



Avdelok[®] 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 300 kN, 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

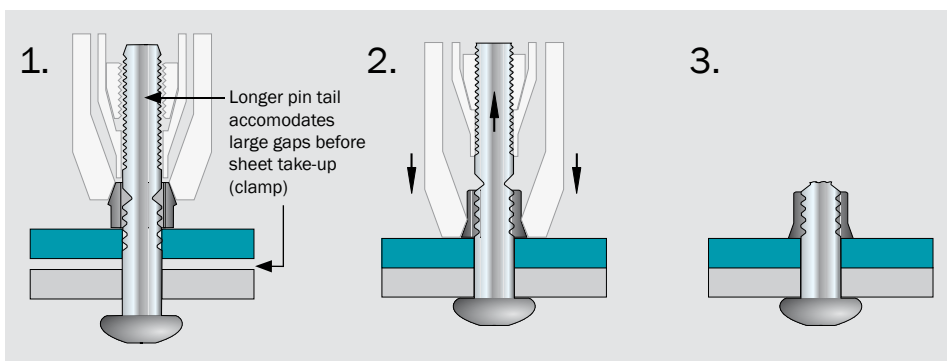
seconds, the purpose build tooling package eliminates installation errors and performance variability in joints, as can be experienced with conventional fastening methods. The tooling system is designed for use in demanding environments, which is backed up by a long and reliable track record.

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 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	ø 12.7 mm to 25.4 mm ($\frac{1}{2}$ " to 1") (ø 28.6 mm/ $1\frac{1}{8}$ " optional*)
Grip range	up to 102 mm, longer upon request*
Materials	Pin: carbon steel Collar: low carbon steel, zinc plated
Headform/Finish	2861 series - Round / black self-colour 2862 series - Round / 10µm zinc plated 2866* series - Large truss head / 15µm zinc 2871* series - Countersunk / black self-colour
Collar options	Full, flanged

* Contact your local Avdel representative for further details



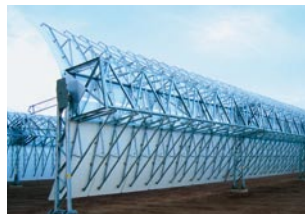
Performance Data

ø nom. mm (inch)	 kN min.	 kN min.	 kN min.
12.7 ($\frac{1}{2}$ ")	64.0	75.8	53.6
15.9 ($\frac{5}{8}$ ")	100.0	120.5	85.4
19.1 ($\frac{3}{4}$ ")	144.1	178.4	126.3
22.2 ($\frac{7}{8}$ ")	193.0	246.6	174.6
25.4 (1")	251.3	323.4	229.1
28.6 ($1\frac{1}{8}$ ")	contact your local Avdel representative		

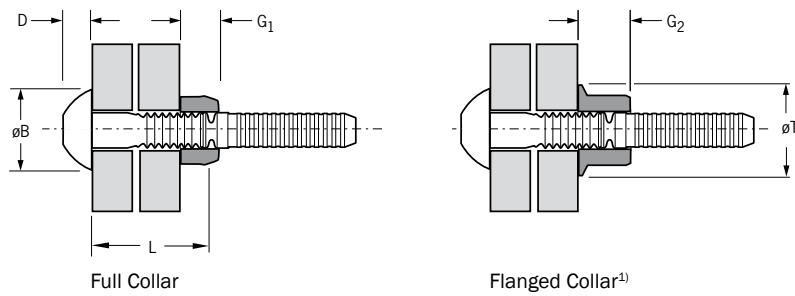
Installed Avdelok® LD fasteners provide a minimum shear, tensile and pre-load strength, which is equivalent to or exceeds property class 8.8 or ASTM A-325 standards. Made to British Standard B7805: Part 2:1997, the Avdelok® LD fastener is the perfect alternative to grade 8.8 threaded fasteners, providing 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 ¹⁾
12.7 (1/2")	6.0	13.0	13.2 14.3	32.0	23.0	9.2	15.9	19.2	26.2	02861-01604	02662-01600	02615-01600
	12.0	19.0		38.0						02861-01608		
	18.0	25.0		44.0						02861-01612		
	24.0	31.0		50.0						02861-01616		
	31.0	38.0		57.0						02861-01620		
	37.0	44.0		63.0						02861-01624		
	44.0	51.0		70.0						02861-01628		
	50.0	57.0		76.0						02861-01632		
	57.0	64.0		83.0						02861-01636		
	63.0	70.0		89.0						02861-01640		
	70.0	77.0		96.0						02861-01644		
	77.0	84.0		103.0						02861-01648		
	83.0	90.0		109.0						02861-01652		
	89.0	96.0		115.0						02861-01656		
	95.0	102.0		121.0						02861-01660		
15.9 (5/8")	6.0	13.0	16.4 17.5	36.0	30.0	11.3	21.9	24.3	32.3	02861-02004	02662-02000	02615-02000
	12.0	19.0		42.0						02861-02008		
	18.0	25.0		48.0						02861-02012		
	24.0	31.0		54.0						02861-02016		
	31.0	38.0		61.0						02861-02020		
	37.0	44.0		67.0						02861-02024		
	44.0	51.0		74.0						02861-02028		
	50.0	57.0		80.0						02861-02032		
	57.0	64.0		87.0						02861-02036		
	63.0	70.0		93.0						02861-02040		
	70.0	77.0		100.0						02861-02044		
	77.0	84.0		107.0						02861-02048		
	83.0	90.0		113.0						02861-02052		
	89.0	96.0		119.0						02861-02056		
	95.0	102.0		125.0						02861-02060		

