

# Avdelok<sup>®</sup> LD Large Diameter Lockbolt



# Avdelok® LD

Avdelok® LD (Large Diameter) lockbolt is a heavy duty, two piece fastener designed to provide a high strength and secure assembly. The Avdelok® LD lockbolt is quick and simple to place, yet it provides a long lasting, vibration proof joint. Avdelok® LD lockbolt is the ideal solution where welding, threaded fasteners or solid rivets are not suitable or practical to use.

With a tensile strength of over 70,000 lbf, the Avdelok® LD lockbolt is widely used in demanding industries in newly build or used to repair engineered applications throughout the world, including: railways, mining, solar power plants, lattice towers, bridges and cranes.

Designed and manufactured to the highest standards, the Avdelok® LD fasteners ensure a consistently accurate and high strength assembly. Installing the Avdelok® LD lockbolt in



Avdelok® LD lockbolts consist of a bolt and a collar

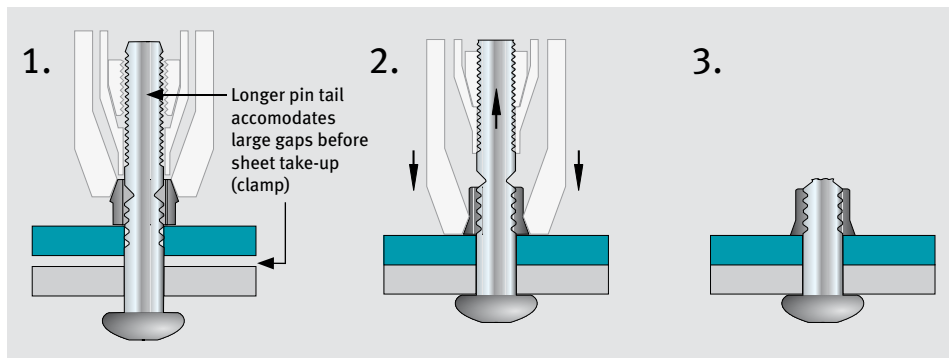
seconds, the purpose build tooling package eliminates installation errors and performance variability in joints, as can be experienced with conventional fastening methods. The tooling system is designed for use in demanding environments, which is backed up by a long and reliable track record.

Fast and easy visual inspection is sufficient to prove correct installation of the fastener and tampering is immediately obvious. (All Avdelok® fasteners are TIR approved.)

## Key features and benefits

- Exceptional shear and tensile strength provides consistent, high performance required in load-bearing, structural applications
- Excellent vibration resistance
- Tamper resistant
- Quick and easy to install across a wide range of applications
- Robust tools designed for even extreme conditions
- Ease of use requires only minimum skill
- Simple installation tooling reduces cost of calibration and maintenance
- Consistent installation prevents rework and associated costs
- Visual joint control

## Typical placing sequence



Please visit our website [www.avdel-global.com](http://www.avdel-global.com) for fastener placing animations.

1. The Avdelok® LD pin is located in the hole and the collar placed over the stem. The tool is then located onto the stem.

2. Tool activation pulls the materials together and swages the collar into the grooves of the pin.

3. At a pre-determined load, the stem breaks and the joint is secure.

## Security

Avdelok® LD fasteners are designed to create a permanent fixing. This provides security benefits and enables the fastener to be TIR approved.

# Large Diameter Lockbolt for Heavy Engineering Applications

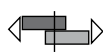

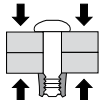
## Range

Sizes	$\varnothing 1/2"$ to 1" (12.7 mm to 25.4 mm) ( $\varnothing 1 1/8"$ /28.6 mm optional*)
Grip range	up to 4.016", longer upon request*
Materials	Pin: medium carbon steel Collar: low carbon steel, zinc plated
Headform/Finish	2861 series - Round / black self-colour 2862 series - Round / 10 $\mu$ m zinc plated 2866* series - Large truss head / 15 $\mu$ m zinc 2871* series - Countersunk / black self-colour
Collar options	Full, flanged

\* Contact your local Avdel representative for further details



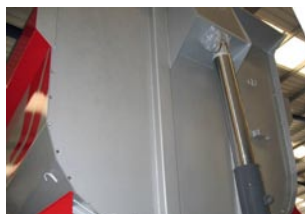
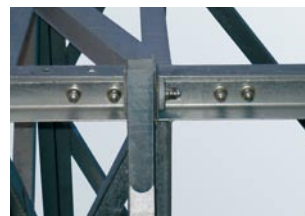
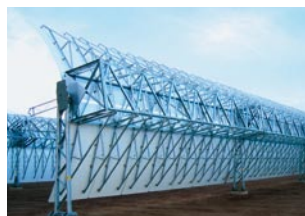
## Performance Data

