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TENSION CONTROL CLUTCHES

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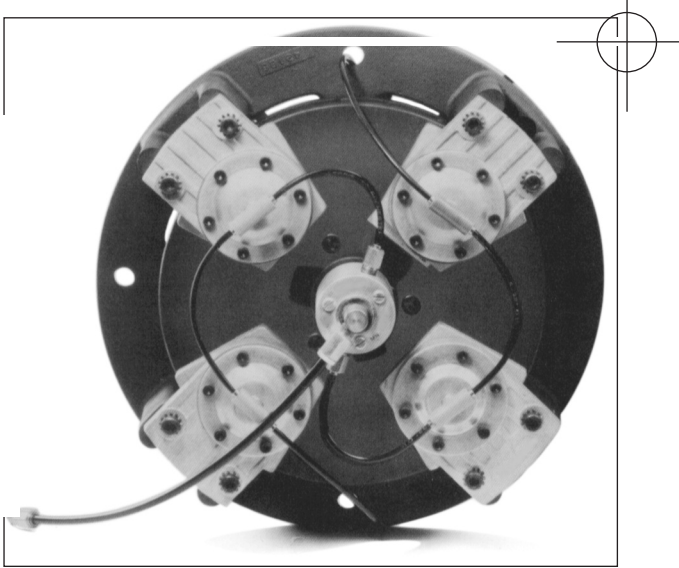
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F-450 Rewind Clutches are found on page 34

Nexen Tension Control Clutches, The Ideal Selection.



**TCC 7, TCC 10,
TCC 14 & TCC 20**

For nearly 50 years, Nexen has been providing tension control equipment for the paper, printing and converting industries; building clutches, brakes and controls for operations that manufacture and/or handle paper, foil, film, rubber, plastics and fabrics.

In fact, Nexen's very first pneumatic clutches were designed for the paper manufacturing industry in North America, to provide tension control for rewind and unwind stands.

Since then, Nexen has become a major supplier of all kinds of clutches to industry (and the world) at large. But our roots are still firmly anchored in the field of tension control.

Modular Construction

Nexen's innovative line of Modular Tension Control Clutches are designed to be the most flexible, maintenance-free pneumatic units available for continuous winding operations. Ruggedly built to endure the continuous drag and high heat load that tension control demands, yet extremely sensitive and responsive to a wide range of torque requirements.

**Tailor-made design
at off-rack prices..**

Today's tension control operations may have standard horsepower requirements, but torque output needs that vary a great deal. For example, a web printing press may use a different grade and weight paper for each printing job—and the tension requirements for each roll of paper can vary considerably. The ideal tension control clutch is capable of handling all these changes. And, the ideal clutch is the Nexen Clutch.

Features

The Modular construction of Nexen TC Clutches lets a customer custom design a clutch that satisfies a variety of specific needs:

- A broad range of thermal horsepower and torque capacities.
- A full selection of Housing Assemblies with various caliper positions.
- Separate Caliper Assemblies.
- .20, .35 and .45 Coefficient Rated Friction Facings.
- Rotary Air Unions.

Design Versatility

Sprockets or pulleys are attached to the TCC Clutch housing pilot diameter. Torque output is varied by selecting a housing with the number of caliper positions that match the torque requirements to a particular rewind application.

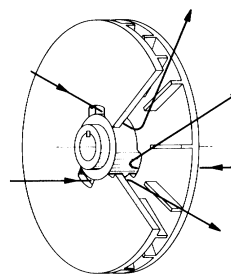
Three friction coefficients are available in facings to further fine tune the performance characteristics of a TC Clutch.

The housing assembly and rotor assembly of the clutch both rotate. Calipers are attached to the clutch housing in equally spaced positions to maintain proper clutch balance.

Clutch housing product numbers are set up with the correct number of caliper positions for balance purposes.

The rotary air union, with dual output ports, is attached to the shaft for connecting the air supply to the calipers.

Torque ranges from a minimum of 8 inch pounds (0.90 Newton Meters) at 1 psi (7 kPa) per caliper set to a maximum of 10,400 inch pounds (1160 Newton Meters) at 80 psi. (550 kPa).



It can stand the heat...

The Nexen TC Units have excellent thermal capacity (required because of the constant drag on the friction facings). Capacities of maximum heat dissipation range from 4.5 to 16.5 thermal horsepower (3.4 to 12.3 Kilowatts). Since the clutch is air operated and air cooled, it does not require an expensive water cooling system.

**It's practically
care-free...**

Only two parts of the TC Clutch will ever need replacing; the diaphragm in the caliper assemblies (virtually never) and the friction facing.