all dimensions in mm

¹⁾ Use of a flanged collar reduces the stated grip range as follows: ø 12.7: 3 mm; ø 15.9: 4 mm; ø 19.1: 5 mm; ø 22.2: 5.5 mm; ø 25.4: 6 mm
 Example: pin 02861-02032 with use of flanged collar 02615-02000 reduces the grip range by 4 mm: from 50.0 - 57.0 mm to 46.0 - 53.0 mm.

Avdelok® LD 2861 Series

ø				L	ø B	D	G1	G2	ø T	Part Number		
	nom.	min.								max.	min. max.	nom.
19.1 (3/4")	6.0	13.0	19.6 20.7	39.0	35.0	13.5	24.3	29.0	38.7	02861-02404	02662-02400	02615-02400
	12.0	19.0		45.0						02861-02408		
	18.0	25.0		51.0						02861-02412		
	24.0	31.0		57.0						02861-02416		
	31.0	38.0		64.0						02861-02420		
	37.0	44.0		70.0						02861-02424		
	44.0	51.0		77.0						02861-02428		
	50.0	57.0		83.0						02861-02432		
	57.0	64.0		90.0						02861-02436		
	63.0	70.0		96.0						02861-02440		
	70.0	77.0		103.0						02861-02444		
	77.0	84.0		110.0						02861-02448		
	83.0	90.0		116.0						02861-02452		
	89.0	96.0		122.0						02861-02456		
	95.0	102.0		128.0						02861-02460		
22.2 (7/8")	6.0	13.0	22.8 23.8	42.0	41.0	15.3	28.2	33.7	41.0	02861-02804	02662-02800	02615-02800
	12.0	19.0		48.0						02861-02808		
	18.0	25.0		54.0						02861-02812		
	24.0	31.0		60.0						02861-02816		
	31.0	38.0		67.0						02861-02820		
	37.0	44.0		73.0						02861-02824		
	44.0	51.0		80.0						02861-02828		
	50.0	57.0		86.0						02861-02832		
	57.0	64.0		93.0						02861-02836		
	63.0	70.0		99.0						02861-02840		
	70.0	77.0		106.0						02861-02844		
	77.0	84.0		113.0						02861-02848		
	83.0	90.0		119.0						02861-02852		
	89.0	96.0		125.0						02861-02856		
	95.0	102.0		131.0						02861-02860		
25.4 (1")	6.0	13.0	26.0 27.0	46.0	47.0	17.7	32.0	38.0	48.5	02861-03204	02662-03200	02615-03200
	12.0	19.0		52.0						02861-03208		
	18.0	25.0		58.0						02861-03212		
	24.0	31.0		64.0						02861-03216		
	31.0	38.0		71.0						02861-03220		
	37.0	44.0		77.0						02861-03224		
	44.0	51.0		84.0						02861-03228		
	50.0	57.0		90.0						02861-03232		
	57.0	64.0		97.0						02861-03236		
	63.0	70.0		103.0						02861-03240		
	70.0	77.0		110.0						02861-03244		
	77.0	84.0		117.0						02861-03248		
	83.0	90.0		123.0						02861-03252		
	89.0	96.0		129.0						02861-03256		
	95.0	102.0		135.0						02861-03260		

