

### **INTRODUCTION**

The 1600 Series door closers offer proven quality, performance and reliability unmatched by the competition. A staple in the industry, these ANSI/BHMA Grade 1 closers are designed for exterior or interior doors. A full complement of regular and heavy-duty arms, brackets and options make the 1600 Series closers ideal for virtually any medium traffic, commercial application.

### **FEATURES**

- » Exceeds 25 million cycles based on internal cycle testing
- » Non-handed for installation on either right- or left-hand swing doors
- » Rack-and-pinion design
- » Cast aluminum body
- » 2-7/8" (73mm) projection
- » 1-3/8" (35mm) diameter piston
- » 5/8" (16mm) diameter pinion journals
- » Tri-Style® packaging (regular arm, top jamb and parallel arm mounting)
- » All standard arm applications allow doors to swing 180°, conditions permitting
- » Staked valves
- » 15-year limited warranty
- » Corrosion-resistant model (non-hold open only) specify 1601SS (Not tri-packed)
- » Molded plastic cover specify suffix P
- » Heavy-duty arms: Parallel Rigid, CloserPlus<sup>®</sup>, CloserPlus Spring<sup>™</sup>, and Unitrol<sup>®</sup>
- » Standard, separate and independent, latch, sweep and backcheck intensity valves

Features	1600BC	1601
Sized springs 3 or 4 with no power adjustment	Х	
Adjustable spring sizes 1 through 6		Х

# **TABLE OF CONTENTS**

Introduction, Features, Overview and Certifications	2-3
Explanation of Features.	
Specifications	
Applications	6-8
Sizing Diagrams	
Brackets and Mounting Plates	
Parts	25
Assemblies	
Fasteners and Finishes	
How to Order	

2 | Norton Door Controls

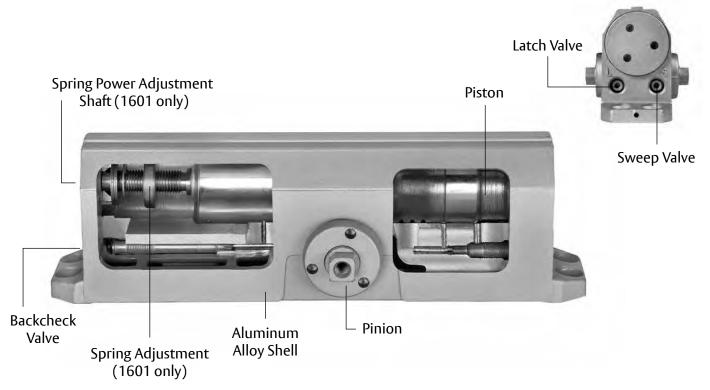
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SIDE VIEW

### **OVERVIEW**

CUTAWAY VIEW



Spring omitted for illustration purposes

### **CERTIFICATIONS**

- » ANSI/BHMA A156.4, Grade 1 certified
- » UL / cUL listed for use on fire rated doors 🐌
- » UL10C listed for positive pressure fire test
- » Manufactured in an ISO 9001 and ISO 14001 certified facility
- » 1601 door closers are designed to comply with requirements for
- the Americans with Disabilities Act (A.D.A) and ANSI standard A117.1 🛃

### CAUTION: Door Closers for Low Opening Force Applications:

Door closers installed in openings required to meet the requirements of the Americans with Disabilities Act or ANSI Standard A117.1, when adjusted to meet those requirements, may not provide adequate closing power to dependably close and latch the door.



### **EXPLANATION OF FEATURES**

#### **Aluminum Alloy Housing**

Closer bodies are constructed of a special aluminum alloy, carefully selected to accommodate interaction with steel components and operating conditions.

#### **Rack & Pinion Operation**

Provides a smooth constant control of the door through its full opening and closing cycle. 180° door swing can be achieved when door, frame, hardware and arm function do not limit door swing.

#### **Non-Handed**

With few exceptions, all series 1600BC and series 1601 door closers are nonhanded and can be installed on either right- or left- hand swing doors. Pinion shaft extends vertically through the closer body in both directions. Some options (such as Parallel Rigid hold open arms) will require that the hand of the closer be specified.

#### Tri-Style®

1600BC/1601 closers come with screws, brackets & soffit plate to allow for regular, top jamb, & parallel arm installations.

#### Sweep Speed Control Valve

Allows adjustment of door speed from the door's full open position down to approximately 10° from the closed position.

