TORQUE LIMITERS

Nexen's line of **Torque Limiters** is designed to protect your equipment by immediately disengaging the drive shaft when excessive torque occurs:

- Single position, ball detent design assures re-engagement of the drive from a complete stop in the same position every time, providing exact timing of both components

Nexen's **Air Pressure Circuits** complete the package for total overall protection:

- **Single Air Pressure** circuit allows for remote adjustment of the torque setting
- **Dual Air Pressure** circuit permits remote adjustment of torque while allowing a higher pressure for startup (high inertia loads) and a lower pressure for running torque requirements

When used with Torque Limiters, Nexen **Single or Double Flexible Couplings** allow:

- High shaft misalignment
- Zero backlash
- Excellent torsional stiffness

How a Torque Limiter System Works:

1. Install Torque Limiter, Limit Switch and the Air Pressure Control System;
2. Set the air pressure for the desired overload torque;
3. If an overload occurs, the Torque Limiter interface separates, moving the cylinder to the disengaged position;
4. The Limit Switch detects the cylinder movement and interrupts electrical power. Interruption of electrical power de-energizes the 3-way N.C. solenoid valve, which exhausts air pressure from the Torque Limiter, causing it to disengage.
5. When the machinery comes to a **complete stop**, re-engage the Torque Limiter by jogging the drive, thus allowing machine operation to continue.

The following pages detail your Torque Limiter System options. You'll find information on Air Pressure Control Systems, Torque Limiter designs and Flexible Couplings. Once you have determined your total system requirements, order each item separately.

Air Pressure Control Systems:

Choose from 2 Air Pressure Control Systems–Single or Dual:

The **Single Air Pressure System** provides basic protection:

- A constant bleed type Air Regulator is set to an air pressure that will allow the machine to operate, but low enough for Torque Limiter disengagement in the event of machine overload
- The Air Regulator also provides a constant bleed to eliminate back pressure in the air line while precisely maintaining pressure within .05 psi.
- Torque setting can be changed while the machine is running via the Air Regulator.

The **Dual Air Pressure System** provides ultimate protection, allowing higher startup pressure (high inertia load) and lower pressure for running with overload protection:

- Regulator #1 is set to an air pressure high enough to allow machine startup
- After a pre-set period of time, the Time Delay Control de-energizes the 3-way inline mount solenoid valve, allowing only the lower running air pressure to operate the Torque Limiter
- Regulator #2 is set to an air pressure that will allow the machine to operate, but low enough for Torque Limiter disengagement in the event of a machine overload
- Regulator #2 also provides a constant bleed to eliminate back pressure in the air line during overload

SmartValve Controller

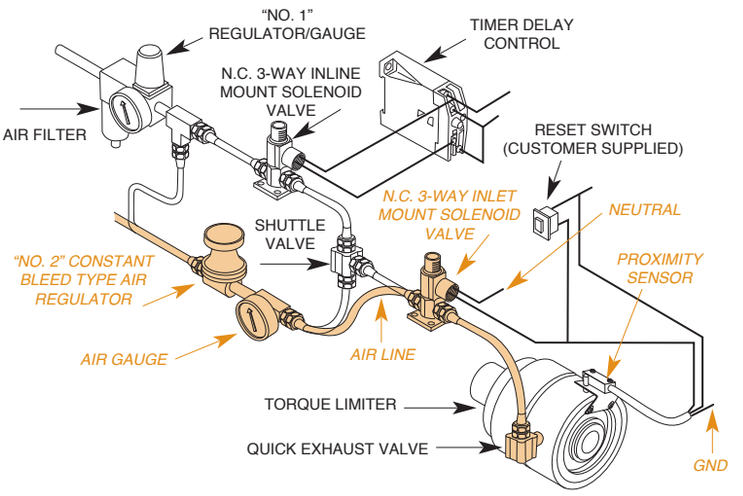
The **Nexen SmartValve Controller** is a microprocessor based pressure controller that is ideally suited for use with Nexen torque limiters, brakes and clutches. The SmartValve replaces much of the valves, regulators, air lines and plumbing needed to provide multiple pressures to Nexen's pneumatic products.

- The SmartValve accepts pressure set points in two ways: analog and digital.
  A 0-10 analog signal caused the SmartValve to output a proportional 0-80 psig.
- Four digital inputs allow the SmartValve to output 16 different pressures that correspond to one of the standard or custom pressure tables stored onboard.
- Another input is used to sense a switch closure that signals the SmartValve to exhaust the air pressure, such as in the case of a torque limiter overload.
- A solid state relay output provides alarm indication during overload situations.

Air Pressure Control Systems

Control Systems Style	Product Number
Dual System Consists of:	801579 (1) Air Regulator Air Gauge - Constant Bleed Type, 0-100 PSI, 125 NPT (2) Quick Exhaust Valve (2) Tee Fittings, 125 NPTF (1) Air Filter, regular duty, 250 NPT (1) Air Regulator/Gauge, 0-125 PSI, 250 NPT (2) 3-Way Inline Mount Solenoid Valve, N.C. (1) Adjustable Time Delay Control
Single System Consists of:	801578 (1) Air Regulator Air Gauge - Constant Bleed Type, 0-100 PSI, 125 NPT (1) 3-Way Inline Mount Solenoid Valve N.C. (1) Quick Exhaust Valve (1) Tee Fitting, 125 NPTF

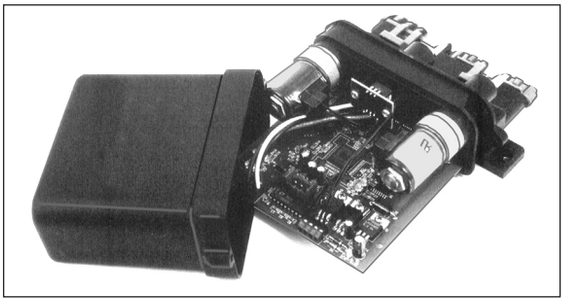
Recommended Air Line Connections



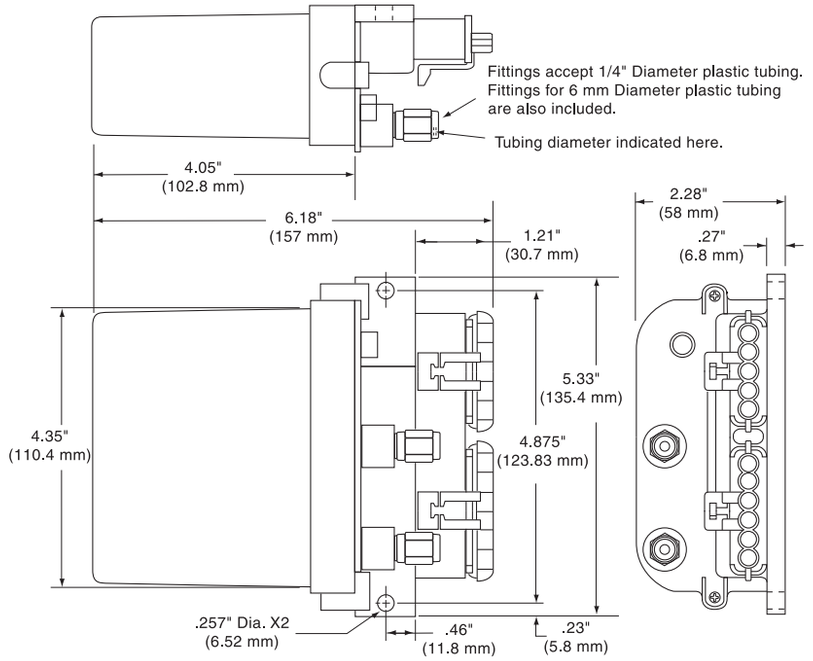
NOTE:
Areas colored tan, and italicized tan type and arrows indicate "single air pressure system" installation only. "Dual air pressure system" requires all components.

SmartValve Controller

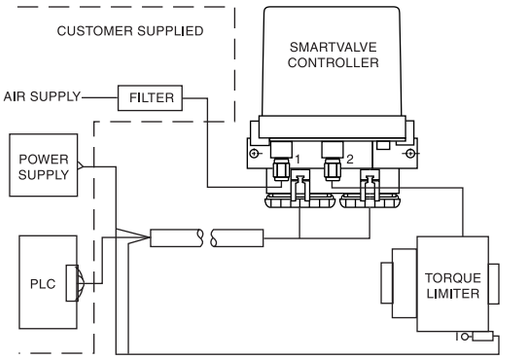
Control Systems Style	Product Number
SmartValve Controller	964508
115/230 VAC Power Supply	964509
Specifications:	DC Power, 24 VDC @ 500mA (Optional 24VDC CE, UL, CSA approved 115/230 VAC power supply available) Input Pressure Range, 85–150 PSIG (6–10 bar) Output Pressure Range, 0–80 PSIG (0–5.5 bar) Accuracy, ± .25% full scale @ 77°F (25°C) Cable, 6.5ft. (2m) cable included



Approximate Dimensions



Circuit Diagram



TL-A SERIES TORQUE LIMITERS, SET SCREW MOUNTED

TL-A Series Set Screw Mounted, Open Design Torque Limiters provide:

- **16 Models** to choose from
- Torque up to 27,700 In. Lbs. @ 80 psi
- Operating Speed up to 2000 rpm
- Bore Sizes ranging from 0.625 to 2.938 inches
- Remote torque adjustment with Nexen's **Single** and **Double Air Pressure Circuits**
- Many Models available in either high torque or low torque versions
- Proximity Sensor with 3 ft. cord and hardware included on all models

TL-A Series Torque Limiters - Set Screw Mount

Model	Product Number	Speeds Up to RPM	Torque Up to (In. Lbs.)	Bore (In)	Key Size (WD X DP)	Shipping Wt. (Lbs)
TL10-A	801802	2000	185	0.625	0.188 sq	5
TL15-A	801812	2000	365	0.625	0.188 sq	5
TL20-A	801502	1800	860	0.875	0.188 sq	16
TL20-A/2	801506	1800	400	0.875	0.188 sq	16
TL30-A	801512	1650	2150	1.125	0.250 sq	19
TL30-A/2	801516	1650	800	1.125	0.250 sq	19
TL40-A	801522	1350	4190	1.625	0.375 sq	29
TL40-A/2	801526	1350	1500	1.625	0.375 sq	29
TL50-A	801532	1200	6230	1.750	0.375 sq	38
TL50-A/2	801536	1200	2200	1.750	0.375 sq	38
TL60-A	801542	1050	10820	1.938	0.500 sq	52
TL60-A/2	801546	1050	3800	1.938	0.500 sq	52
TL70-A	801552	950	15000	2.188	0.500 sq	45
TL70-A/2	801556	950	6700	2.188	0.500 sq	45
TL80-A	801562	850	27700	2.938	0.750 x 0.500	70
TL80-A/2	801566	850	12000	2.938	0.750 x 0.500	70

Minimum Shaft insertion halfway through Hub. Keys are customer furnished.

Operating Speed: Disengaging speeds are limited to the maximum allowable feet per minute rating of the rotary seal between the drive flange and drive ring. Torque Limiters are engaged when stationary.

NOTE: For higher speeds-consult Nexen.

Attachment Options

Flexible Coupling Assemblies

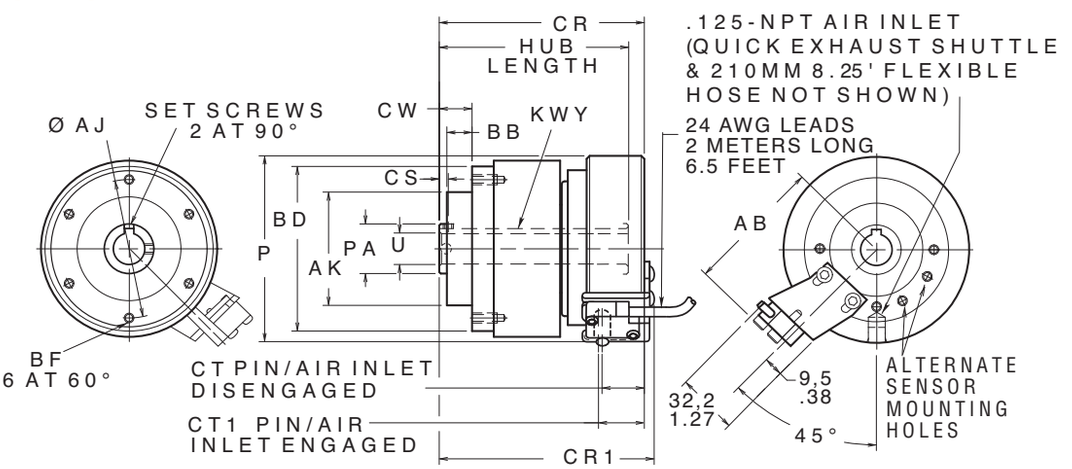
Flexible Coupling Assemblies are required for in-line coupling applications, and are available in single or double flex designs to provide **high misalignment capabilities with high torque**. Turn to pages 118 and 119 for Flexible Coupling details.

Pulleys, Sprockets, Gears

These can be attached to the clutch for offset shaft applications. Tapped holes are provided for ease of mounting. Nexen does not furnish these items. For minimum sprocket requirements, see page 371.

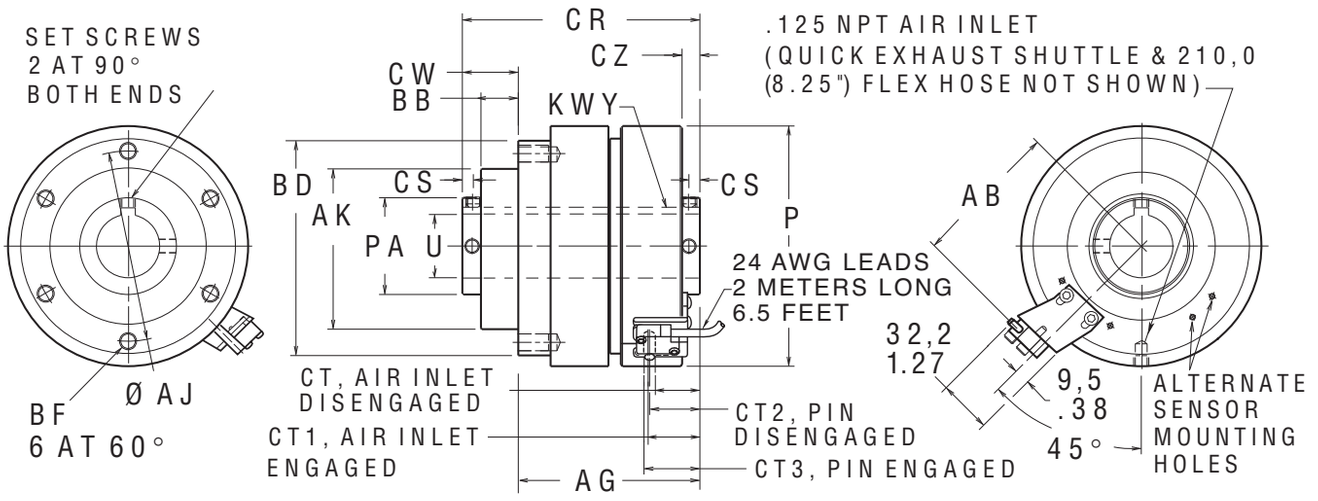
TL-A SERIES TORQUE LIMITERS - SET SCREW MOUNTED - APPROXIMATE DIMENSIONS (INCHES)

TL10-A & TL15-A



MODEL	PRODUCT NUMBER	AB	AJ	AK ±.001	BB	BD	BF	CR	CR1	CS	CT	CT1	CW	KL	KEYWAY WD	KEYWAY DP	P	PA	U +.001 -.000	HUB LENGTH	SET SCREW
TL10-A	801802	2.81	2.750	2.249	0.50	3.27	.190-24	4.22	4.41	0.18	0.87	0.94	0.65	3.13	0.188	0.094	3.69	0.98	0.625	3.91	.190-24
TL15-A	801812	2.81	2.750	2.249	0.50	3.27	.190-24	4.22	4.41	0.18	0.87	0.94	0.65	3.13	0.188	0.094	3.69	0.98	0.625	3.91	.190-24

TL-A SERIES TORQUE LIMITERS - SET SCREW MOUNTED - APPROXIMATE DIMENSIONS



MODEL	PRODUCT NUMBER	AB	AG	AJ	AK ±.001	BB	BD	BF	CP	CR	CS	CT	CT1	CT2	CT3	CW	CZ	KEYWAY WD	KEYWAY DP	P
TL20-A	801502	3.22	4.24	3.562	2.874	0.69	4.12	.312-18	–	5.28	0.25	1.09	1.37	1.22	1.36	1.04	0.41	0.188	0.094	4.56
TL20-A/2	801506	3.22	4.24	3.562	2.874	0.69	4.12	.312-18	–	5.28	0.25	1.09	1.31	1.22	1.44	1.04	0.41	0.188	0.094	4.56
TL30-A	801512	3.53	4.21	4.062	3.499	0.74	4.50	.312-18	–	5.36	0.28	1.12	1.34	1.26	1.48	1.15	0.45	0.250	0.120	5.09
TL30-A/2	801516	3.53	4.21	4.062	3.499	0.74	4.50	.312-18	–	5.36	0.28	1.12	1.34	1.26	1.48	1.15	0.45	0.250	0.120	5.09
TL40-A	801522	3.98	4.66	4.750	4.124	0.96	5.40	.375-16	–	6.09	0.31	1.11	1.33	1.33	1.55	1.43	0.51	0.375	0.113	6.06
TL40-A/2	801526	3.98	4.66	4.750	4.124	0.96	5.40	.375-16	–	6.09	0.31	1.11	1.33	1.33	1.55	1.43	0.51	0.375	0.113	6.06
TL50-A	801532	4.28	5.15	5.375	4.499	0.82	6.12	.500-13	–	6.44	0.31	1.16	1.38	1.38	1.60	1.29	0.57	0.375	0.176	6.56
TL50-A/2	801536	4.28	5.15	5.375	4.499	0.82	6.12	.500-13	–	6.44	0.31	1.16	1.38	1.38	1.60	1.29	0.57	0.375	0.176	6.56
TL60-A	801542	4.78	5.47	6.125	5.249	0.88	6.87	.500-13	–	6.91	0.38	1.37	1.59	1.54	1.76	1.44	0.58	0.500	0.227	7.56
TL60-A/2	801546	4.78	5.47	6.125	5.249	0.88	6.87	.500-13	–	6.91	0.38	1.37	1.59	1.54	1.76	1.44	0.58	0.500	0.227	7.56
TL70-A	801552	5.03	6.39	7.000	5.749	0.88	7.90	.625-11	1.69	7.75	0.38	1.52	1.74	1.68	1.90	1.36	0.62	0.50	0.250	8.31
TL70-A/2	801556	5.03	6.39	7.000	5.749	0.88	7.90	.625-11	1.69	7.75	0.38	1.52	1.74	1.68	1.90	1.36	0.62	0.50	0.250	8.31
TL80-A	801562	6.02	7.16	8.500	7.374	1.88	9.50	.625-11	2.76	9.42	0.38	2.75	2.97	2.75	2.97	2.26	0.59	0.75	0.250	9.25
TL80-A/2	801566	6.02	7.16	8.500	7.374	1.88	9.50	.625-11	2.76	9.42	0.38	2.75	2.97	2.75	2.97	2.26	0.59	0.75	0.250	9.25