The diaphragms will last practically forever. However, the friction facings need replacing because of wear and the desire to change the coefficient of friction. All it takes is a wrench and screwdriver to remove four cap screws and two machine screws. The whole operation takes about 2 minutes per facing.

(Incidentally, Nexen's facings have been free of asbestos for over 20 years.)

**Sensitive, accurate
air control...**

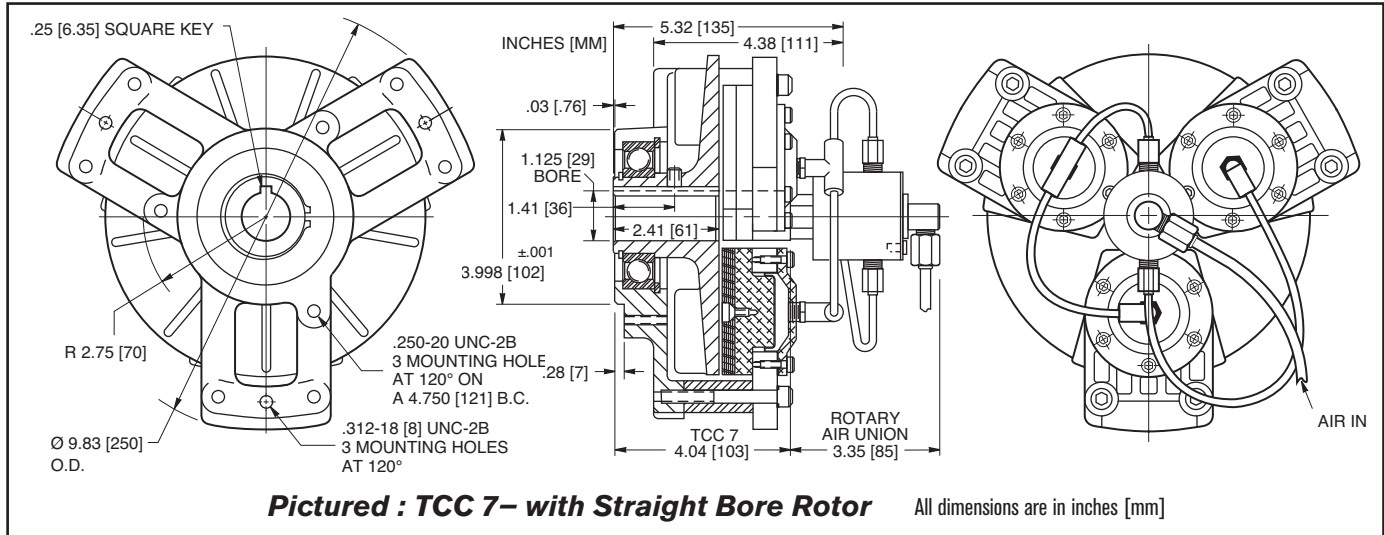
Each caliper assembly is constructed with a diaphragm instead of a piston/O-ring assembly. This provides a smoother, more sensitive response to the air pressure applied in response to signals from the control panel.

Internal springs return the piston to the disengaged position to guarantee clearance between the friction facing and the rotor when no air pressure is applied.

Air is supplied to the TC clutch calipers through a dual output rotary air union which is attached to the shaft.

