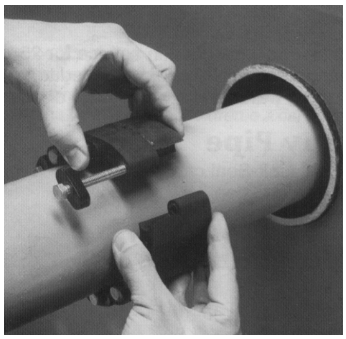
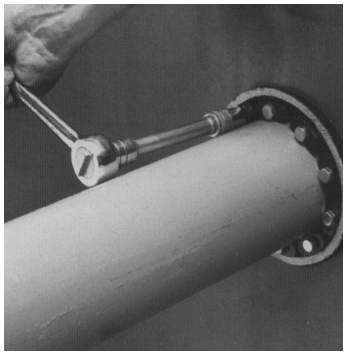
PIPELINE ENTRY LINK-SEALS 2.6.1

LINK SEALS are an entirely new concept for sealing the annular space between pipes and casing, or wall openings through which they pass.
The seal is composed of identical rubber links which interlock to form a belt, being fastened with bolts. Pressure plates are fitted both under the bolt head and under the nut or threaded steel washer.

The belt fits into the annulus and the bolts tightened. The pressure plates cause the rubber to move towards the casing or wall hole and the pipe so effecting a seal. Link Seals are available for sealing annular spaces of between 0.5" (12.7mm) and 4.00" (101.6 mm).

The Standard Link Seal is suitable for a temperature range of between -40ºF and +250ºF, (-40ºC and 121ºC). Special Link Seals for service between -100ºF and 400ºC, (-73ºC to 204ºC) can be provided





www.bacgroup.com
email: sales@bacgroup.com
TEL: + 44 (0) 1952 290321
FAX:+ 44 (0) 1952 290325

SPECIFICATIONS: *2.6.1*

Rubber Links (Standard)

Material	EPDM (Ethylene Propylene diene monomer)
Specific Gravity	1.09
Unaged physical properties cured	20 mins at 320ºF, 160ºC
Modulus at 300%	700 psi, 105.46 kg/cm^2
Tensile Strength	1500 psi, 105.46 kg/cm^2
Hardness Shore	50
Elongation	570%
Heat Aged 70 hrs at 212ºF, 100ºC	
Tensile Strength Change %	0.4
Elongation Change	-30.0%
Hardness Change	+6
Low Temperature stiffening	70 hrs at+14ºF, -10ºC -20ºC
Hardness Change Points	+4

Pressure Plates

Material	Delrin (Acetal Resin)
Specific Gravity	1.42
Tensile Strength	(0.2 in/min, 5.08 mm/min) -68ºF 56ºC, 14,700 psi 1033.5 Kg/cm^2 +73ºF +22.8ºC, 10,000 psi, 703.1 kg/cm^2
Compressive Stress	(0.5 in/min) +73ºF +22.8ºC, 5,200 psi 365.60 kg/cm^2 at 1% deflection. 18,000 psi, 1.266.0kg/cm^2 at 10% deflection
Shear Strength	+73ºF +22.8ºC, 9,500 psi, 668.0 kg/cm^2
Deformation Under Load	122ºF +50ºC, 2000 psi, 140.6 kg/cm^2 0.5%

Bolts and Nuts

Material	Carbon Steel
Tensile Strength	74,000 psi, 5,203 kg/cm^2

FEATURES

Positive Sealing is maintained with head pressure of 40 feet. (12.19 metres).
Misalignment Compensation is an inherent feature and both angular and concentric misalignment can be tolerated while still forming an efficient seal.
Shock Absorption is an additional feature. The seal will absorb shock transmitted either from changes in internal pipe pressure or from ground disturbances.

Insulation between pipe and casing is provided as metal parts are either enclosed by the rubber links or housed in the Plastic Pressure Plates.
Pipe Support is provided by the rugged construction. Solid Rubber Links and non creep, heavy Plastic Pressure Plates backed with steel inserts resist heavy radial loading.
Simple Installation eliminates the need for caulking or messy mastics

Long Life is assured by the thick section design which eliminates failures due to rotting, tearing, ageing, punctures and other hazards.
Seal protection is provided automatically because the seal is contained within the casing or wall opening.

www.bacgroup.com
email: sales@bacgroup.com
TEL: + 44 (0) 1952 290321
FAX:+ 44 (0) 1952 290325

SELECTION CALCULATIONS: 2.6.1

(a) Calculate difference (D) between outer diameter (o.d.) Pipe, including coating, if any, and internal diameter (i.d.) of the opening.
D = (i.d. of opening) - (o.d. of pipe)

(b) Find D in table below
(i) Check pipe OD is above minimum stated.
(ii) Select Link Seal Model
(iii) If two models can be used, choose the model which allows greatest growth.
e.g. D = 5" (127 mm), use LS 500
D = 2.75" (69.85 mm), use LS 425.