MODEL	PRODUCT NUMBER	PA	U +.001 -.000	SET SCREW
TL20-A	801502	1.38	0.875	.250-20
TL20-A/2	801506	1.38	0.875	.250-20
TL30-A	801512	1.75	1.125	.312-18
TL30-A/2	801516	1.75	1.125	.312-18
TL40-A	801522	2.36	1.625	.375-16
TL40-A/2	801526	2.36	1.625	.375-16
TL50-A	801532	2.56	1.750	.375-16
TL50-A/2	801536	2.56	1.750	.375-16
TL60-A	801542	2.95	1.938	.500-13
TL60-A/2	801546	2.95	1.938	.500-13
TL70-A	801552	3.35	2.188	.500-13
TL70-A/2	801556	3.35	2.188	.500-13
TL80-A	801562	3.74	2.938	.500-13
TL80-A/2	801566	3.74	2.938	.500-13

Electro/Mechanical Limit Switch Option For Nexen Torque Limiters

Models TL20-50A, A/2. . . . . Product Number 801571
Models TL60-70A, A/2. . . . . Product Number 801572
Models TL80A, A/2 . . . . . Product Number 801573

Torque Vs. Air Pressure

See page 117.

TL-A-E SERIES TORQUE LIMITERS, SET SCREW MOUNT

TL-A-E Series Set Screw Mounted, Enclosed Torque Limiters provide:

- **10 Models** to choose from
- Torque up to 10,820 In. Lbs. @ 80 psi
- Operating Speed up to 1650 rpm
- Bore Sizes ranging from 0.875 to 1.938 inches
- Remote torque adjustment with Nexen's **Single** and **Double Air Pressure Circuits**
- Many Models available in either high torque or low torque versions
- Proximity Sensor with 3 ft. cord and hardware included on all models
- Water protection per NEMA Standard 1.26.55 (waterproof machines)
- Nickel-plated exterior
- For additional corrosion protection, contact the factory

TL-A-E Series Torque Limiters - Set Screw Mount

Model	Product Number	Meets USDA & NEMA Specs	Speeds Up to RPM	Torque Up to (In. Lbs.)	Bore (In)	Key Size (SQ)	Shipping Wt. (Lbs)
TL20A-E	802902	Yes	1650	860	0.875	0.188	7
TL20A/2-E	802906	Yes	1650	400	0.875	0.188	7
TL30A-E	802912	Yes	1350	2150	1.125	0.250	10
TL30A/2-E	802916	Yes	1350	800	1.125	0.250	10
TL40A-E	802922	Yes	1200	4190	1.500	0.375	16
TL40A/2-E	802926	Yes	1200	1500	1.500	0.375	16
TL50A-E	802932	Yes	1100	6230	1.750	0.375	20
TL50A/2-E	802936	Yes	1100	2200	1.750	0.375	20
TL60A-E	802942	Yes	1000	10820	1.938	0.500	30
TL60A/2-E	802946	Yes	1000	3800	1.938	0.500	30

Minimum Shaft insertion halfway through Hub. Keys are customer furnished.

Operating Speed: Disengaging speeds are limited to the maximum allowable feet per minute rating of the rotary seal between the drive flange and drive ring. Torque Limiters are engaged when stationary.

NOTE: For higher speeds-consult Nexen.

		COUPLING ASSEMBLIES	
		SINGLE FLEX	DOUBLE FLEX
Model	Product Number	Product Number	Product Number
TL20A-E	802902	909980	909981
TL20A/2-E	802906	909980	909981
TL30A-E	802912	910080	910081
TL30A/2-E	802916	910080	910081
TL40A-E	802922	910280	910281
TL40A/2-E	802926	910280	910281
TL50A-E	802932	910380	910381
TL50A/2-E	802936	910380	910381
TL60A-E	802942	910480	910481
TL60A/2-E	802946	910480	910481

Attachment Options

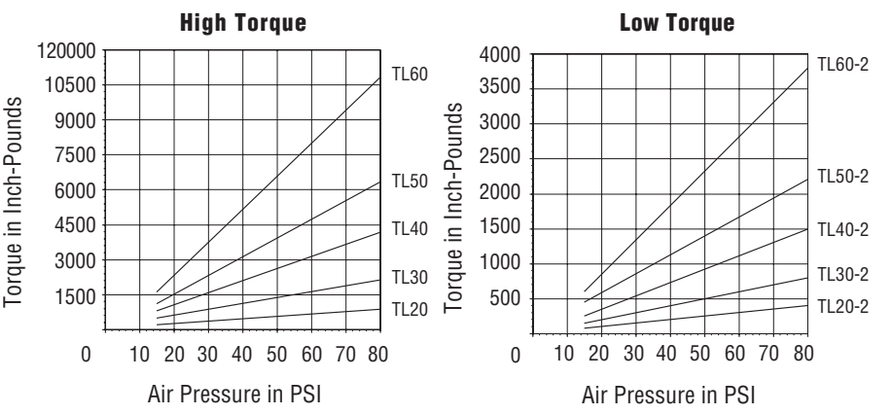
Flexible Coupling Assemblies

Flexible Coupling Assemblies are required for in-line coupling applications, and are available in single or double flex designs to provide **high misalignment capabilities with high torque**. Turn to pages 118 and 119 for Flexible Coupling details.
For quick selection of Flexible Couplings, refer to the chart above.

Pulleys, Sprockets, Gears

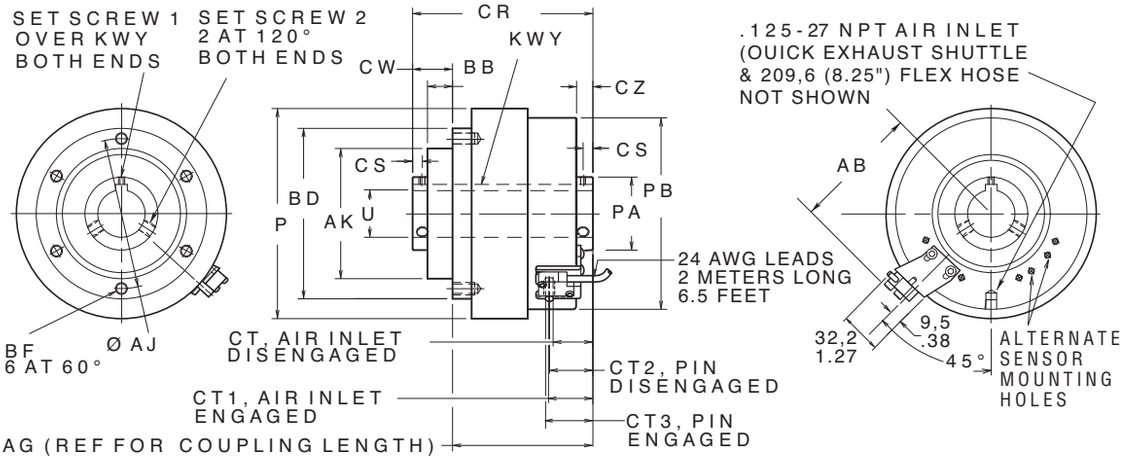
These can be attached to the clutch for offset shaft applications. Tapped holes are provided for ease of mounting. Nexen does not furnish these items. For minimum sprocket requirements, see page 371.