Model TCC 7

Ordering Information



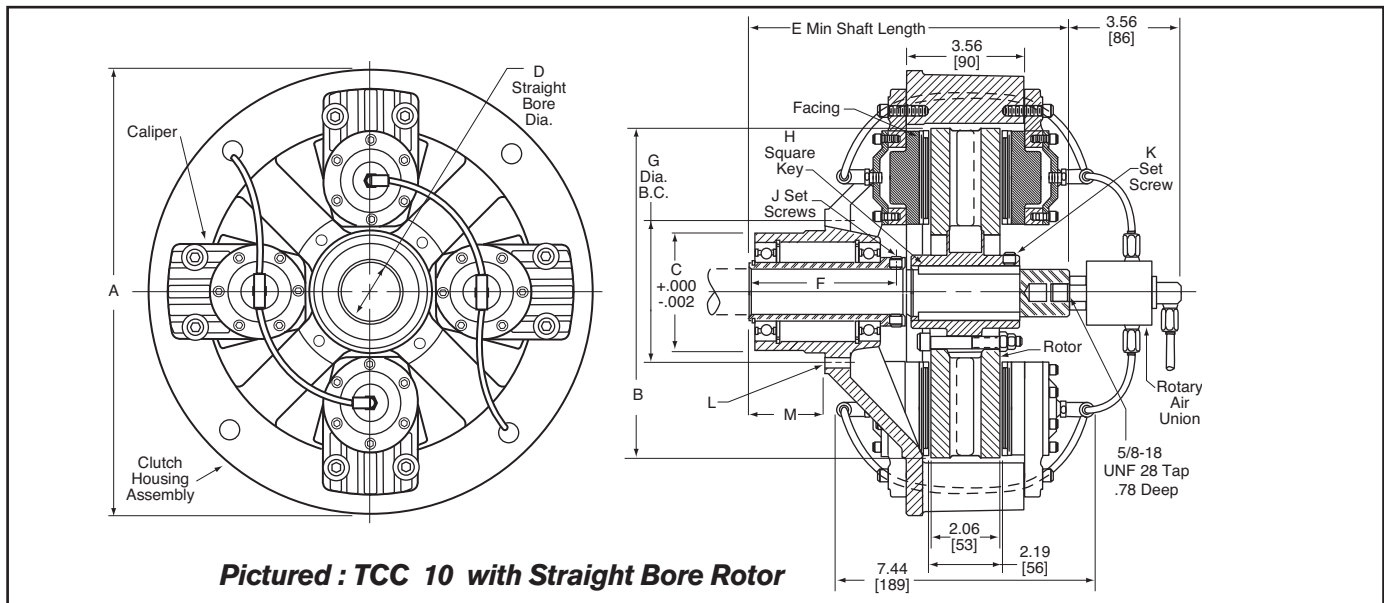
Clutches

Accessories

Model	Product Number	Speed Up To RPM	Coefficient of Friction	Bore in Inches [MM]	Rotor Inertia lb.Ft²	Housing Inertia lb.Ft²
TCC 7	835166	1800	.35 (Std.)	1.125 [29]	0.229	0.267
TCC 7	835168	1800	.22 (LOCO)	1.125 [29]	0.229	0.267

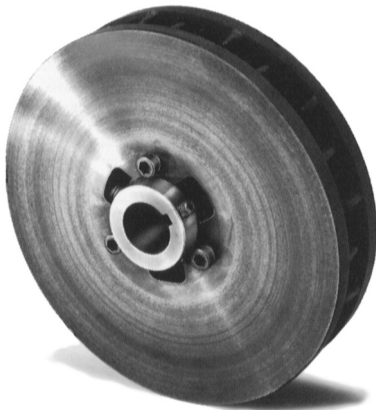
For Model	Product Number	Description
TCC 7	835123	Bushing 3/4" [19,05 MM] Bore
with	835124	Bushing 7/8" [22,23 MM] Bore
Std. Bore	835125	Bushing 1" [25,40 MM] Bore
	835127	Facing Kit, Standard
	835128	Facing Kit, Loco
	835139	Rotary Air Union

Model TCC 10, 14, & 20



Model	A	B	Pilot Dia. C	D	E	F	G	H	3 Screws at 120° J	K	L	M
TCC 10	13.50 [343]	10.00 [254]	3.625 [92]	1.375 [35]	9.15 [232]	4.31 [109]	4.250 [108]	.31 [8]	.375 - 16 (3)	.375 - 16 (3)	.375 - 16 (4)	2.21 [56]
TCC 14	17.50 [445]	14.00 [356]	5.249 [133]	1.937 [49]	10.09 [254]	4.63 [118]	6.250 [159]	.50 [13]	.375 - 16 (3)	.500 - 13 (3)	.500 - 13 (6)	2.49 [63]
TCC 20	23.50 [597]	20.00 [508]	8.000 [203]	2.937 [75]	12.31 [313]	5.66 [144]	9.000 [229]	.75 [19]	.375 - 16 (3)	.750 - 10 (3)	.500 - 13 (8)	3.34 [85]

TENSION CONTROL CLUTCHES



Rotor Assembly with Straight Bore

Ordering Information

Quantity	Discription	Shipping Wt. Lbs. [Kg]
1	Housing Assembly	See below
1	Rotor Assembly with Straight Bore	See below
2-8	Caliper Assemblies as required	See below
2-8	Friction Facing Kits as required	See below
1	Rotary Air Union	See below

ROTORS

Model	Straight Bore Product Number	Unfinished Bore Product Number	HP ^① [kW] ^② Up to	Heat Sink Capacity Ft. lbs [Joules]	Speed Up to RPM	Inertia in lb.ft. ² [Kg.m ²]	Bore Range ^③		Standard ^④ Bore Inches [MM]	Ship WT. Lbs. [Kg]
TC 10	835150	835156	4.5 [3.36]	663,000 ft. lbs. [898907]	1500	2.39 [1,00]	.750 [19,05]	1.375 [34,92]	1.375 [34,92]	28 [12,7]
TC 14	835151	835157	9.5 [7]	998,000 ft. lbs. [1353106]	1200	9.02 [3,80]	1.250 [31,75]	2.500 [63,5]	1.937 [49,19]	61 [27,7]
TC 20	835152	835158	16.5 [12.3]	1,535,000 ft. lbs. [2081324]	900	38.12 [1,61]	2.500 [63,5]	4.500 [114,3]	2.937 [74,59]	168 [76,2]

① Thermal Horsepower (Kilowatts) at maximum rated rpm. See Thermal Horsepower (Kilowatts) vs RPM curves for other speeds.

