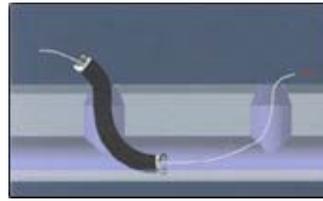
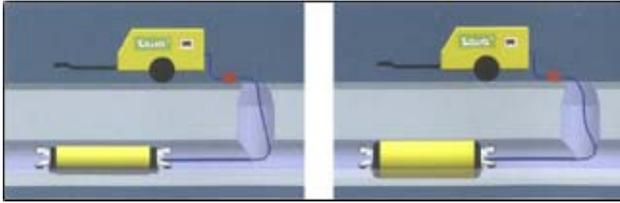


## Flexible Rehabilitation Carrier Packers

For repair of damaged pipeline sections and joints. Available in a variety of sizes and diameters from 4" to 48". Effective repair length per section ranges from 2 ft. to 15 ft. Remote insertion Pushrods are available in 5' coupling sections. All packers are very resistant to corrosion. Design of all packers assures a maximum flow through, except 4"-6" flex packer which does not have a bypass.



Packers are flexible & can be bent for easier insertion in tight spaces.



### Contact Area for Flex Packers

Part #	Packer Size Range	Packer Length	Contact Area in this pipe size	
			4" pipe	6" pipe
78214	4 - 6"	3.3 ft	30.7"	27.5"
78266	4 - 6"	6.5 ft	66.1"	62.9"
78218	4 - 6"	8.2 ft	89.7"	86.6"
78231	4 - 6"	9.8 ft	109.4"	106.2"
78244	4 - 6"	13.0 ft	148.8"	145.6"
78283	4 - 6"	16.3 ft	184.2"	181.1"

Part #	Packer Size Range	Packer Length	Contact Area in this pipe size		
			6" pipe	8" pipe	10" pipe
77240	6 - 10"	3.3 ft	28.3"	25.1"	22"
77614	6 - 10"	6.5 ft	63.7"	60.6"	57.4"
60846	6 - 10"	8.2 ft	87.4"	84.2"	81.1"
60497	6 - 10"	9.8 ft	107"	103.9"	100.7"
60556	6 - 10"	13.0 ft	146.4"	143.3"	140.1"
60585	6 - 10"	16.3 ft	181.8"	178.7"	175.5"

Part #	Packer Size Range	Packer Length	Contact Area in this pipe size		
			12" pipe	14" pipe	16" pipe
77241	12 - 16"	3.3 ft	29.5"	26.3"	23.2"
77680	12 - 16"	6.5 ft	64.9"	61.8"	58.6"
60525	12 - 16"	8.2 ft	99.2"	96"	92.9"
60587	12 - 16"	9.8 ft	108.2"	105.1"	101.9"
60593	12 - 16"	13.0 ft	147.6"	144.4"	141.3"
60594	12 - 16"	16.3 ft	183"	179.9"	176.7"

Part #	Packer Size Range	Packer Length	Contact Area in this pipe size			
			18" pipe	20" pipe	22" pipe	24" pipe
77242	18 - 24"	3.3 ft	31.1"	27.9"	24.8"	21.6"
78718	18 - 24"	6.5 ft	66.5"	63.3"	60.2"	57"
60526	18 - 24"	8.2 ft	90.1"	87"	83.8"	80.7"
78860	18 - 24"	9.8 ft	105.9"	102.7"	99.6"	96.4"

**Contact Area in this pipe size**

Part #	Packer Size Range	Packer Length	24" pipe	26" pipe	28" pipe	30" pipe	32" pipe
65027	24 - 32"	4.9 ft	41.3"	38.1"	35"	31.8"	29.1"
60120	24 - 32"	6.5 ft	57"	53.9"	50.7"	47.6"	44.8"
60527	24 - 32"	8.2 ft	80.7"	77.5"	74.4"	71.2"	68.5"
60598	24 - 32"	9.8 ft	96.4"	93.3"	90.1"	87"	84.2"

**Contact Area in this pipe size**

Part #	Packer Size Range	Packer Length	32" pipe	34" pipe	36" pipe	38" pipe	40" pipe
78015	32 - 40"	4.9 ft	33.4"	30.3"	27.1"	24"	20.8"

**Contact Area in this pipe size**

Part #	Packer Size Range	Packer Length	40" pipe	42" pipe	44" pipe	46" pipe	48" pipe
79186	40 - 48"	6.5 ft	37.7"	35"	31.8"	28.7"	25.5"