### Latch Speed Control Value

Allows adjustment of door speed from approximately 10° down to the door's fully closed position.

### Adjustable Backcheck Cushion Valve

Provides control of the door in the opening cycle, beginning at approximately 75° of door opening. It slows/cushions the door opening, when the door is forcibly opened beyond its pre-adjusted opening speed limits.

#### Warranty

These closers carry a limited 15-year warranty against defects and a limited lifetime warranty on the aluminum housing.

#### **Closer Fluid**

NorGlide<sup>®</sup> door closer fluid is a specially formulated hydraulic fluid that contains lubricity and anti oxidation agents that provide optimum performance and efficiency. This fluid complements the interaction of the door closer's aluminum housing with its steel and zinc components, while maintaining stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40° F.

#### **Door Closer Power Options**

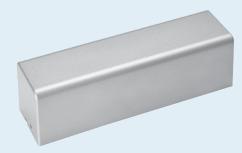
#### Sized Door Closer: 1600BC

Available in power sizes 3 or 4. Outlined in ANSI specification A156.4. Spring power is not adjustable.

#### Multi-Sized Door Closer: 1601

Adjustable through the power range of sizes 1 through 6 to comply with the opening force requirements as outlined in the Americans with Disabilities Act (A.D.A.) and ANSI A117.1 for interior doors. Outlined in ANSI specification A156.4.

### **OPTIONAL FEATURES**



### **Optional Molded Cover - 1600P**

Molded of high-impact U.L. listed material that covers the entire closer body assembly. This cover is non-handed for regular and parallel arm applications. Suffix "P" to catalog number. Not designed for top jamb applications.

#### **Corrosion Resistant Door Closer**

The series 1601SS door closers are available for use where corrosive conditions exist. This series is provided with zinc diecast adjustment valves, a 440 grade stainless steel pinion shaft, an allaluminum body and bronze closer arm bushings; all other components and fasteners are of 302/303 grade stainless steel. This product is available for standard regular arm, top jamb and parallel arm, non-hold open, applications only. Not Tri-Style packed. "P" or "J" prefix required for parallel arm and top jamb applications.

### **Non-Hold Open**

Self-closes door every time door is opened. Auxiliary stop (by others) required except when using the CloserPlus<sup>®</sup>, CloserPlus Spring<sup>™</sup> or Unitrol<sup>®</sup> Arms.

#### **Hold Open**

Achieved by means of friction or ball and detent/ roller. Friction hold open has a range of 90° to 180° using template location and mechanical adjustment. Ball and detent or roller hold open is effective in a range of 85° to 110°.

Hold open arm door closers are not permitted to be used on fire door assemblies.

4 | Norton Door Controls

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**Door Opening Degrees** 

Arm Function	Regular Arm, Top Jamb Parallel Arm	Parallel Rigid Arm	CloserPlus Parallel Arm	CloserPlus Spring Parallel Arm	Unitrol Parallel Arm	Unitrol Top Jamb	Low Profile Regular, Parallel	Cushion Stop Arm
Non-Hold Open	1	1	85° to 110°	85° to 110°	85° to 110°	85° to 110°	1	85° to 110°
Hold Open	90° to 180°	85° to 180°	85° to 110°	85° to 110°	85° to 110°	85° to 110°	N/A	N/A

 $\checkmark$  = 180° trim and template permitting

### **SPECIFICATIONS**

### 1601 Series

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more that 2-7/8" from the surface of the door. Closers shall be non-handed to permit installation on doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall have multi-size spring power adjustment to permit setting of spring from (1 through 6). Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. Closers shall have adjustable backcheck cushioning controlled by a hex key adjusted valve.

[Closer body shall be enclosed in/concealed with a full molded cover.]

[Closers shall be highly corrosion resistant and shall have all external body components of aluminum, zinc alloy or stainless steel material and all stainless steel fasteners.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% ( +/- 7-1/2% ) power adjustment. \*\* [1601] [1601SS]. \*\*For special arms insert the appropriate specification from column two or three on this page.

### **1600BC Series**

Closers for interior and exterior doors shall be full rack-and-pinion type with cast aluminum alloy shell. Closers shall be surface mounted and shall project no more that 2-7/8" from the surface of the door. Closers shall be non-handed to permit installation of doors of either hand. Closer fluid shall contain lubricity and anti-oxidation agents. Closer fluid shall maintain stable viscosity to allow the door closer to perform in temperatures ranging from extremely high to as low as -40°F. Closers shall be sized for each door. Closers shall have two non-critical valves, hex key adjusted, to independently regulate sweep and latch speed. [Closers shall have adjustable backcheck cushioning controlled by a hex key adjusted valve.]