② Bored-to-size TC Rotors available on request. See Bore and Keyway Dimensions

③ See bushing selection chart for bore reduction.

BUSHINGS

For Model	Product Number	Description
821800	Bushing 3/4 in (19.05mm) Bore	
TC 10	820800	Bushing 7/8 inch (22.23mm) Bore
with	820900	Bushing 1.0 inch (25.40mm) Bore
Std.	821000	Bushing 1 1/8 inch (28.58mm) Bore
Bore	821100	Bushing 1 3/16 inch (30.15mm) Bore
	821200	Bushing 1 1/4 inch (31.75mm) Bore
	821900	Bushing-No Bore
822700	Bushing 1.0 inch (25.40mm) Bore	
TC 14	822800	Bushing 1 3/8 inch (34.93mm) Bore
with	822900	Bushing 1 1/2 inch (38.10mm) Bore
Std.	823000	Bushing 1 5/8 inch (41.28mm) Bore
Bore	823100	Bushing 1 11/16 inch (42.85mm) Bore
	823200	Bushing 1 3/4 inch (44.45mm) Bore
	823800	Bushing - No Bore
825800	Bushing 1 1/4 inch (31.75mm) Bore	
	824700	Bushing 1 15/16 inch (49.21mm) Bore
TC 20	824800	Bushing 2.0 inch (50.80mm) Bore
with	824900	Bushing 2 3/16 inch (55.55mm) Bore
Std.	825000	Bushing 2 1/4 inch (57.15mm) Bore
Bore	825100	Bushing 2 7/16 inch (61.91mm) Bore
	825200	Bushing 2 1/2 inch (63.50mm) Bore
	825300	Bushing 2 3/4 inch (69.85mm) Bore
	825900	Bushing - No Bore

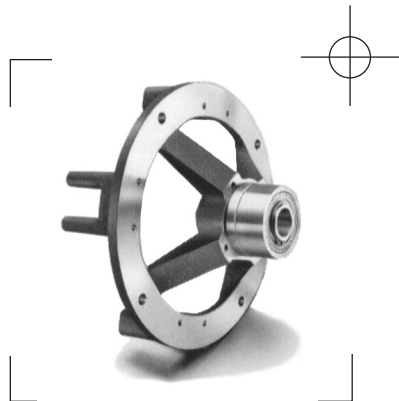
BORE AND KEYWAY DIMENSIONS

Bore Range*	Key (Square)	Keyway Tolerance
.750 - .875 [19,05 - 22,23]	.188 [4,78]	+.002 -.000 [+0,05 -0,0]
.937 - 1.250 [23,80 - 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 - 1.750 [36,50 - 44,45]	0.375 [9,53]	+.002 -.000 [+0,05 -0,0]
1.812 - 2.250 [46,02 - 57,15]	0.500 [12,7]	+.003 -.000 [+0,08 -0,0]
2.312 - 2.750 [58,72 - 69,85]	0.625 [15,88]	+.003 -.000 [+0,08 -0,0]
2.812 - 3.250 [71,42 - 82,55]	0.750 [19,05]	+.003 -.000 [+0,08 -0,0]
3.312 - 3.750 [84,12 - 95,25]	0.875 [22,23]	+.004 -.000 [+0,08 -0,0]
3.812 - 4.500 [96,82 - 114,3]	1.000 [25,4]	+.004 -.000 [+0,08 -0,0]

*Bore Tolerance +.002" -.000" [+0,05 -0,0]

Housing Assembly-TCC (Tension Control Clutch)

Accessories



Model	Product Number	Number of Caliper Positions	Speed Up To RPM	Inertia in lb.ft ² [Kg.m ²]	Bore Diameter Inches [MM]	Ship Wt. lbs. [Kg]
TCC10-2	835140	2	1500	3.82 [1,61]	1.375 [34,9]	31 [1,35]
TCC 10-4	835141	4	1500	4.03 [1,70]	1.375 [34,9]	31 [1,35]
TCC 14-2	835142	2	1200	9.53 [4,02]	1.937 [49,2]	57 [2,59]
TCC 14-3	835143	3	1200	9.78 [4,12]	1.937 [49,2]	57 [2,59]
TCC 14-4	835144	4	1200	10.03 [4,26]	1.937 [49,2]	57 [2,59]
TCC 14-6	835145	6	1200	10.54 [4,44]	1.937 [49,2]	57 [2,59]
TCC 20-4	835146	4	900	27.28 [1,15]	2.937 [74,6]	110 [4,99]
TCC 20-6	835147	6	900	28.50 [1,20]	2.937 [74,6]	110 [4,99]
TCC 20-8	835148	8	900	29.71 [1,25]	2.937 [74,6]	110 [4,99]



Caliper Assemblies

Caliper Assemblies are common to all TC models. Each Caliper assembly consists of two Caliper halves. Order one Caliper assembly for each Caliper position.