Torque Vs. Air Pressure



TL-A-E SERIES TORQUE LIMITERS - SET SCREW MOUNT - APPROXIMATE DIMENSIONS (INCHES)

TLA-E & TLA-E/2



MODEL	PRODUCT NUMBER	AB	AG	AJ	AK +.000 -.001	BB	BD	BF	CR	CS	CT	CT1	CT2	CT3	CW	CZ	KEYWAY WD	KEYWAY DP
TL20A-E	802902	3.22	3.79	3.562	2.875	0.69	4.12	.312-18	4.83	0.23	1.03	1.17	1.17	1.31	1.04	0.36	0.188	0.094
TL20A/2-E	802906	3.22	3.79	3.562	2.875	0.69	4.12	.312-18	4.83	0.23	1.03	1.17	1.17	1.31	1.04	0.36	0.188	0.094
TL30A-E	802912	3.53	3.97	4.062	3.500	0.74	4.50	.312-18	5.10	0.25	1.06	1.23	1.20	1.37	1.13	0.38	0.250	0.125
TL30A/2-E	802916	3.53	3.97	4.062	3.500	0.74	4.50	.312-18	5.10	0.25	1.06	1.23	1.20	1.37	1.13	0.38	0.250	0.125
TL40A-E	802922	3.99	4.44	4.750	4.125	0.79	5.40	.375-16	5.71	0.31	1.19	1.38	1.33	1.52	1.26	0.52	0.375	0.188
TL40A/2-E	802926	3.99	4.44	4.750	4.125	0.79	5.40	.375-16	5.71	0.31	1.19	1.38	1.33	1.52	1.26	0.52	0.375	0.188
TL50A-E	802932	4.28	4.59	5.375	4.500	0.86	6.12	.500-13	5.97	0.31	1.22	1.37	1.32	1.47	1.38	0.51	0.375	0.188
TL50A/2-E	802936	4.28	4.59	5.375	4.500	0.86	6.12	.500-13	5.97	0.31	1.22	1.37	1.32	1.47	1.38	0.51	0.375	0.188
TL60A-E	802942	4.78	4.97	6.125	5.250	0.77	7.00	.500-13	6.40	0.37	1.46	1.65	1.62	1.81	1.43	0.66	0.500	0.250
TL60A/2-E	802946	4.78	4.97	6.125	5.250	0.77	7.00	.500-13	6.40	0.37	1.46	1.65	1.62	1.81	1.43	0.66	0.500	0.250

MODEL	PRODUCT NUMBER	P	PA	PB	U +.001 -.000	SET SCREW 1	SET SCREW 2
TL20A-E	802902	5.03	1.33	4.56	0.875	.190-24	.250-20
TL20A/2-E	802906	5.03	1.33	4.56	0.875	.190-24	.250-20
TL30A-E	802912	6.16	1.72	5.09	1.125	.190-24	.312-24
TL30A/2-E	802916	6.16	1.72	5.09	1.125	.190-24	.312-24
TL40A-E	802922	6.66	2.31	6.06	1.500	.190-24	.375-24
TL40A/2-E	802926	6.66	2.31	6.06	1.500	.190-24	.375-24
TL50A-E	802932	7.66	2.51	6.56	1.750	.250-20	.375-24
TL50A/2-E	802936	7.66	2.51	6.56	1.750	.250-20	.375-24
TL60A-E	802942	8.40	2.87	7.56	1.938	.250-20	.500-13
TL60A/2-E	802946	8.40	2.87	7.56	1.938	.250-20	.500-13

Electro/Mechanical Limit Switch Option For Nexen Torque Limiters

Models TL20-50A, A/-E, A-E/2. . . Product Number 801571

Models TL60A-E, A-E/2 . . . . . Product Number 801572

TL-AC SERIES TORQUE LIMITERS, SET COLLAR MOUNTED

TL-AC Series Torque Limiters provide:

- **14 Models** to choose from
- Torque up to 27,700 In. Lbs. @ 80 psi
- Operating Speed up to 2000 rpm
- Bore Sizes ranging from 0.875 to 2.438 inches
- Remote torque adjustment with Nexen's **Single** and **Double Air Pressure Circuits**
- Many models available in either high torque or low torque versions
- Proximity Sensor with 3 ft. cord and hardware included on all models

TL-AC Series Torque Limiters, Set Collar Mount

Model	Product Number	Speeds Up to RPM	Torque Up to (In. Lbs.)	MAX. Bore (In)	Key Size (SQ)	Shipping Wt. (Lbs)
TL20-AC	801500	1800	860	0.875	0.188	7
TL20-AC/2	801504	1800	400	0.875	0.188	7
TL30-AC	801510	1650	2150	1.125	0.250	10
TL30-AC/2	801514	1650	800	1.125	0.250	10
TL40-AC	801520	1350	4190	1.625	0.375	16
TL40-AC/2	801524	1350	1500	1.625	0.375	16
TL50-AC	801530	1200	6230	1.750	0.375	20
TL50-AC/2	801534	1200	2200	1.750	0.375	20
TL60-AC	801540	1050	10820	1.938	0.500	30
TL60-AC/2	801544	1050	3800	1.938	0.500	30
TL70-AC	801550	950	15000	2.188	0.500	45
TL70-AC/2	801554	950	6700	2.188	0.500	45
TL80-AC	801560	800	27700	2.438	0.625	70
TL80-AC/2	801564	800	12000	2.438	0.625	70

Minimum Shaft insertion halfway through Hub. Keys are customer furnished.

Operating Speed: Disengaging speeds are limited to the maximum allowable feet per minute rating of the rotary seal between the drive flange and drive ring. Torque Limiters are engaged when stationary.

NOTE: For higher speeds-consult Nexen.

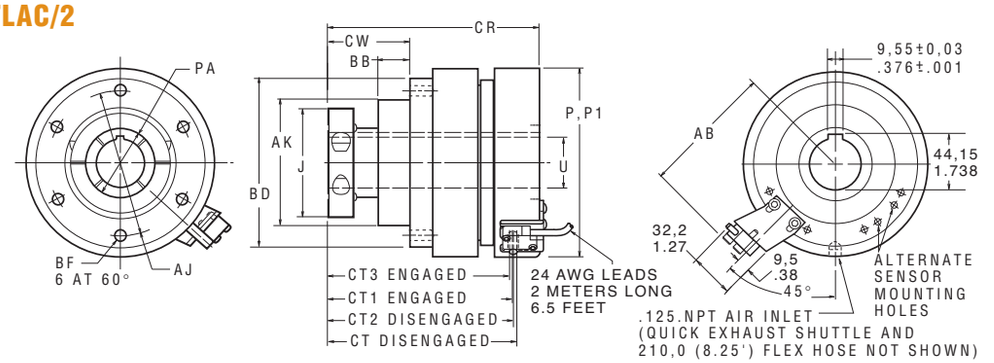
Attachment Options

Pulleys, Sprockets, Gears

These can be attached to the clutch for offset shaft applications. Tapped holes are provided for ease of mounting. Nexen does not furnish these items. For minimum sprocket requirements, see page 371.

TL-AC SERIES TORQUE LIMITERS - SET COLLAR MOUNTED - APPROXIMATE DIMENSIONS (INCHES)

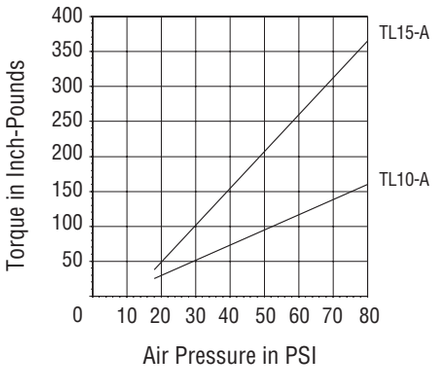
TLAC & TLAC/2



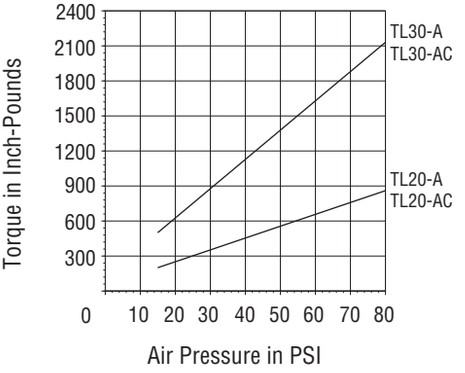
MODEL	PRODUCT NUMBER	AB	AJ	AK ±.001	BB	BD	BF	CR	CT	CT1	CT2	CT3	CW	KEYWAY WD	KEYWAY DP	P	P1	PA	J	U +.000 -.001
TL20-AC	801500	3.22	3.562	2.875	0.69	4.12	.312-18	5.61	4.92	4.70	5.67	5.42	1.76	0.188	0.094	4.56	4.56	1.378	2.25	.875
TL20-AC/2	801504	3.22	3.562	2.875	0.69	4.12	.312-18	5.61	4.92	4.70	5.67	5.42	1.76	0.188	0.094	4.56	4.56	1.378	2.25	.875
TL30-AC	801510	3.53	4.062	3.500	0.75	4.50	.312-18	5.72	5.03	4.81	5.81	5.59	1.99	0.250	0.125	5.09	5.09	1.772	3.00	1.125
TL30-AC/2	801514	3.53	4.062	3.500	0.75	4.50	.312-18	5.72	5.03	4.81	5.81	5.59	1.99	0.250	0.125	5.09	5.09	1.772	3.00	1.125
TL40-AC	801520	3.98	4.750	4.125	0.96	5.37	.375-16	6.67	5.83	4.76	7.19	6.83	2.51	0.375	0.125	6.06	6.06	2.362	3.50	1.625
TL40-AC/2	801524	3.98	4.750	4.125	0.96	5.37	.375-16	6.67	5.83	4.76	7.19	6.83	2.51	0.375	0.125	6.06	6.06	2.362	3.50	1.625
TL50-AC	801530	4.28	5.375	4.500	0.83	6.12	.500-13	7.00	6.25	6.03	7.33	7.11	2.36	0.375	0.187	6.56	6.56	2.559	4.00	1.750
TL50-AC/2	801534	4.28	5.375	4.500	0.83	6.12	.500-13	7.00	6.25	6.03	7.33	7.11	2.36	0.375	0.187	6.56	6.56	2.559	4.00	1.750
TL60-AC	801540	4.78	6.125	5.250	0.88	7.00	.500-13	7.47	6.70	6.48	8.26	8.05	2.53	0.500	0.250	7.56	7.56	2.953	4.50	1.938
TL60-AC/2	801544	4.78	6.125	5.250	0.88	7.00	.500-13	7.47	6.70	6.48	8.26	8.05	2.53	0.500	0.250	7.56	7.56	2.953	4.50	1.938
TL70-AC	801550	5.03	7.000	5.750	0.88	8.06	.625-11	8.58	7.69	7.47	8.97	8.75	2.70	0.500	0.250	8.31	8.31	3.347	4.75	2.188
TL70-AC/2	801554	5.03	7.000	5.750	0.88	8.06	.625-11	8.58	7.69	7.47	8.97	8.75	2.70	0.500	0.250	8.31	8.31	3.347	4.75	2.188
TL80-AC	801560	6.02	8.500	7.375	1.88	–	.625-11	10.19	8.02	7.80	9.50	9.28	3.62	0.625	0.312	9.25	9.50	3.741	5.00	2.438
TL80-AC/2	801564	6.02	8.500	7.375	1.88	–	.625-11	10.19	8.02	7.80	9.50	9.28	3.62	0.625	0.312	9.25	9.50	3.741	5.00	2.438