Regular arm and top jamb closers shall have a non-hold open shoe permitting 15% (+/- 7-1/2%) power adjustment.\*\* [1600BC]. \*\*For special arms insert that specification here (see column three on this page).

#### \*\*Unitrol® Arm

Door closers shall have built in-door stop [and holder] effective at one point selected at installation, from 85° - 115° in five-degree increments. Door stop shall be cushioned by a shock-absorbing heavy-duty spring action effective at the [soffit plate] [arm shoe] pivot. [Closers shall be provided for parallel arm installation using rigid steel main arm and secondary arm lengths proportional to the door width to reduce racking at the hinge/pivot.] [Closers shall be provided for top jamb installation using steel, rigid main arm and telescoping secondary arm adequate for the frame reveal of the openings.] (Closer arm shall have ball and detent hold open feature that can be engaged or disengaged by 1/4 turn of mechanism; and hold open strength shall be adjustable.)

#### \*\*CloserPlus® Arm

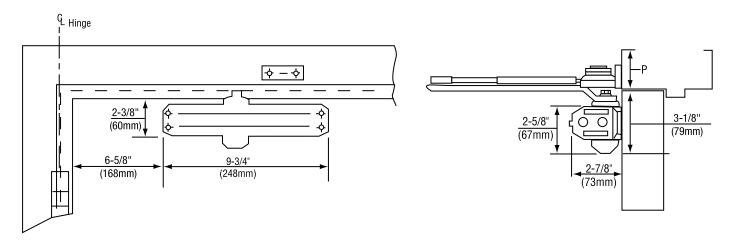
Door closers shall have built-in door stop [and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage and strength selection actuated by thumbturn.] Closers shall be provided for parallel arm installation using rigid steel main and secondary arm.

### \*\*CloserPlus Spring™ Arm

Door closers shall have built in door stop[and holder] effective at one point selected at installation, from 85° - 110° in five-degree increments. Door stop mechanism shall have a buffer spring that engages prior to the dead stop feature, reducing shock loads to the door and frame assembly. Door stop mechanism shall be reversible and attached to soffit plate. [Hold open mechanism shall have engage/disengage and strength selection actuated by thumbturn.] Closers shall be provided for parallel installation using rigid steel main and secondary arm.



### **REGULAR ARM**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

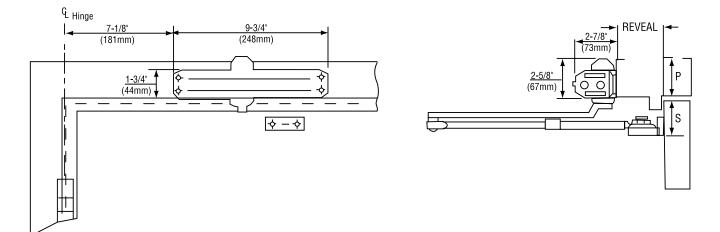
Model Number		Number				P Minimum Ceiling Clearance										
Inche	s (cm)	Sized Cl	Sized Closers Multi-Sized Closers		Closers	Inches/mm										
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open		Non-Ho	ld Open	Hold Open							
32" (81)	_	_	_				1600BC/1601	1680BC/1681	1-5/8"							
38" (97)	30" (76)	1603BC	1603BCH	BCH 1601							1			1-1/2" (38)	1" (25)	(41)
42" (107)	36" (91)	1604BC	1604BCH		1601H											
48" (122)	42" (107)	-	-													
_	48" (122)	_	_													

#### Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements. Contact factory if door weight exceeds 250 lbs.