Product Number835121

Ship Wt:2.5 lbs. [1,13 Kg]
Air Chamber Volume per set:1.25 cu. in.
.....[1.97 cu. mm]

Friction Facing Kits

Friction Facing Kits contain two asbestos free facings of the specific coefficient of friction selected. One facing kit is required per caliper assembly.

Coefficient	Product Number
HICO .45.....	835111
STD .35.....	835112
LOCO .20.....	835113
Ship Wt: 1/2 lbs. [2,26 Kg]	

Rotary Air Union

The dual output Rotary Air Union is used to connect an air supply to the calipers for a Tension Control Clutch (TCC) installation. The Rotary Air Union is attached to the end of the shaft where the clutch is mounted. A 5/8-18 tapped hole, .78 deep is required.

Product Number835139

Ship Wt: 1.2 lbs. [5,44 Kg]

TCC TORQUE CHARTS

TCC 7 TORQUE IN INCH POUNDS				
Number of Calipers	Coefficient of Friction			
	.20(LoCo)		.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

TCC 7 TORQUE IN NEWTON METERS				
Number of Calipers	Coefficient of Friction			
	.20(LoCo)		.35(Std)	
	550 kPa	7 kPa	550 kPa	7 kPa
1	9	0,22	15,8	0,45
2	18	0,45	31,6	0,90
3	27,1	0,67	47,5	1,35

TCC 10 TORQUE IN INCH POUNDS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	80 PSI	1 PSI	80 PSI	1 PSI	80 PSI
2	520	8	800	12	1060
4	1040	16	1600	24	2120

TCC 10 TORQUE IN NEWTON METERS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	550 kPa	7 kPa	550 kPa	7 kPa	550 kPa
2	59	0,9	90	1,4	120
4	118	1,8	180	2,7	240

TCC 14 TORQUE IN INCH POUNDS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	80 PSI	1 PSI	80 PSI	1 PSI	80 PSI
2	800	12	1320	18	1700
3	1200	18	1980	27	2550
4	1600	24	2640	36	3400
6	2400	36	3960	54	5100

TCC 14 TORQUE IN NEWTON METERS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	550 kPa	7 kPa	550 kPa	7 kPa	550 kPa
2	90	1,4	149	2	192
3	136	2	224	3	288
4	181	2,7	298	4	384
6	271	4	447	6	576

TCC 20 TORQUE IN INCH POUNDS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	80 PSI	1 PSI	80 PSI	1 PSI	80 PSI
4	2560	36	4000	56	5200
6	3840	54	6000	84	7800
8	5120	72	8000	112	10400

TCC 20 TORQUE IN NEWTON METERS					
Number of Calipers	Coefficient of Friction				
	.20(LoCo)		.35(Std)		.45(HiCo)
	550 kPa	7 kPa	550 kPa	7 kPa	550 kPa
4	289	4	452	6,3	588
6	434	6	678	9,5	881
8	578	8,1	904	12,6	11,75

Caution:

Do Not operate **clutch** outside of shaded area.