$\varnothing$ nom. inch (mm)	 lbf min.	 lbf min.	 lbf min.
1/2" (12.7)	14,400	17,050	12,050
5/8" (15.9)	22,500	27,100	19,200
3/4" (19.1)	32,400	40,100	28,400
7/8" (22.2)	43,400	55,450	39,250
1" (25.4)	56,500	72,700	51,500
1 1/8" (28.6)	contact your local Avdel representative		

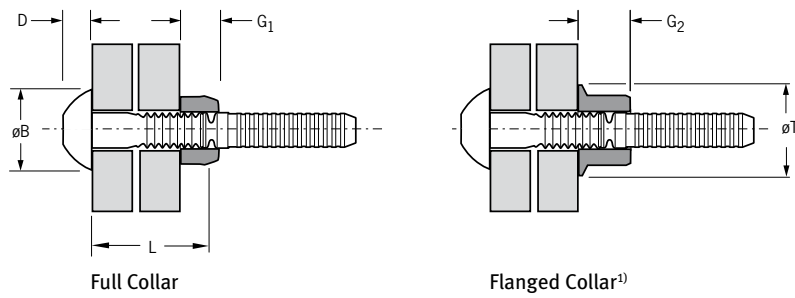
Installed Avdelok® LD fasteners provide a minimum shear, tensile and pre-load strength, which is equivalent to or exceeds property class 8.8 or ASTM A-325 standards. Made to British Standard B7805: Part 2:1997, the Avdelok® LD fastener is the perfect alternative to grade 8.8 threaded fasteners, providing a permanent, high tensile friction grip joint but without the risk of loosening.



## Assembly applications

- Commercial vehicles
- Steel construction
- Bridge building/repair
- Renewable energy
- Railway/rail track
- Mining equipment



# Avdelok® LD 2861 Series





ø nom.			 min. max.	L nom.	ø B max.	D max.	G1 max.	G2 max.	ø T max.	Part Number		
	min.	max.								Pin	Full Collar	Flanged Collar <sup>1)</sup>
1/2" (12.7 mm)	0.236	0.512	.520 .559	1.3	.91	.36	.63	.76	1.03	02861-01604	02662-01600	02615-01600
	0.472	0.748		1.5						02861-01608		
	0.709	0.984		1.7						02861-01612		
	0.945	1.220		2.0						02861-01616		
	1.220	1.496		2.2						02861-01620		
	1.457	1.732		2.5						02861-01624		
	1.732	2.008		2.8						02861-01628		
	1.969	2.244		3.0						02861-01632		
	2.244	2.520		3.3						02861-01636		
	2.480	2.756		3.5						02861-01640		
	2.756	3.031		3.8						02861-01644		
	3.031	3.307		4.1						02861-01648		
	3.268	3.543		4.3						02861-01652		
	3.504	3.780		4.5						02861-01656		
	3.740	4.016		4.8						02861-01660		
5/8" (15.9 mm)	0.236	0.512	.646 .689	1.4	1.18	.45	.86	.957	1.27	02861-02004	02662-02000	02615-02000
	0.472	0.748		1.7						02861-02008		
	0.709	0.984		1.9						02861-02012		
	0.945	1.220		2.1						02861-02016		
	1.220	1.496		2.4						02861-02020		
	1.457	1.732		2.6						02861-02024		
	1.732	2.008		2.9						02861-02028		
	1.969	2.244		3.1						02861-02032		
	2.244	2.520		3.4						02861-02036		
	2.480	2.756		3.7						02861-02040		
	2.756	3.031		3.9						02861-02044		
	3.031	3.307		4.2						02861-02048		
	3.268	3.543		4.4						02861-02052		
	3.504	3.780		4.7						02861-02056		
	3.740	4.016		4.9						02861-02060		

all dimensions in inches

<sup>1)</sup> Use of a flanged collar reduces the stated grip range as follows: ø 1/2": .118; ø 5/8": .157; ø 3/4": .197; ø 7/8": .217; ø 1": .236

Example: pin 02861-02032 with use of flanged collar 02615-02000 reduces the grip range by .157: from 1.969 - 2.244 to 1.812 - 2.087

