Kinetrol Spring Units - Overview

Spring housing cut away

ATEX Up to Category 1

Features

- **Lowest Torque Loss**
  Typically 20% through 90° yields extra torque through spring stroke - enables the selection of smaller actuators (see diagram)
- **Reliable low stress range clock type spring**
- **Separate housing for modular assembly, easily retrofitted**
- **Sealed, non-breathing housing**
  Protects spring in corrosive environments
- **Keeper plates available to ensure safe handling of pretensioned springs**
- **Available with ISO/DIN female drive and mounting for models 03-21**
- **ATEX Category 1 approved for many models**
  Category 2 for other models

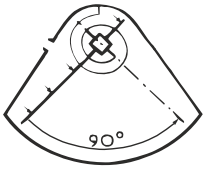
Spring Pack Torques

Spring Unit Model	Spring Stroke	Nm	lbf-in
01-020	Start	2.3	20
	Finish	1.8	16
02-020	Start	4.7	42
	Finish	3.7	33
03-020	Start	10.3	91
	Finish	8.7	77
05-020	Start	20.9	185
	Finish	17.5	155
07-020	Start	50.8	450
	Finish	42.4	375
08-020	Start	81.3	720
	Finish	65.5	580
09-020	Start	104.0	925
	Finish	93.8	830
10-020	Start	164.0	1450
	Finish	143.0	1270

Spring Unit Model	Spring Stroke	Nm	lbf-in
12-020	Start	238.0	2110
	Finish	204.0	1810
14-020	Start	588.0	5200
	Finish	478.0	4230
15-020	Start	962.0	8514
	Finish	790.0	6992
16-020	Start	1321.0	11691
	Finish	1081.0	9567
18-020	Start	2954.0	26143
	Finish	2417.0	21390
21-020	Start	5456.0	48286
	Finish	4464.0	39506
30-020	Start	8184.0	72428
	Finish	6696.0	59260
40-020	Start	11985.0	106077
	Finish	10005.0	88552
60-020	Start	17437.0	154333
	Finish	14558.0	128847

Direction of Spring Action

Spring units are available for either clockwise or counter clockwise spring action.
Spring units are mounted as standard between the actuator and what it drives (except model 01 & 60).
With spring units alone, direction is determined by looking at the unit from the end which interfaces with the actuator.



Suffix - 020 = clockwise
Suffix - 030 = counter clockwise

The direction of actuator/spring assemblies are determined by looking at whole assembly from the non-output end.

Keeper Plates

These are provided on all pretensioned spring return units supplied separate from actuators.
They are also available as spare parts.
Refer to TD129 for part numbers.

A keeper plate must always be used to restrain spring tension whenever a spring unit case is removed from the actuator.

Kinetrol Spring Units - Overview

Material Specification

Spring Casing	Models 02 & 03 pressure die-cast in ZL 16 zinc alloy. Models 05 to 60 in aluminium alloy.
Finish	Epoxy thermoset powder.
Spring	Clock type spring steel.
Square	Steel, zinc plated.
Mount Holes (output end)	Please see Single Acting Spring Return datasheet

Female Drive Spring Units

ATEX Up to Category 1

Features

- **Simple, elegant direct-mount interface**
- **Multiple ISO mounting flange hole drillings for each model**
- **Large ISO/DIN compatible 'star' drive for most models**
- **Valve leak tell-tale/relief slots in mounting face**
- **Female serrated insert drive options available for maximum direct mount flexibility on some models**
- **Keeper plates available to ensure safe handling**
- **Same reliable, long-life, fully sealed spring unit as on male-drive units**

Torques are identical to standard male-drive units.

Directions of spring action are as described above. Female drive spring units are always designed to be mounted between the actuator and the application. Consequently, a female spring designated 'clockwise' as a separate module will, when mounted below an actuator, result in a 'clockwise' assembly. Female drive springs are not designed to interface directly with modular switch boxes, positioners etc.

ISO/DIN 'Star' Drives

Female bi-square (star) drive spring fail-safe units are available for models 03 to 21.
Star drive units are specified by adding a 'F' to the DIN/ISO code: e.g. for a standard model 07 actuator with a female star drive, a regular 074-020 code becomes 073F020.

Serrated Drives

Female serrated drive spring fail-safe units are available for models 05, 07, 08, 09 & 10 to give maximum mounting flexibility.

Features include:

- Can accommodate large diameter valve stems
- Deep hole in shaft for long valve stems
- Precision stainless steel inserts
- Common internal drive shapes available
- Same spring can be used with different valve type/sizes
- 48 teeth allow many different orientations

Kinetrol Spring Units - Overview

Serrated drive units are (excluding couplings) specified by adding an ‘S’ to the ISO/DIN code: e.g. for a standard model 07 actuator with a serrated female drive, a regular 074-020 code becomes 073S020.

See TD141 for full dimensions of the serrated drive springs and associated couplings.

A range of blank and internally profiled serrated stainless steel couplings are available (see TD141 for codes).

Coding of Alternative Flange Drillings

Some female spring fail-safe star and serrated drive models are available with alternative ISO mounting hole patterns (see TD141). The digits ‘8’ and ‘9’ are used to designate clockwise and anti-clockwise versions respectively: e.g. clockwise code 053F080 specifies the F04 flange alternative of the 053F020 which specifies the clockwise F03/05/07 version.

Non Kinetrol Actuator Application Notes

Kinetrol spring units can be used in non Kinetrol actuator applications however the following must be considered.

A static gasket is provided to seal the base plate mounting face but the user’s shaft must also be sealed to prevent water ingress into the spring housing.

External stops will need to be used to prevent the spring angle of travel from exceeding 90°.

See Kinetrol installation, operation and maintenance instructions for application example.