)_____ *Ext:* _____

Company: _____ *Fax or e-mail:* _____

Address: _____ *City:*_____ *State:* _____ *Zip Code* _____