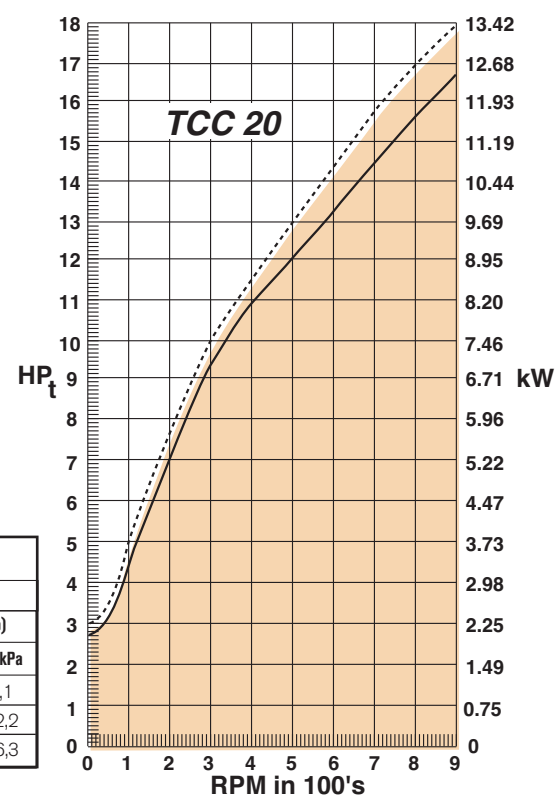
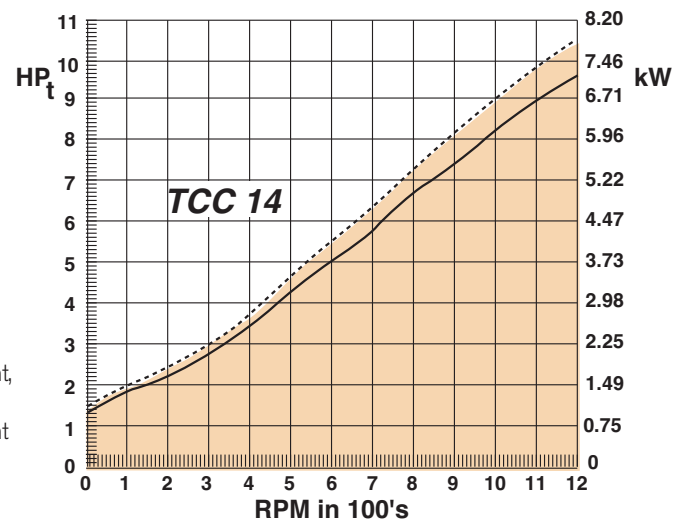
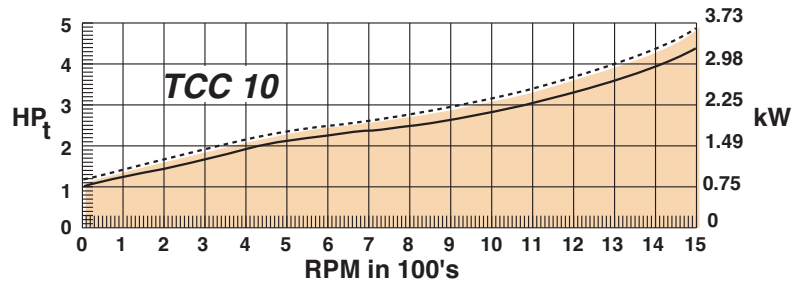
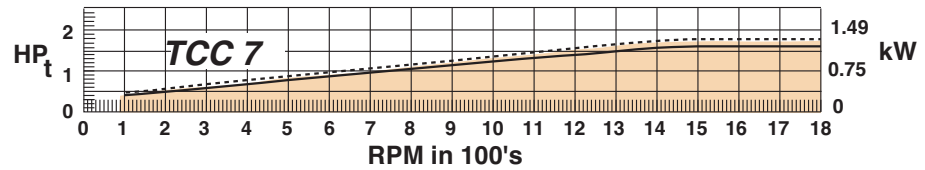
Data derived at indicated ambient temperature:

- At 55° - 60° F,
13°-16° C. Ambient,
- At 75° - 80° F,
24°-27° C. Ambient

Warning:

Caliper assemblies must be equally spaced on clutch housings to maintain proper balance. Match the number of calipers with a clutch housing that has the same number of caliper positions.

Thermal Dissipation Vs RPM



Recommended Tensions for Typical Converting Applications

PAPER PRODUCTS

Suggested Tension Levels
(Based upon 3000 ft² ream)

	WIND	UNWIND
Basis Weight	Pounds/Lineal Inch	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)

	WIND	UNWIND
Point	Pounds/Lineal Inch	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

(METRIC)

PAPER/PAPERBOARD

	WINDING	UNWINDING
Weight (g/m ²)	Tension (N/cm)	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

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.

STC 600 AND 940 CLUTCHES

Superior tension control through a broad torque range.

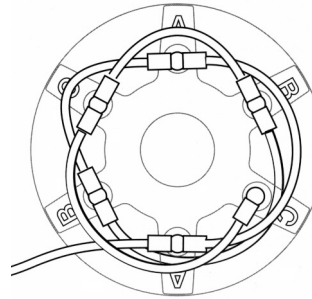


Diagram 1: Plumbing the 600/940 with no valves

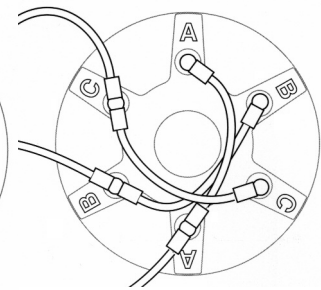


Diagram 2: Plumbing the 600/940 with three valves



Different piston sizes give you the widest range

Nexen's clutches 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.