# Avdelok® LD 2861 Series

ø nom.				L nom.	ø B max.	D max.	G1 max.	G2 max.	ø T max.	Part Number		
	min.	max.								min. max.	Pin	Full Collar
3/4" (19.1 mm)	0.236	0.512	.772 .807	1.5	1.38	.53	.96	1.14	1.53	02861-02404	02662-02400	02615-02400
	0.472	0.748		1.8						02861-02408		
	0.709	0.984		2.0						02861-02412		
	0.945	1.220		2.2						02861-02416		
	1.220	1.496		2.5						02861-02420		
	1.457	1.732		2.8						02861-02424		
	1.732	2.008		3.0						02861-02428		
	1.969	2.244		3.3						02861-02432		
	2.244	2.520		3.5						02861-02436		
	2.480	2.756		3.8						02861-02440		
	2.756	3.031		4.1						02861-02444		
	3.031	3.307		4.3						02861-02448		
	3.268	3.543		4.6						02861-02452		
	3.504	3.780		4.8						02861-02456		
	3.740	4.016		5.0						02861-02460		
7/8" (22.2 mm)	0.236	0.512	.898 .933	1.7	1.61	.60	1.11	1.33	1.62	02861-02804	02662-02800	02615-02800
	0.472	0.748		1.9						02861-02808		
	0.709	0.984		2.2						02861-02812		
	0.945	1.220		2.4						02861-02816		
	1.220	1.496		2.7						02861-02820		
	1.457	1.732		2.9						02861-02824		
	1.732	2.008		3.2						02861-02828		
	1.969	2.244		3.4						02861-02832		
	2.244	2.520		3.7						02861-02836		
	2.480	2.756		3.9						02861-02840		
	2.756	3.031		4.2						02861-02844		
	3.031	3.307		4.5						02861-02848		
	3.268	3.543		4.7						02861-02852		
	3.504	3.780		5.0						02861-02856		
	3.740	4.016		5.2						02861-02860		
1" (25.4)	0.236	0.512	1.024 1.063	1.9	1.85	.70	1.26	1.50	1.91	02861-03204	02662-03200	02615-03200
	0.472	0.748		2.1						02861-03208		
	0.709	0.984		2.4						02861-03212		
	0.945	1.220		2.6						02861-03216		
	1.220	1.496		2.9						02861-03220		
	1.457	1.732		3.1						02861-03224		
	1.732	2.008		3.4						02861-03228		
	1.969	2.244		3.6						02861-03232		
	2.244	2.520		3.9						02861-03236		
	2.480	2.756		4.1						02861-03240		
	2.756	3.031		4.4						02861-03244		
	3.031	3.307		4.7						02861-03248		
	3.268	3.543		4.9						02861-03252		
	3.504	3.780		5.2						02861-03256		
	3.740	4.016		5.4						02861-03260		

all dimensions in inches

<sup>1)</sup> Use of a flanged collar reduces the stated grip range as follows: ø 1/2": .118; ø 5/8": .157; ø 3/4": .197; ø 7/8": .217; ø 1": .236

Example: pin 02861-02032 with use of flanged collar 02615-02000 reduces the grip range by .157: from 1.969 - 2.244 to 1.812 - 2.087

# Installation Tools

All Avdelok® LD lockbolts can be placed securely in seconds with the 734 series of installation tools. Avdel's Avbolt® blind structural fasteners and Avseal® II sealing plugs can also be installed.

- Robust and rugged installation tools designed for a long working life in extreme conditions
- Range of hydraulic power units deliver the pull force required for secure, long lasting assembly at high speed
- Choice of hand tools and nose equipment to suit the entire range of large diameter Avdelok® lockbolts as well as other lockbolt brands
- Easy-to-change nose equipment and a range of hydraulic hoses in different lengths enable the tool to be adapted to suit local assembly requirements
- Mounted on castors for easy movability
- Available in voltages from 110V to 525V, diesel option customised to specification
- Switches to 'sleep' mode to conserve energy



## Selecting the correct Placing Tool

To determine the most suitable tool according to fastener size and application requirements, four parts have to be selected:

1. Power unit
2. Hydraulic hose
3. Hand tool
4. Nose equipment

### 1. Power unit

The 734 Series installation tool for lockbolts is available for different working environments.