Torque Vs. Air Pressure

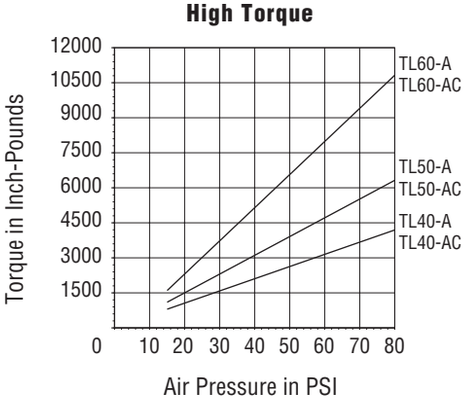
High Torque



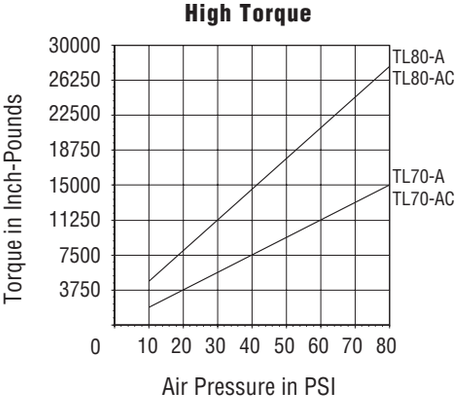
High Torque



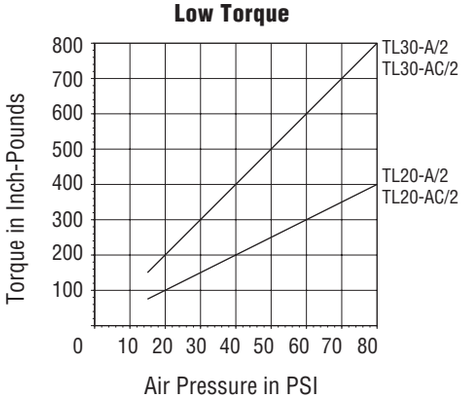
High Torque



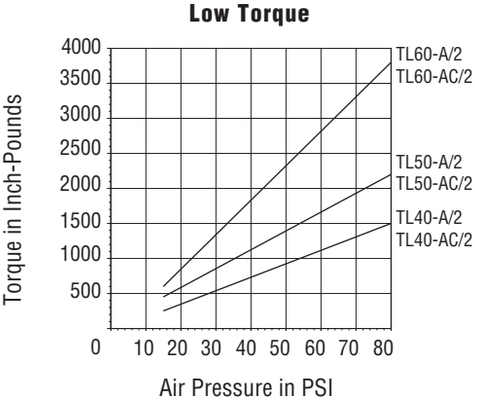
High Torque



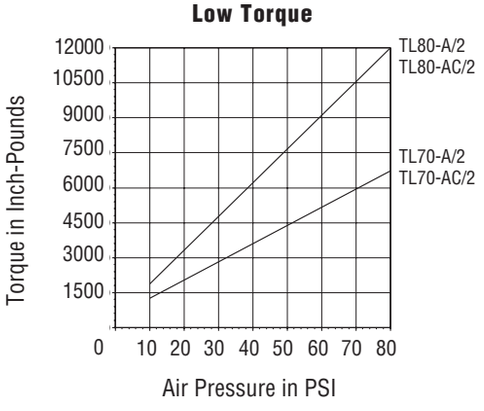
Low Torque



Low Torque



Low Torque



Electro/Mechanical Limit Switch Option For Nexen Torque Limiters

Models TL20-50AC, AC/2 . . . . . Product Number 801571
Models TL60-70AC, AC/2 . . . . . Product Number 801572
Models TL80AC, AC/2 . . . . . Product Number 801573

TORQUE LIMITER FLEXIBLE CLUTCH COUPLING ASSEMBLIES

Couple your shaft to a Torque Limiter with a Flexible Coupling Assembly. There are 14 Single Flex and 14 Double Flex Couplings, each designed to fit a specific Torque Limiter. Whatever the design style you'll get:

- High Misalignment Capability
- Torque ratings up to 46,300 In. Lbs.
- Coupling discs made from composite materials provide the benefits of both a steel disc and elastomeric coupling

Other benefits include:

- Requires no lubrication
- Coupling adds no backlash to the drive
- Provides torsional stiffness
- Dampens shock and vibration through the power train
- Reverse Bushing Tapers for bushing installation from the inside of the coupling.

Find the Flexible Coupling that matches your Torque Limiter and your application specifications on this page.

- Nickel-plated exterior
- For additional corrosion protection, contact the factory

TORQUE LIMITER SINGLE & DOUBLE FLEXIBLE COUPLING SELECTION CHART

1. Determine the Torque Limiter required for your application and find it on the chart below;
2. Find the matching Flexible Coupling Assembly at the top of the column;
3. Double check the Flexible Coupling specifications to ensure conformity with all mating components;
4. A Taper Lock Bushing is required; see chart below for recommended part. This is customer furnished.
5. Clutch and Flexible Coupling Assembly must be ordered separately.

Single Flex #:	909980	910080	910280	910380	910480	910580	911780	
Double Flex #:	909981	910081	910281	910381	910481	910581	911781	
Model Size: or Torque Limiter Product #:	TL20	TL30	TL40	TL50	TL60	TL70	TL80	Model Suffix:
	801502	801512	801522	801532	801542	801552	801562	-A
	801506	801516	801526	801536	801546	801556	801566	-A/2
	802902	802912	802922	802932	802942	--	--	A-E
	802906	802916	802926	802936	802946	--	--	A-E/2

SINGLE & DOUBLE FLEXIBLE COUPLING PRODUCT DETAILS

Single Flex Product Number	Double Flex Product Number	Dodge Taper Lock® Bushing Number	Bore Range MIN (In)	Bore Range MAX (In)	Single Flex Shipping Wt. (Lbs)	Double Flex Shipping Wt. (Lbs)
909980	909981	1215	0.500	1.250	8	10
910080	910081	1615	0.500	1.625	10	13
910280	910281	2517	0.500	2.500	14	16
910380	910381	2517	0.500	2.500	22	25
910480	910481	3030	0.938	3.000	29	34
910580	910581	3535	1.188	3.938	70	82
911780	911781	4040	1.438	4.000	110	130

SINGLE FLEXIBLE COUPLING MISALIGNMENT CAPACITY

Product Number	Angular (Degrees)	Axial (In)	Parallel (In)
909980	1.5	0.065	0.011
910080	1.5	0.070	0.012
910280	1.5	0.090	0.014
910380	1.5	0.105	0.017
910480	1.5	0.120	0.019
910580	1.5	0.135	0.022
911780	1.5	0.155	0.026

DOUBLE FLEXIBLE COUPLING MISALIGNMENT CAPACITY

Product Number	Angular (Degrees)	Axial (In)	Parallel (In)
909981	3.0	0.130	0.063
910081	3.0	0.140	0.078
910281	3.0	0.180	0.091
910381	3.0	0.210	0.104
910481	3.0	0.240	0.117
910581	3.0	0.270	0.137
911781	3.0	0.310	0.170

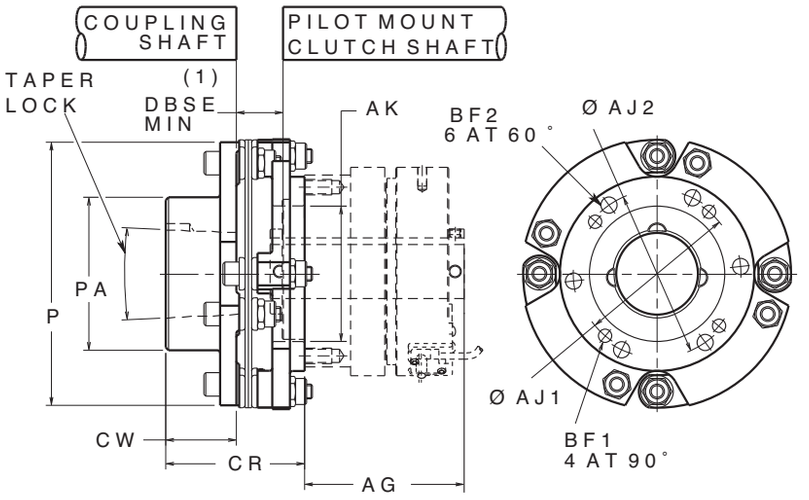
NOTE: If parallel, angular and axial misalignment are all required, be certain that the combined percentage of each does not exceed 100%. For instance, if 100% of the parallel misalignment rating is required, no angular or axial misalignment is allowed. If 50% of the parallel misalignment rating is required, only 50% of the angular misalignment OR 50% of the axial rating will be available.