## **TOP JAMB**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum	Door Size	Model Number				
Inches	s (cm)	Sized Clo	osers	Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
32" (81)	_	_	_			
38" (97)	30" (76)	1603BC J1603BC J1683BC <sup>A</sup>	1603BCH J1603BCH			
42" (107)	36" (91)	1604BC J1604BC J1684BC^	1604BCH J1604BCH	1601	1601H	
48" (122)	42" (107)	_	_			
_	48" (122)	_	_			

	P Minimum Ceiling Clearance		S Minimum Top Rail Clearance			
Without	With	Without	With 1687	With 1688		
Drop Plate	Drop Plate	Drop Plate	Drop Plate	Drop Plate		
1600BC/1601	1600BC/1601 1680BC/1681	1600BC/1601	1600BC/1601	1600BC/1601 1680BC/1681		
2-5/8"	1-3/4"	1-7/8"	2-5/8"	4"		
(67)	(44)	(48)	(67)	(102)		

#### Notes:

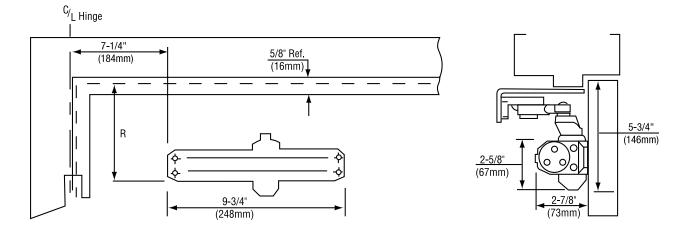
1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

^Narrow-Profile Arm Closers can only be installed with 1687/1688 drop plate.

Non-Hold Open- Use standard 1600 closer for frame reveals between 0"- to 3" (0-76mm). Use top jamb J1600 closer for frame reveals from 3" to 7" (76 to 178mm). Hold Open Use standard 1600H closer for frame reveals between 0" to 2-3/4" (0-70mm). Use top jamb J1600H closer for frame reveals from 2-3/4" to 6-3/4" (70 to 171mm).



### **PARALLEL ARM**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Maximum Door Size		Model Number				
Inche	s (cm)	Sized Clo	osers	Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
30" (76)	_	_	-			
36" (91)	30" (76)	P1603BC	P1603BCH			
42" (107)	36" (91)	P1604BC	P1604BCH	1601	1601H	
48" (122)	42" (107)	_	_			
-	48" (122)	_	_			

R Minimum Top Rail of Door with 5/8" (16mm) frame stop Inches/mm				
Without		With		
Drop Plate		Drop Plate		
1600BC	1680BC	1600BC	1680BC	
1601	1681	1601	1681	
5"	4"	3-1/8"	2-1/8"	
(127)	(102)	(79)	(54)	

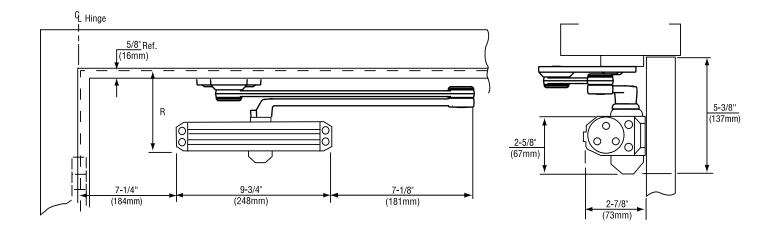
### Notes:

This door sizing information also applies to corner bracket mounted closers.

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.



### PARALLEL RIGID ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Wood d		Model Number				
Inches		Sized Clo	osers	Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
28"-32" (71-81)	_	_	-			
33"-36" (84-91)	28"-32" (71-81)	PR1603BC	PR1603BCH			
37"-42" (94-107)	33"-36" (84-91)	PR1604BC	PR1604BCH	PR1601	PR1601H	
43"-48" (109-122)	37"-42" (94-107)	_	_			
_	43"-48" (109-122)	_	_			

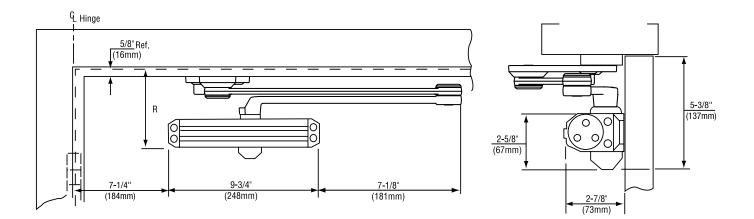
R Minimum Top Rail of Door with 5/8" (16mm) frame stop			
Without	With		
Drop Plate	Drop Plate		
4-1/2"	2-5/8"		
(114)	(67)		

### Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.