all dimensions in mm

¹⁾ Use of a flanged collar reduces the stated grip range as follows: ø 12.7: 3 mm; ø 15.9: 4 mm; ø 19.1: 5 mm; ø 22.2: 5.5 mm; ø 25.4: 6 mm
 Example: pin 02861-02032 with use of flanged collar 02615-02000 reduces the grip range by 4 mm: from 50.0 - 57.0 mm to 46.0 - 53.0 mm.

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 ¹⁾	
	HP11	HP21	HP22	HP23	HP41	HP42	HP51	HP24	HP43
	73405-02000	73401-02000	73407-02000	73406-02000	73400-02000	73408-02000	73403-02000	73401-22000	73400-22000
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	815 mm (32")								
Height	530 mm (21")								
Width	360 mm (14")								
Weight	98 kg (216 lbs) including hydraulic oil ²⁾							103 kg (227 lbs) incl. hydraulic oil ²⁾	

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

²⁾ 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:

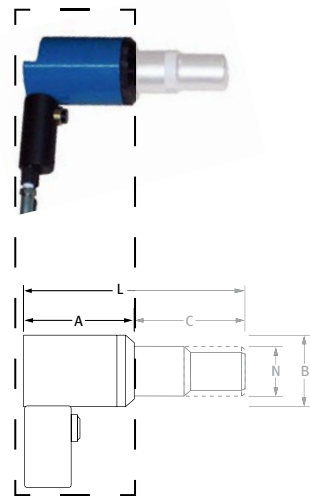
Hose Length	Part No.
6 metre	07005-10014
10 metre	07005-10034
15 metre	07005-10035



3. Hand tool

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

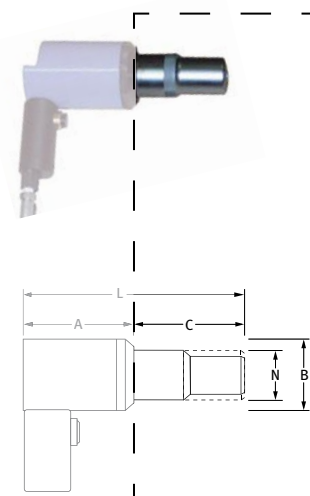
Installation Tool	Model T30	Model T51
	Part-No. 73412-02000	Part-No. 73410-02000
Fastener diameter	ø 12.7 - 19.1 mm (¹ / ₂ " - ³ / ₄ ")	ø 22.2 - 28.6 mm (⁷ / ₈ " - 1 ¹ / ₈ ")
Stroke	41 mm (1.61")	65 mm (2.56")
Pull force	175 kN (39,340 lbf)	350 kN (78,680 lbf)
Body diameter B	89 mm (3.50")	122 mm (4.80")
Body length A	143 mm (5.63")	205 mm (8.07")
Overall length L	253 - 274 mm (9.96 - 10.79")	353 - 363 mm (13.90 - 14.29")
Weight with nose equipment without nose equipment	8.0 kg (17.6 lbs)	18.0 kg (39.7 lbs)
	6.3 kg (13.9 lbs)	13.7 kg (30.2 lbs)



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	
12.7 mm (¹ / ₂ ")	110 mm (4.33")	56 mm (2.20")	N32	73412-03100		
15.9 mm (⁵ / ₈ ")	113 mm (4.45")		N31	73412-03200		
19.1 mm (³ / ₄ ")	131 mm (5.17")		N30	73412-03300		
22.2 mm (⁷ / ₈ ")	148 mm (5.83")	83 mm (3.27")	N53		73410-03200	
25.4 mm (1")	153 mm (6.02")		N50		73410-03100	
28.6 mm (1 ¹ / ₈ ")	158 mm (6.22")		N52			73410-03300



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

Holding your world together®

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