REVERSE BUSHING TAPERED COUPLINGS

Single Flex #:	909984	910084	910280	910384	910480	910584	911784	
Double Flex #:	909985	910085	910285	910385	910485	910585	911785	
Model Size: or Torque Limiter Product #:	TL20	TL30	TL40	TL50	TL60	TL70	TL80	Model Suffix:
	801502	801512	801522	801532	801542	801552	801562	-A
	801506	801516	801526	801536	801546	801556	801566	-A/2
	802902	802912	802922	802932	802942	--	--	A-E
	802906	802916	802926	802936	802946	--	--	A-E/2

TL SERIES FLEXIBLE COUPLING ASSEMBLIES - APPROXIMATE DIMENSIONS (INCHES)

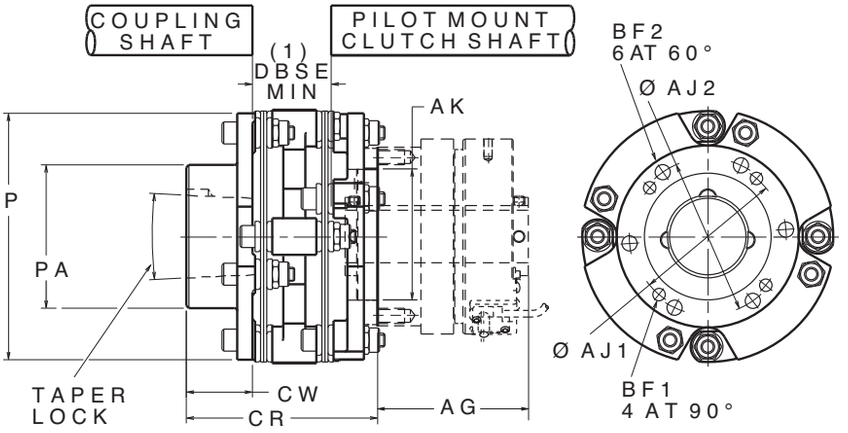
SINGLE FLEX



DBSE (1) = Distance Between Shaft Ends. Less than MIN requires equipment removal for service; The MAX distance is dependent on the torque limiter.

PRODUCT NUMBER	AG	AJ1	AJ2	AK +.001 -.000	HOLE SIZE BF1	HOLE SIZE BF2	TAPER LOCK	TAPER LOCK BORE MIN.	TAPER LOCK BORE MAX.	BF1 BOLT SIZE	CR	CW	DBSE MIN.	DBSE MAX.	P	PA	BF2 BOLT SIZE
909980	4.24	3.437	3.562	2.875	.265	.327	1215	0.500	1.250	.250-20 x 1.00	2.95	1.50	0.39	2.63	5.65	3.25	.312-18 x 1.25
910080	4.21	4.062	4.062	3.500	.265	.327	1615	0.500	1.625	.250-20 x 1.00	3.17	1.50	0.52	2.23	6.38	3.88	.312-18 x 1.25
910280	4.66	4.750	4.750	4.125	.265	.390	2517	0.500	2.500	.250-20 x 1.25	3.70	1.75	0.59	1.75	7.25	4.88	.375-16 x 1.50
910380	5.15	5.250	5.375	4.500	.327	.515	2517	0.500	2.500	.312-18 x 1.25	4.61	2.50	0.86	1.33	8.38	5.00	.500-13 x 1.50
910480	5.47	6.125	6.125	5.250	.327	.515	3030	0.938	3.000	.312-18 x 1.50	5.31	3.00	0.88	1.48	9.50	5.75	.500-13 x 1.75
910580	6.39	7.000	7.000	5.750	.515	.640	3535	1.188	3.938	.500-13 x 1.75	6.23	3.53	1.02	—	11.38	6.75	.625-11 x 2.00
911780	7.16	8.500	8.500	7.375	.515	.640	4040	1.438	4.438	.500-13 x 2.50	7.95	4.12	1.06	—	13.12	7.50	

DOUBLE FLEX



DBSE (1) = Distance Between Shaft Ends. Less than MIN Requires equipment removal for service; The MAX distance is dependent on the torque limiter.

(2) Blade ID is the ID of the intermediate member.

PRODUCT NUMBER	AG	AJ1	AJ2	AK +.001 -.000	HOLE SIZE BF1	HOLE SIZE BF2	TAPER LOCK	TAPER LOCK BORE MIN.	TAPER LOCK BORE MAX.	BF1 BOLT SIZE	CR	CW	DBSE MIN.	DBSE MAX.	P	PA	BLADE SIZE
909981	4.24	3.437	3.562	2.875	.265	.327	1215	0.500	1.250	.250-20 x 1.00	4.34	1.50	1.78	4.02	5.65	3.25	2.75
910081	4.21	4.062	4.062	3.500	.265	.327	1615	0.500	1.625	.250-20 x 1.00	4.86	1.50	2.20	3.92	6.38	3.88	3.00
910281	4.66	4.750	4.750	4.125	.265	.390	2517	0.500	2.500	.250-20 x 1.25	5.70	1.75	2.59	3.47	7.25	4.88	3.38
910381	5.15	5.250	5.375	4.500	.327	.515	2517	0.500	2.500	.312-18 x 1.25	6.92	2.50	3.17	3.64	8.38	5.00	4.12
910481	5.47	6.125	6.125	5.250	.327	.515	3030	0.938	3.000	.312-18 x 1.50	7.89	3.00	3.45	4.06	9.50	5.75	4.38
910581	6.39	7.000	7.000	5.750	.515	.640	3535	1.188	3.938	.500-13 x 1.75	9.28	3.53	3.81	—	11.38	6.75	5.25
911781	7.16	8.500	8.500	7.375	.515	.640	4040	1.438	4.438	.500-13 x 2.50	11.72	4.12	4.69	—	13.12	7.50	6.00

METRIC TL-A & TL-AE SERIES TORQUE LIMITERS, SET SCREW MOUNTED

Metric TL-A & TL-AE Series Torque Limiters provide:

- **12 Models** to choose from
- Torque up to 1350 Nm
- Operating Speed up to 2000 rpm
- Standard bore sizes ranging from 15 to 75 millimeters
- Minimum bore sizes ranging from 20 to 45 millimeters–you assemble and machine
- Proximity Sensor with 0,91 meters long cord and hardware included on all models

TL-AE Metric Series Torque Limiters, Set Screw Mount

Model	Product Number	Speeds Up to RPM	Torque Up to (Nm)	Bore (mm)	Shipping Wt. Wt (kg)
TL20-AE	802904	1800	100	20	3,2
TL30-AE	802914	1650	260	25	4,5
TL40-AE	802924	1350	500	35	7,1
TL50-AE	802934	1200	750	40	9
TL60-AE	802944	1050	1300	45	13,5

Minimum Shaft insertion halfway through Hub. Keys are customer furnished.

Operating Speed: Disengaging speeds are limited to the maximum allowable feet per minute rating of the rotary seal between the drive flange and drive ring. Torque Limiters are engaged when stationary.

NOTE: For higher speeds-consult Nexen.

Minimum Bored TL-A Are Not Totally Enclosed

Minimum bore Models are supplied unassembled with machinable hubs.

Model	Product Number	Speeds Up to RPM	Torque Up to (Nm)	Bore (mm)	Key Size (WD X DP)	Shipping Wt. Wt (kg)
TL10-A	951302	2000	21	15	5 X 2,3	3,2
TL15-A	951312	2000	41	15	5 X 2,3	3,2
TL20-A	951203	1800	100	12,7		3,2
TL30-A	951213	1650	260	15,9		4,5
TL40-A	951223	1350	500	19,1		7,1
TL50-A	951233	1200	750	25,4		9
TL60-A	951243	1050	1300	31,8		13,5

Minimum Shaft insertion halfway through Hub. Keys are customer furnished.

Operating Speed: Disengaging speeds are limited to the maximum allowable feet per minute rating of the rotary seal between the drive flange and drive ring. Torque Limiters are engaged when stationary.

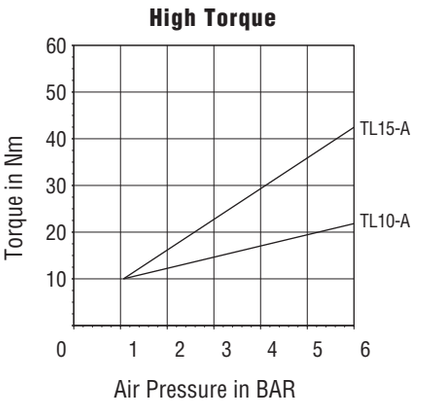
NOTE: For higher speeds-consult Nexen.