# **CLOSERPLUS® ARM**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Wood o		Model Number				
Inches		Sized Clo	osers	Multi-Sized Closers		
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open	
28"-32" (71-81)	_	_	_			
33"-36" (84-91)	28"-32" (71-81)	CLP1603BC	CLP1603BCT			
37"-42" (94-107)	33"-36" (84-91)	CLP1604BC	CLP1604BCT	CLP1601	CLP1601T	
43"-48" (109-122)	37"-42" (94-107)	_	_			
-	43"-48" (109-122)	_	_			

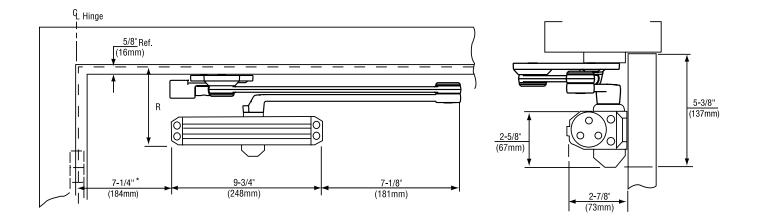
R Minimum Top Rail of Door with 5/8" (16mm) frame stop				
Without	With			
Drop Plate	Drop Plate			
4-1/2"	2-5/8"			
(114)	(67)			

Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.



### **CLOSERPLUS SPRING™ ARM**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

Door Wood d			Model I	Number	
Inches		Sized Cl	osers	Multi-Sized	Closers
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open
28"-32" (71-81)	_	_	-		
33"-36" (84-91)	28"-32" (71-81)	CPS1603BC	CPS1603BCT		
37"-42" (94-107)	33"-36" (84-91)	CPS1604BC	CPS1604BCT	CPS1601	CPS1601T
43"-48" (109-122)	37"-42" (94-107)	_	_		
-	43"-48" (109-122)	_	_		

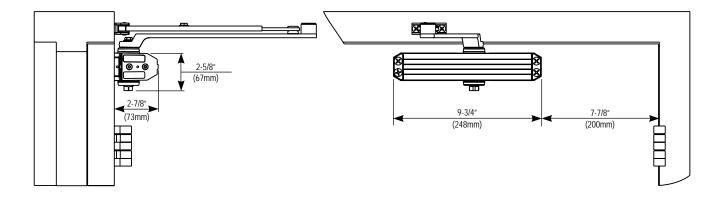
R Minimum Top Rail of Door wi	th 5/8" (16mm) frame stop
Without	With
Drop Plate	Drop Plate
4-1/2"	2-5/8"
(114)	(67)

### Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.



# **CUSHION STOP ARM**



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

	n Door Size	Model I	Number
Inche	es (cm)	Sized Closers	Multi-Sized Closers
Interior	Exterior	Non-Hold Open	Non-Hold Open
32" (81)	_	-	
38" (97)	30" (76)	1603BC	
42" (107)	36" (91)	1604BC	1601
48" (122)	42" (107)	_	
_	48" (122)		

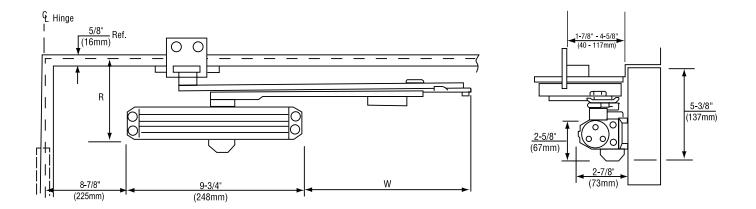
### Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

P Minimum Ceiling Clearance Inches/mm	
Non-Hold Open	
1600BC/1601	
1-1/2" (38)	



### PARALLEL UNITROL® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

	r Size or Metal		Model Number				
	s (cm)	Sized C	Closers	Multi-Sized Closers			
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open		
28"-32" (71-81)	_	-	_			x Specify Door	
33"-36" (84-91)	28"-32" (71-81)	UNI1603BC	UNI1603BCH			Width	
37"-41" (94- 104)	33"-36" (84-91)	UNI1604BC	UNI1604BCH	UNI1601	UNI1601H		
42"-48" (107-122)	37"-41" (94-104)	_	_				
_	42"-48" (107-122)	_	_				

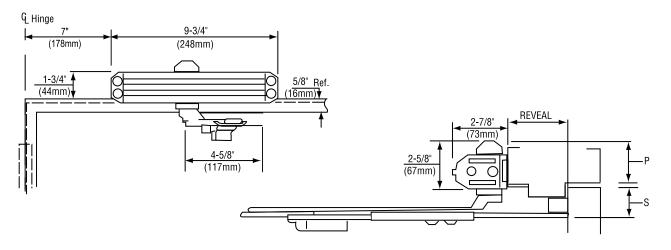
Notes:

1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

Door Width	Minimu	R ım Top Rail	w
	Without Drop Plate	With Drop Plate	Arm Extension
28"-32" (71- 81)			7" (178)
33"-41" (84- 104)	4-1/2" (114)	2-5/8" (67)	8-1/2" (216)
42"-48" (107- 122)			10" (254)



# TOP JAMB UNITROL® ARM



Mounting holes for closer body are spaced 3/4" (19mm) vertically x 9-1/16" (230mm) horizontally.

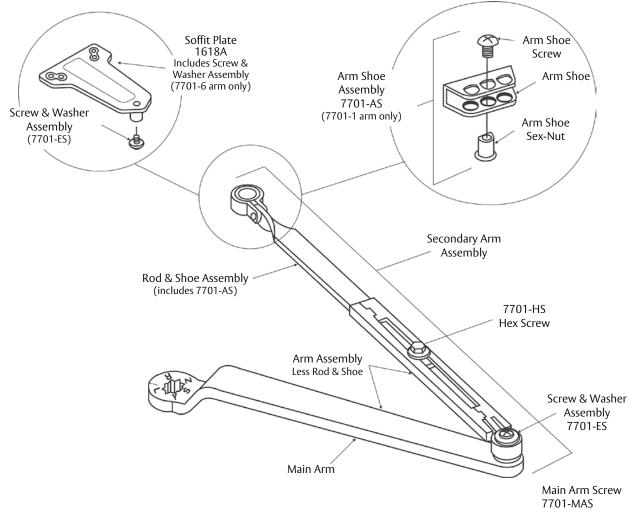
	r Size or Metal		Model Number				
	s (cm)	Sized Closers Multi-Sized Closers		Sized Closers Multi-Sized Closers			
Interior	Exterior	Non-Hold Open	Hold Open	Non-Hold Open	Hold Open		
28"-34" (71-86)	_	-	-			x Specify Frame	
35"-42" (89-107)	28-34 (71-86)	UNI1603BC	UNIJ1603BCH			Reveal	
43"-48" (109-122)	35-42 (89-107)	UNI1604BC	UNIJ1604BCH	UNIJ1601	UNIJ1601H		
49"-54" (124-137)	43-48 (109-122)	-	-				
_	49-54 (124-137)	_	_				

Notes: 1601 door closers are adjustable for sizes 1 through 6 and can be adjusted to conform to ADA opening force requirements.

l Minimum Ceil	o ing Clearance	S Minimum Top	Rail Clearance
Without Drop Plate	With Drop Plate	Without Drop Plate	With Drop Plate
2-5/8"	1-3/4"	2-3/8"	3-1/8"
(67)	(44)	(60)	(79)



### **NON-HOLD OPEN ARM ASSEMBLIES**



#### Note: Mounting hardware included with all parts orders.

Closer Series	Complete Arm Assembly	Main Arm Assembly¹ (length)(mm) (includes 7701-ES)	Secondary Arm Assembly (includes 7701-ES)	Arm Assembly Less Rod and Shoe	Rod & Shoe <sup>2</sup> Assembly (length)(mm)
1600BC/1601	7701-1		7701-111		7701-11 (8-7/8)(225)
J1600BC/J1601	7701-1A	7701-1M	7701-121	7701 114/	7701-11A (12-1/2)(318)
P1600BC/P1601	7701-6	(11)(279)	7701-116	7701-1W	7701-16 (8-7/8)(225)
P1600BC/P1601 <sup>3</sup>	7701-6A		7701-116A		7701-16A (12-1/2)(318)
1600BC/1601	7701-26 (Tri-Style® includes 7701-1 plus 1618A plate)	1. C to C length shown i	in parentheses.	.1	

2. C of connecting link to end of rod shown in parentheses.

3. For 180° door swing when using a special template for doors hung on

6" to 8" (162 to 203mm) wide throw hinges.