(c) Calculate Bolt Circle Circumference (BCC)

$$BCC = \frac{o.d.\,pipe + i.d.\,opening}{2} \; x \; \pi$$

(d) Calculate number of Links required

$$L = \frac{BCC}{ChordLength}$$

(e) If L is not a whole number round down. For example, if calculation gives a result of 4.8, use 4 links.

NOTE*: If you prefer, simply state on your order the outside dimension of the pipe and the dimensions of the opening and we will do the necessary calculations*

For Example: Pipe OD= 24". (609.6 mm), casing or wall opening =29", (736.6 mm)
(a) D = 29" - 24" = 5" (D = 736.6 mm - 609.6 mm = 127 mm.)
(b) D = 5" (127 mm), LS 525 with a range of 4.36"-5.00" would be suitable, but LS-500 at 4.74"-5.63" allows greater growth and would be the recommended model.
(c) Calculate Bolt Circle Circumference:

$$BCC = \frac{(29 + 24)3.142}{2} = 83.263"$$

$$BCC = \frac{(609.6 + 736.6)3.142}{2} = 2114.88mm$$

$$L = \frac{83.263}{3.860} = 21.57$$

$$L = \frac{2114.88}{98.046} = 21.57$$

(d) Calculate number of links required:

(e) Round down from 21.57 to give the number of links: ***21 links are required***

D		Minimum pipe o.d.		Model	Minimum no. of links	Chord length	
in	mm	in	mm			in	mm
1.00 - 1.26	25.4 - 32.0	0.84	21.3	LS-200	4	1.18	30.00
1.26 - 1.57	32.0 - 40.0			LS-275	4	0.98	25.10
1.42 - 1.77	36.0 - 45.0	1.75	44.5	LS-300	5	1.58	40.10
1.66 - 2.09	42.2 - 53.0	1.46	37.0	LS-315	5	1.51	38.40
1.83 - 2.36	46.4 - 60.0	5.24	133.0	LS-325	6	3.13	79.40
2.86 - 3.62	72.6 - 92.0	5.50	139.7	LS-400	6	3.67	93.10
2.24 - 2.91	56.8 - 74.0	5.67	144.0	LS-425	6	3.67	93.10
3.24 - 3.82	82.2 - 97.0	2.37	60.3	LS-475	5	2.69	68.30
4.74 - 5.63	120.4 - 143.0	3.94	100.0	LS-500	5	3.90	99.10
4.36 - 5.00	110.8 - 127.0	5.24	133.0	LS-525	6	3.90	99.10

www.bacgroup.com
email: sales@bacgroup.com
TEL: + 44 (0) 1952 290321
FAX:+ 44 (0) 1952 290325

Maximum Torque Settings for Link-Seals: *2.6.1*

Type	Maximum torque N/m	Bolts
LS 200 LS 275	0.5-1.1 1.1-2.3	M5 x 70 M5 x 70
LS 300 LS 315 LS 325	4.0 - 8.5 4.0 - 8.5 4.0 - 8.5	M8 x 90 M8 x 90 M8 x 110
LS 400 LS 425 LS475	14 - 27 14 - 27 14 - 27	M10 x 130 M10 x 130 M10 x 115
LS 500 LS 525 LS 575	27 - 40 27 - 40 27 - 40	M12 x 140 M12 x 140 M12 x 140
LS 600	40 - 70	M20 X 140

WALL SLEEVES

Model CS Plastic Sleeves

Plastic Sleeves are ideal for poured wall construction. Made of High Density Polyethylene (HDPE), they are lightweight and easy to handle. Moulded waterstop and reinforcing ribs anchor the sleeve in the wall and resist pour forces. End caps are provided to make placement on formwork simple and accurate. Sleeves are available in 16 diameters and any length. In the event that changes need to be made on site, they can be shortened with handtools.

Model WS Steel Sleeves

The Model WS Sleeve is made from heavy wall welded or seamless pipe. A full circle waterstop plate assures a positive water seal and acts as an anchor to prevent movement. The collar is continuously welded on both sides. The Model WS is available in a wide range of diameters and any length. Sleeves are protected by a coating of primer but hot dip galvanising is available on request. Diameters larger than 24" are available on request.

www.bacgroup.com
email: sales@bacgroup.com
TEL: + 44 (0) 1952 290321
FAX:+ 44 (0) 1952 290325