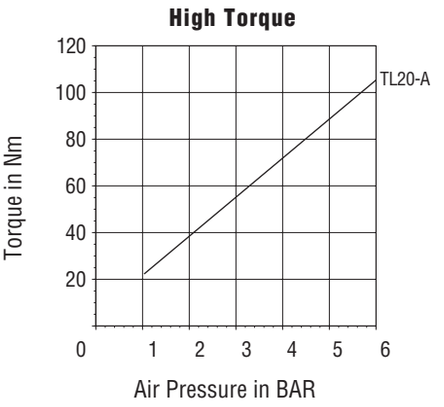
Attachment Options

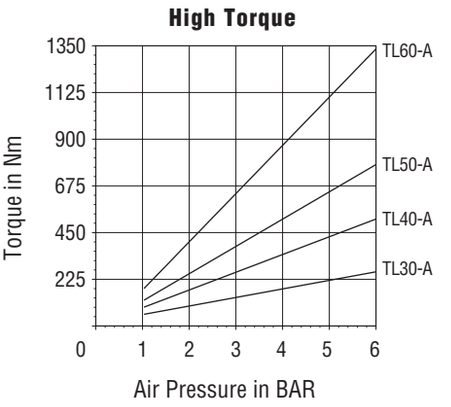
Pulleys, Sprockets, Gears

These can be attached to the clutch for offset shaft applications. Tapped holes are provided for ease of mounting. Nexen does not furnish these items. For minimum sprocket requirements, see page 369.

Torque Vs. Air Pressure



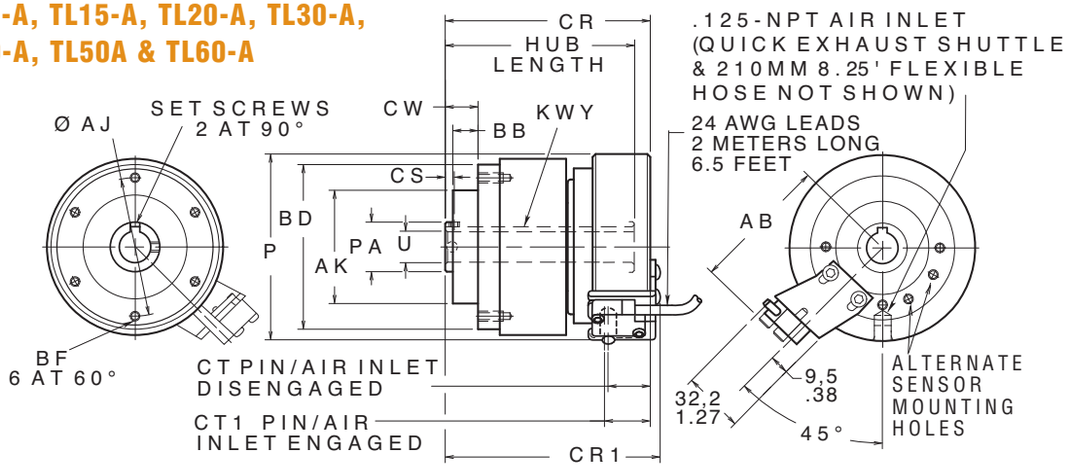




Torque (In. Lbs.) = Nm x 8.849
PSI = Bar ÷ .0689

TL-A & TL-AE METRIC SERIES TORQUE LIMITERS, SET SCREW MOUNTED - APPROXIMATE DIMENSIONS (MILLIMETERS)

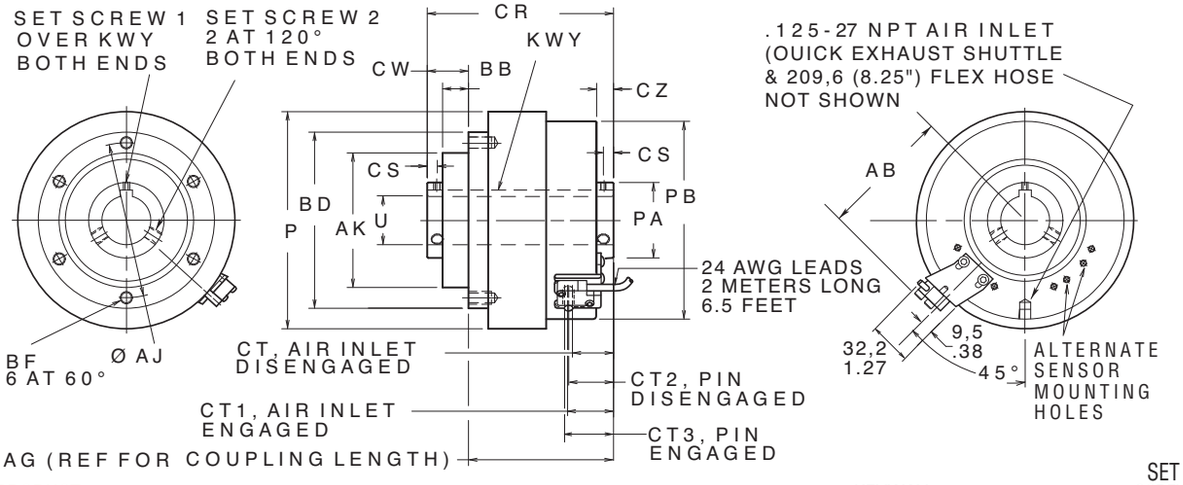
TL10-A, TL15-A, TL20-A, TL30-A, TL40-A, TL50A & TL60-A



MODEL	PRODUCT NUMBER	AB	AJ	AK^{h8}	BB	BD	BF	CR	CR1	CS	CT	CT1	CW	KL	KEYWAY WD	KEYWAY DP	P	PA	U^{H7}	HUB LENGTH	SET SCREW
TL10-A	951302	71	70	57	13	83	M6	107	140	5	22	24	17	80	5	2,3	94	25	15	100	M5
TL15-A	951312	71	70	57	13	83	M6	107	140	5	22	24	17	80	5	2,3	94	25	15	100	M5
TL 20-A	951202	82	90	72	18	104	M8	124	158	6	28	34	26	80	6	2,8	116	35	20	134	M6
TL 30-A	951212	90	103	88	19	114	M8	125	160	7	29	35	29	80	8	3,3	129	45	25	136	M6
TL 40-A	951222	101	122	104	24	137	M10	145	180	8	28	34	36	80	10	3,3	154	60	35	155	M10
TL 50-A	951232	109	136	114	21	156	M12	149	184	8	29	35	33	80	12	3,3	167	65	40	164	M10
TL 60-A	951242	121	160	133	22	174	M12	160	190	10	35	41	37	80	14	3,8	192	75	45	175	M12

NOTE: Drawings are expressed in third angle projection.

TL20-AE, TL30-AE, TL40-AE, TL50AE & TL60-AE



MODEL	PRODUCT NUMBER	AB	AC	AD	AE	D^{H7}	CZ	LD	LD1	CS	LG	LG1	LG2	LG3	LH	M	N^{h8}	KEYWAY WD	KEYWAY DP	P	PB	S	T	SET SCREW 1	SET SCREW 2
TL20-AE	802904	82	128	79	34	20	10	123	148	6	27	31	30	34	26	90	72	6	2,8	105	116	M8	18	M5	M6
TL30-AE	802914	90	156	87	44	25	10	129	154	6	27	32	30	35	29	103	88	8	3,3	114	129	M8	19	M5	M6
TL40-AE	802924	101	169	99	59	35	13	145	167	8	30	35	34	39	32	122	104	10	3,3	137	154	M10	20	M5	M10
TL50-AE	802934	109	194	106	64	40	13	152	173	8	31	35	34	38	35	136	114	12	3,3	155	167	M12	22	M6	M10
TL60-AE	802944	121	214	119	73	45	17	163	176	9	37	42	41	46	36	160	133	14	3,8	178	192	M12	20	M6	M12

NOTE: Drawings are expressed in third angle projection.

Electro/Mechanical Limit Switch Option For Nexen Torque Limiters

Models TL20-50A-E, A-E/2 . . . . . Product Number 801571

Models TL60A-E, A-E/2 . . . . . Product Number 801572

OVERLOAD PROTECTION SYSTEM

Overload Protection System (OPS) is a combination of a flange-mounted, air engaged clutch and an electronic control that electronically detects clutch slip in torque overload conditions. Upon recognition of the overload, the system disengages the clutch, and can operate an external signalling device (i.e. warning light/alarm).

OPS includes two proximity sensors: one mounted on the clutch input, and one mounted on the clutch output. The control compares the signals from the individual sensors and determines if the clutch is slipping.