The STC 600 and 940 Clutches allow superior torque control for your web with Nexen's line of patented tension control clutches. 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.

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: STC 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.

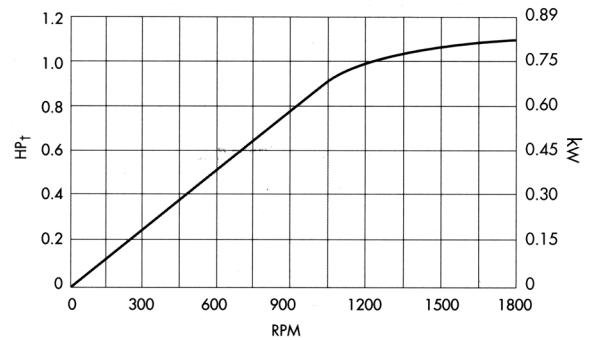
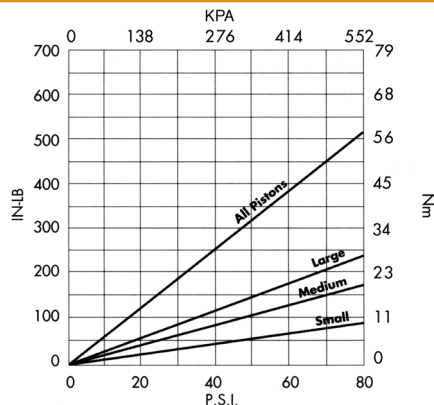
The total torque range of the clutch will equal the sum of the torques of the individual sets from 0 to maximum air pressure.

STC 600 AND 940 CLUTCHES

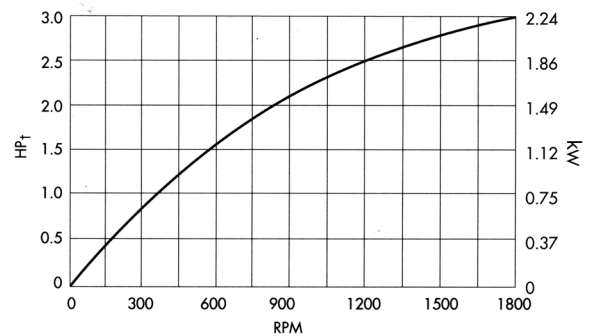
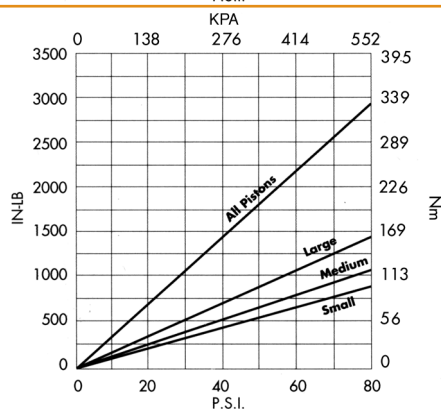
Torque vs. Air Pressure

Thermal Horsepower vs. RPM

STC 600



STC 940

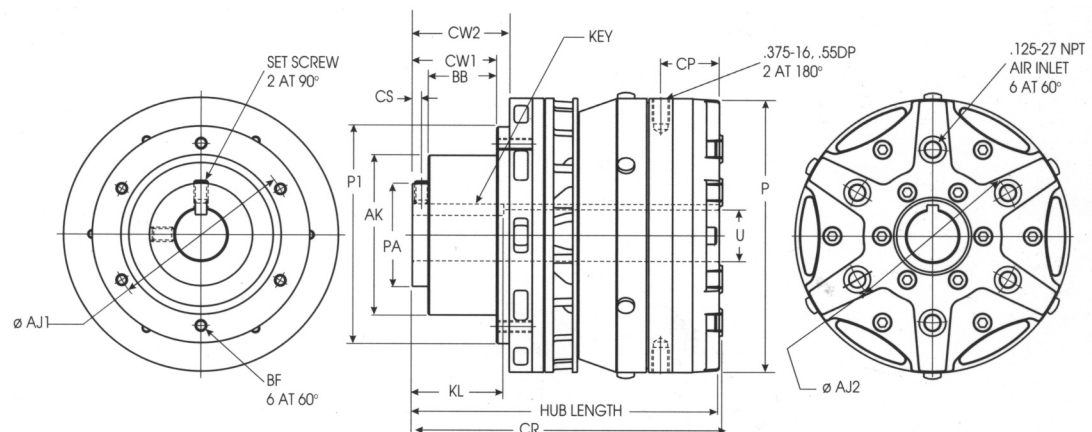


SPECIFICATIONS

MODEL	PRODUCT NUMBER	MAX. RPM	TEE FITTING	ELBOWS	TUBING	BORE DIAMETER	SHIPPING WEIGHT
STC 600	927200	3600	5	3	60 Inch [1524 MM]	1.125* Inch [29 MM]	20.0 Lbs. [9 Kg]
STC 940	927211	2400	5	3	60 Inch [1524 MM]	1.938* Inch [49 MM]	54.2 Lbs. [25 Kg]