### **FASTENERS**

Turno	Description					Arm				
Туре	Description	RA	РА	TJ	Low Profile	PR	CLP/CPS	UNI	UNI-J	CA
				D00	R					
SDST	Self-Drilling Self-Tapping	S	S	S	S	S	S	S	S	S
MS	Machine Screw	S	S	S	S	S	S	S	S	S
SN	Sleeve Nut/Sex Nut	0	0	0	0	S	S	S	S	0
TBGN	Thru Bolts & Grommet Nuts	0	0	0	0	0	0	0	0	0
SMS	Sheet Metal Screws	0	0	0	0	0	0	0	0	0
				FRAM	1E					
SDST	Self-Drilling Self-Tapping	S	S	S	S	S	S	S	S	S
MS	Machine Screw	S	S	S	S	S	S	S	S	S
SMS	Sheet Metal Screws	0	0	0	0	0	0	0	0	0

### S = standard; O = optional

**SN** are for use on unreinforced hollow metal doors or to prevent any hollow metal door from collapse/dimpling. They can also be used for thru bolting on wood doors. SN are supplied for 1-3/4" (44mm) thick doors unless specified for 2-1/4" (57mm) thick doors.

**TBGN** are an alternative to SN for wood doors. TBGN are supplied standard for 1-3/4" (44mm) thick doors. They can be specified for 1-3/8" (35mm) thick doors.

**SMS** - when specified, closer will be packed with sheet metal screws for the door AND sheet metal screws plus machine screws for the frame. SMS are supplied as a substitute for wood doors and frames.

### **FINISHES**

Norton offers waterborne acrylic, polyster powder coat and plated finishes. Custom finishes are available on special order. A sample and approval is required.

Waterborne acrylic and polyester powder coat will withstand 100 hours of salt spray (ANSI requires 25 hours).

ANSI/BHMA	Description
600*	Prime Coat
605^	Bright Brass
606^	Satin Brass
611^	Bright Bronze
612^	Satin Bronze
613E	Dark Oxidized Satin Bronze - Equivalent
619^	Satin Nickel
625^	Bright Chrome

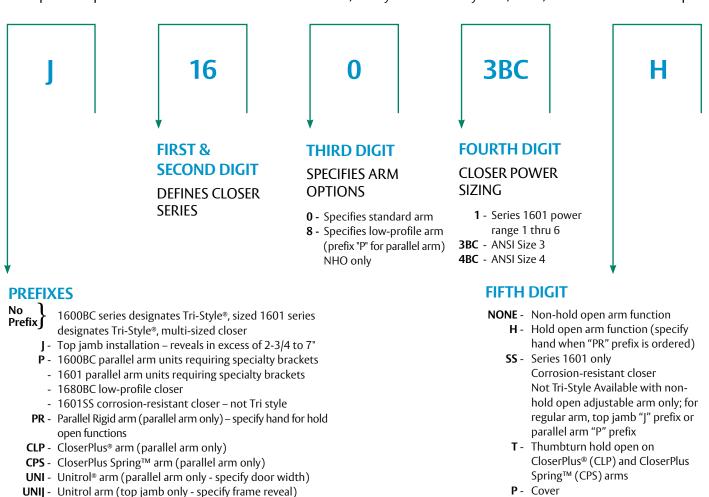
\* 600 is a special rust-inhibiting prime coat. Closers can be ordered prime coat only (specify closer x 600). An additional charge applies if finish coat is required over prime coat.

^ Available on arms only.

- Plated finish available on arm only.

## **HOW TO ORDER**

For optimum protection of door and frame assemblies, always use auxiliary wall, floor, or overhead door stop.



**CA** - Cushion stop arm (regular arm only)

### Notes:

- Door closer warranty becomes void if it is installed on the exterior side of a door in the exterior wall of a building.
- It is strongly recommended, and it is required on fire door assemblies, that doors having a door closer be hung on ball bearing or anti-friction hinges or pivots.
- Failure to use the correct type and size fasteners may void factory warranty.
- Optional Torx<sup>®</sup> drive screws (with security pin) are only available with machine screw threads.

- Fasteners for fire/smoke door assemblies must conform to NFPA 80. In some applications additional fasteners may be mandated by NFPA 80 that are not shipped with standard Norton product, such as sleeve-nuts/sex-nuts or thru bolts and grommet nuts.
- Sizing charts provided on pages 9-17 are based on 1-3/4" (44mm) x 7' (2.13m) standard weight doors swinging to 110 degrees. Other conditions (such as door height or weight; or wind/draft conditions) may require a larger size closer.

43048-8/17

# Norton<sup>°</sup> ASSA ABLOY

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