- The clutch is re-engaged at any speed, and at any position of the clutch interface
- The clutch torque is remotely adjusted with a simple air regulator
- The motor disconnects from the load when an overload occurs, so the motor runs cooler and more efficiently, without current surges and blown fuses
- The OPS also prevents the motor rotor inertia from contributing to damage caused by torque overloads
- The FMCEclutch is self-contained and protected from dirt and debris
- The controller is available in a NEMA Type 12 enclosure, or as a stand-alone board for panel mounting
- OPS operates on standard AC or DC voltages and frequencies
- Quick connect/disconnect wire connection coupling
- Soft-start capabilities provides more sensitive overload protection than ball-detent mechanisms

Overload Protection System (OPS)

Model:	OPS - Chassis Version	OPS - Enclosed Version
Product Number:	964403	964404
Input Power Options:	12 VDC @ 800 mA 115 VAC @ 110 mA 230 VAC @ 57 mA	12VDC @ 800 mA 115 VAC @ 110 mA 230 VAC @ 57 mA
Inputs:	Inductive proximity sensors: npn, open collector, current sinking or NAMUR	Inductive proximity sensors: npn, open collector, current sinking or NAMUR
Outputs:	Relay: 28 VDC, 115/230 VAC @ 2 Amps. K1: 12 VDC @ .6 Amps power available, used to operate clutch solenoid. K2: available for auxiliary use. No power available.	Relay: 28 VDC, 115/230 VAC @ 2 Amps. K1: 12 VDC @ .6 Amps power available, used to operate clutch solenoid. K2: available for auxiliary use. No power available.

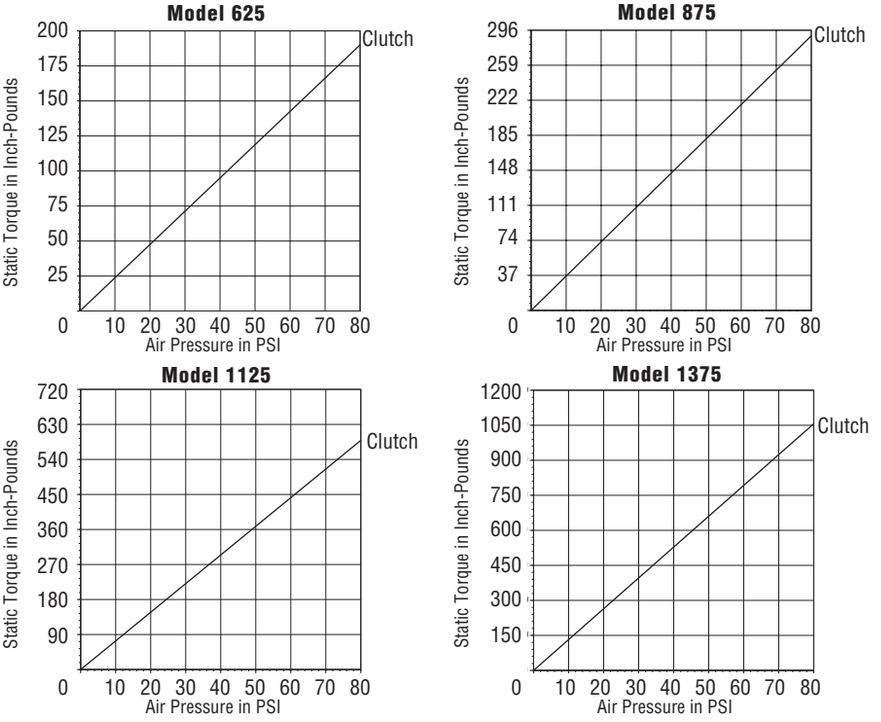
NEMA Motor/Frame Selection Chart

Use this chart as specification and operational criteria for your application.

HP of Motor	RPM	Frame Number	Motor Shaft (IN)	Clutch-Brake Model Number
1/4	1800	56C	0.625	FMCE-625
1/4	1200	56C	0.625	FMCE-625
1/3	1800	56C	0.625	FMCE-625
1/3	1200	56C	0.625	FMCE-625
1/2	1800	56C	0.625	FMCE-625
1/2	1200	56C	0.625	FMCE-625
1/2	900	143TC	0.875	FMCE-875
3/4	1800	56C	0.625	FMCE-625
3/4	1200	143TC	0.875	FMCE-875
3/4	900	145TC	0.875	FMCE-875
1	1800	56TC	0.625	FMCE-625
1	1800	143TC	0.875	FMCE-875
1	1200	145TC	0.875	FMCE-875
1	900	182TC	1.125	FMCE-1125

HP of Motor	RPM	Frame Number	Motor Shaft (IN)	Clutch-Brake Model Number
1-1/2	1800	145TC	0.875	FMCE-875
1-1/2	1200	182TC	1.125	FMCE-1125
1-1/2	900	184TC	1.125	FMCE-1125
2	1800	145TC	0.875	FMCE-875
2	1200	184TC	1.125	FMCE-1125
2	900	213TC	1.375	FMCE-1375
3	1800	182TC	1.125	FMCE-1125
3	1200	213TC	1.375	FMCE-1375
3	900	215TC	1.375	FMCE-1375
5	1200	215TC	1.375	FMCE-1375
5	1800	184TC	1.125	FMCE-1125
7-1/2	1800	213TC	1.375	FMCE-1375
10	1800	215TC	1.375	FMCE-1375

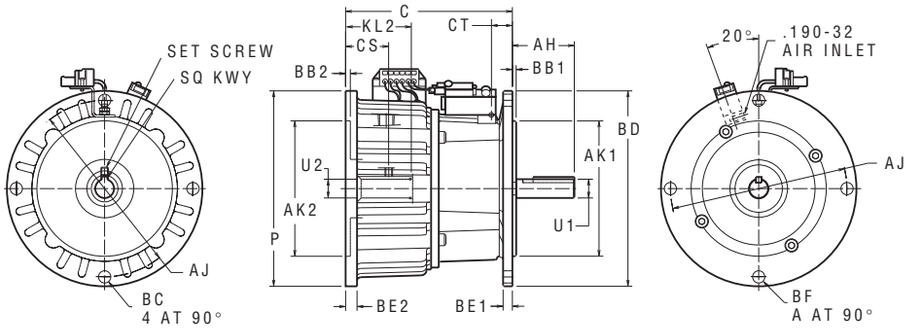
Torque Vs. Air Pressure



NOTE: Dynamic torque is approximately 85% of static torque.

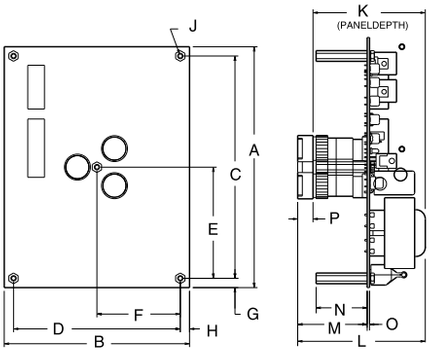
OVERLOAD PROTECTION SYSTEM - APPROXIMATE DIMENSIONS (INCHES)

Models 625, 875, 1125 & 1375



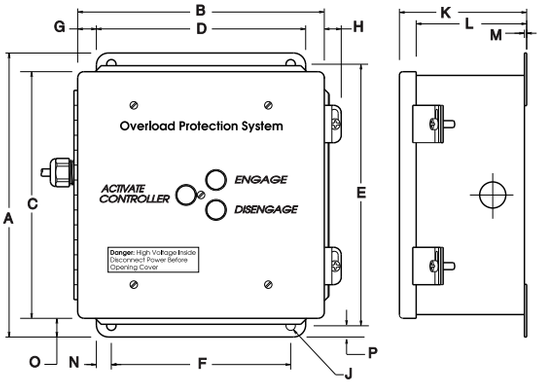
MODEL	PRODUCT NUMBER	AH	AJ	AK1 $^{+.000}_{-.002}$	AK2 $^{+.002}_{-.000}$	BB1	BB2	BE1	BE2	BF	C	CS	CT	KL1	KL2	P	KEY (SQ)	KEYWAY WD	KEYWAY DP	U1 $^{+.000}_{-.001}$	U2 $^{+.001}_{-.000}$
625	964405	2.06	5.875	4.498	4.502	0.31	0.16	.31	.38	.406	5.55	1.43	0.75	1.38	2.13	6.30	0.188	0.188	0.094	0.625	0.625
875	964406	1.98	5.875	4.498	4.502	0.39	0.19	.39	.56	.406	5.98	1.47	0.94	1.38	2.24	7.81	0.188	0.188	0.094	0.875	0.875
1125	964407	2.58	7.250	8.498	8.502	0.54	0.19	.54	.37	.562	8.01	1.75	1.09	2.00	2.90	9.63	0.250	0.250	0.125	1.125	1.125
1375	964408	3.08	7.250	8.498	8.502	1.12	0.19	1.12	.37	.531	9.04	1.96	1.44	2.56	3.39	10.38	0.250	0.250	0.125	1.375	1.375

OPS Controller – Chassis Version



MODEL	PRODUCT NUMBER	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
OPS Chassis	964403	6.50	5.00	6.00	4.50	3.00	2.25	0.25	0.25	#6-32UNC-2B.38DP 5X	3.03	3.44	1.88	1.38	0.06	0.41

OPS Controller – Enclosed Version



MODEL	PRODUCT NUMBER	A	B	C	D	E	F	G	H	J	K	L	M	N	O	P
OPS Enclosed	964404	9.50	8.25	8.25	7.00	8.75	6.00	0.62	0.57	0.31 HOLE 4X	4.25	3.69	0.07	0.50	0.62	0.37