Please select the power unit according to power supply:

Power Unit Model Part No.	Single Tool							Twin Tool <sup>1)</sup>	
	HP11	HP21	HP22	HP23	HP41	HP42	HP51	HP24	HP43
	<b>73405-02000</b>	<b>73401-02000</b>	<b>73407-02000</b>	<b>73406-02000</b>	<b>73400-02000</b>	<b>73408-02000</b>	<b>73403-02000</b>	<b>73401-22000</b>	<b>73400-22000</b>
Power supply	110 V 1 Phase 60 Hz 30.6 A	220/230 V 1 Phase 50 Hz 15.0 A	220/230 V 1 Phase 60 Hz ±12.0 A	220/230 V 3 Phase 60 Hz ±10.0 A	380/415 V 3 Phase 50 Hz 5.3 A	380/415 V 3 Phase 60 Hz 4.8 A	525 V 3 Phase 50 Hz 3.8 A	220/230 V 1 Phase 50 Hz 15.0 A	380/415 V 3 Phase 50 Hz 5.3 A
Max. performance	2.2 kW								
Hydraulic pressure	Pull max. 55.2 MPa (552 bar, 8,000 psi) Return max. 20.7 MPa (207 bar, 3,000 psi)								
Flow rate	2.6 l/min.	2.6 l/min	2.6 l/min	3.1 l/min	3.3 l/min	3.2 l/min	3.3 l/min	1.3 l/min per tool	1.6 l/min per tool
Length	32" (815 mm)								
Height	21" (530 mm)								
Width	14" (360 mm)								
Weight	216 lbs (98 kg) including hydraulic oil <sup>2)</sup>							227 lbs (103 kg) incl. hydraulic oil <sup>2)</sup>	

<sup>1)</sup> We offer power units that are designed for use with two tools simultaneously.

<sup>2)</sup> Please note that power units are supplied without oil and must be primed before use (please see tool manual).

# Installation Tools

## 2. Hydraulic hose

There are different hose lengths available. Please select length according to application:

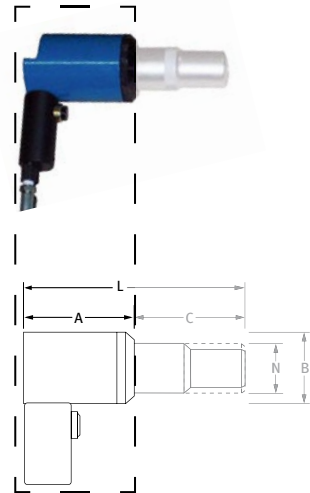
Hose Length	Part No.
ca. 20 ft	07005-10014
ca. 33 ft	07005-10034
ca. 49 ft	07005-10035



## 3. Hand tool

Different installation tools suit the fastener size ranges. Please select model according to diameter of Avdelok® LD lockbolt:

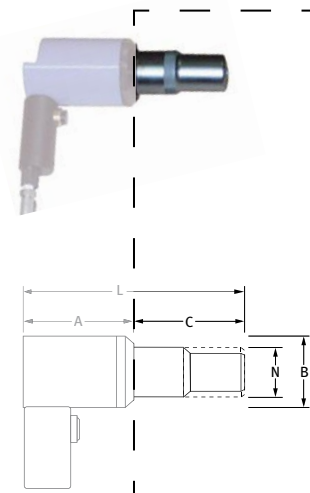
Installation Tool	Model T30	Model T51
	Part-No. 73412-02000	Part-No. 73410-02000
Fastener diameter	ø 1/2" - 3/4" (12.7 - 19.1 mm)	ø 7/8" - 1 1/8" (22.2 - 28.6 mm)
Stroke	1.61" (41 mm)	2.56" (65 mm)
Pull force	39,340 lbf (175 kN)	78,680 lbf (350 kN)
Body diameter B	3.50" (89 mm)	4.80" (122 mm)
Body length A	5.63" (143 mm)	8.07" (205 mm)
Overall length L	9.96 - 10.79" (253 - 274 mm)	13.90 - 14.29" (353 - 363 mm)
Weight with nose equipment	17.6 lbs (8.0 kg)	39.7 lbs (18.0 kg)
	without nose equipment	13.9 lbs (6.3 kg)



## 4. Nose equipment

There is one nose equipment for each fastener size. Please select model according to diameter of Avdelok® LD lockbolt:

Fastener Diameter	Length C	Nose		To use with Tool Part-No.	
		Diameter N max.	Model	73412-02000	73410-02000
1/2" (12.7 mm)	4.33" (110 mm)	2.20" (56 mm)	N32	73412-03100	
5/8" (15.9 mm)	4.45" (113 mm)		N31	73412-03200	
3/4" (19.1 mm)	5.17" (131 mm)		N30	73412-03300	
7/8" (22.2 mm)	5.83" (148 mm)	3.27" (83 mm)	N53		73410-03200
1" (25.4 mm)	6.02" (153 mm)		N50		73410-03100
1 1/8" (28.6 mm)	6.22" (158 mm)		N52		73410-03300



For detailed information on installation tools and equipment please refer to the tool manuals on our website [www.avdel-global.com](http://www.avdel-global.com) or contact your local Avdel representative.



# Avdelok<sup>®</sup> LD Large Diameter Lockbolt

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