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

DIMENSIONS



MODEL	PRODUCT NUMBER	AJ1	AJ2	AK ^{±.001}	BB	BF	CP	CR	CS	CW1	CW2	HUB LENGTH	KEY (SQ.)	KL	P	P1	PA	SET SCREW	^{+.001} U ^{-.000}
STC 600	927200	4.000 [102]	3.800 [97]	3.500 [89]	1.50 [38]	.25-20 [6]	1.28 [33]	6.78 [172]	0.20 [5]	1.84 [47]	2.12 [54]	6.71 [170]	0.250 [6]	2.00 [51]	6.00 [153]	4.75 [121]	2.25 [57]	.312-18 [8]	1.125 [29]
STC 940	927211	5.625 [143]	6.140 [156]	4.873 [124]	1.75 [44]	.375-16 [10]	1.75 [44]	9.04 [230]	0.37 [9]	2.37 [60]	3.18 [81]	8.97 [228]	0.500 [13]	3.00 [76]	9.40 [239]	6.62 [168]	2.94 [75]	.500-13 [13]	1.938 [49]

TECHNICAL EVALUATION FOR CLUTCHES

GENERAL SELECTION CALCULATIONS

1. Fill in data for Roll Diameter, Web Speed, Web Width and Tension (See chart on page 75 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_{Wmax} and t_{Wmin}).
4. Calculate Torque Requirement maximum

IMPERIAL SYSTEM (METRIC SYSTEM)

- and minimum. (Calculate Web Power, Total Power and Thermal Power.)
5. Some tension control systems feature a taper tension circuit to reduce tension as wind up roll size increases. Calculate and use maximum taper torque as a substitute for maximum torque when using these systems.
6. Calculate Belted RPM.
7. Calculate Web Horsepower (Power), Total Horsepower (Power) and Thermal Horsepower (Power).

CLUTCH SELECTION

(Refer to torque and horsepower charts on pages 74 and 77.)

1. Clutch must dissipate thermal horsepower (Power) at Belted RPM.
2. Clutch must be able to rotate at Belted RPM.
3. Clutch must deliver both the maximum and minimum torque within its normal control range.

CLUTCH 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/ μ /mm) (T)
Min. _____ t ☐ total ☐ pli (N/mm) ☐ lb/mil/in (N/ μ /mm) (t)

Clutches

_____ % Taper
_____ % Taper

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)

$\tau_{Max} = T_W \times Max \times D \div 2$

_____ x _____ $\div 2 =$ _____ inch lbs.

$\tau_{Max} = T_W \times Max \times D \div (2000)$

_____ x _____ $\div 2 =$ _____ (Nm)

$\tau_{Min.} = t_w \times Min \times d \div 2$

_____ x _____ $\div 2 =$ _____ inch lbs.

$\tau_{Min.} = t_w \times Min \times d \div (2000)$

_____ x _____ $\div 2 =$ _____ (Nm)

Maximum Taper Torque

$\tau_{Maxt} = \tau_{Max} \left(1 - \frac{\% \text{ taper}}{100}\right)$

_____ $\left(1 - \frac{\% \text{ taper}}{100}\right) =$ _____ inch lbs. (Nm)

Belted RPM $\frac{V \times 12 \times 1.05}{d \times \pi} \times 12 \times 1.05 = \text{RPM}$ <p>x 3.14</p> <p>or metric</p> $\frac{V \times (1000) \times 1.05}{d \times \pi} \times (1000) \times 1.05 = \text{RPM}$ <p>x 3.14</p>	Web Horsepower (HP_w) $\frac{T_{WMax} \times V}{33000} \times \frac{1}{33000} = HP_w$ <p>or metric</p> Web Power (kW) $\frac{T_{WMax} \times V}{(6000)} \times \frac{1}{(6000)} = \text{(kW)}$	Total Horsepower (HP) (Total Power) $\frac{HP_w \text{ (HP)} \times D \times 1.05}{d} \times 1.05 = \text{HP (kW)}$ Thermal Horsepower (HP_t) (Thermal Power (kW)) $HP - HP_w = \text{HP}_t \text{ (kW)}$
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NEXEN ENGINEERING SERVICE

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

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