**(SAE SIZES) Flexible Carrier Packers**

Item #	Nominal Size		Size usage Range		Inflation PSI	Weight Lbs	Deflated Size		Bypass/flow through Nominal	Body Length ft.
	Diameter	Length	Min	Max			Length	Diameter		
78214	4"- 6"	3' 3"	4"	6"	36 PSI	5 lbs	3' 6"	2.6"	N/A	3' 2"
78266	4"- 6"	6' 6"	4"	6"	36 PSI	8 lbs	6' 5"	2.6"	N/A	6' 2"
78218	4"- 6"	8' 2"	4"	6"	36 PSI	8 lbs	8' 6"	2.6"	N/A	8' 2"
78231	4"- 6"	9' 10"	4"	6"	36 PSI	10 lbs	10' 1"	2.6"	N/A	9' 9"
78244	4"- 6"	13' 1"	4"	6"	36 PSI	11 lbs	13' 4"	2.6"	N/A	13'
78283	4"- 6"	16' 3"	4"	6"	36 PSI	13 lbs	16' 3"	2.6"	N/A	16' 1"
77240	6"- 10"	3' 3"	6"	10"	28.8 PSI	18 lbs	4'	4.4"	2" FIPT	3' 2"
77614	6"- 10"	6' 6"	6"	10"	28.8 PSI	24 lbs	6' 11"	4.4"	2" FIPT	6' 2"
60846	6"- 10"	8' 2"	6"	10"	28.8 PSI	28 lbs	8' 11"	4.4"	2" FIPT	8' 2"
60497	6"- 10"	9' 10"	6"	10"	28.8 PSI	31 lbs	10' 6"	4.4"	2" FIPT	9' 9"
60556	6"- 10"	13' 1"	6"	10"	28.8 PSI	38 lbs	13' 10"	4.4"	2" FIPT	13'
60585	6"- 10"	16' 3"	6"	10"	28.8 PSI	45 lbs	16' 10"	4.4"	2" FIPT	16' 1"
77241	12"- 16"	3' 3"	12"	16"	21.6 PSI	43 lbs	4' 1"	8.5"	2" FIPT	3' 2"
77680	12"- 16"	6' 6"	12"	16"	21.6 PSI	54 lbs	7"	8.5"	2" FIPT	6' 2"
60525	12"- 16"	8' 2"	12"	16"	21.6 PSI	55 lbs	9'	8.5"	2" FIPT	8' 2"
60587	12"- 16"	9' 10"	12"	16"	21.6 PSI	59 lbs	10' 6"	8.5"	2" FIPT	9' 9"
60593	12"- 16"	13' 1"	12"	16"	21.6 PSI	69 lbs	13' 11"	8.5"	2" FIPT	13'
60594	12"- 16"	16' 3"	12"	16"	21.6 PSI	79 lbs	16' 11"	8.5"	2" FIPT	16' 1"
77242	18"- 24"	3' 3"	18"	24"	17.3 PSI	73 lbs	4' 1"	15"	4" FIPT	3' 2"
78718	18"- 24"	6' 6"	18"	24"	17.3 PSI	91 lbs	7'	15"	4" FIPT	6' 2"
60526	18"- 24"	8' 2"	18"	24"	17.3 PSI	101 lbs	9'	15"	4" FIPT	8' 2"
78860	18"- 24"	9' 10"	18"	24"	17.3 PSI	108 lbs	10' 3"	15"	4" FIPT	9' 5"
65027	24"- 32"	4' 11"	24"	32"	14.4 PSI	80 lbs	5' 9"	15"	4" FIPT	4' 11"
60120	24"- 32"	6' 6"	24"	32"	14.4 PSI	90 lbs	7'	15"	4" FIPT	6' 2"
60527	24"- 32"	8' 2"	24"	32"	14.4 PSI	101 lbs	9'	15"	4" FIPT	8' 2"
60598	24"- 32"	9' 10"	24"	32"	14.4 PSI	108 lbs	10'	15"	4" FIPT	9' 6"
78015	32"- 40"	4' 11"	32"	40"	14.4 PSI	140 lbs	5' 10"	21.1"	4" FIPT	4' 9"
79186	40"- 48"	6' 6"	40"	48"	14.4 PSI	154 lbs	7' 2"	21.1"	4" FIPT	6' 2"

## Short Rehabilitation Carrier Packers

Short Packers have a replaceable double-layer sleeve mounted on a PPH tube.

Effective length is 24" therefore they are suitable for short repairs or insertion of stainless steel shells.

### How to calculate the contact area of the Short Packers

Legend	Formula
<b>Ln</b> = Contact length in inches. <b>Lg</b> = Packer rubber body length (sleeve) in inches. <b>D</b> = Pipeline diameter, for which contact length is calculated in inches. <b>d</b> = deflated packer diameter in inches.	$Ln = Lg - (3.14 \times (D - (d - .98)) / 4) - 3.15$



The following example is based on a 6-8" packer in a 6" pipe - (part# 76646)

$$Ln = \underbrace{31.5}_{\text{packer body length}} \text{ minus } (3.14 \times \underbrace{(6}_{\text{pipeline diameter}} \text{ minus } \underbrace{(4.5}_{\text{deflated packer diameter}} \text{ minus } 0.98)) \text{ divided by } 4) \text{ minus } 3.15$$

step 1: calculate  $4.5 \text{ minus } 0.98 = 3.52$

step 2: calculate  $6 \text{ minus } 3.52 = 2.48$

step 3: calculate  $3.14 \times 2.48 \text{ divided by } 4 = 1.9468$

step 4: calculate  $31.5 - 1.9468 - 3.15 = 26.4$

$Ln = 26.4''$  (contact area)

### (SAE SIZES) SHORT CARRIER PACKERS

Item	Nominal Size		Size usage Range		Inflation	Weight	Deflated Size		Bypass Diameter	Packer Length
	Diameter	Length	Min	Max	PSI	Lbs	Length	Diameter	inches	inches
76646	6" - 8"	24"	6"	8"	28.8 PSI	13.7 lbs	3' 1"	4.5"	3.1"	31.5"
76647	10" - 12"	24"	10"	12"	28.8 PSI	27.8 lbs	3' 3"	8.1"	6.3"	31.5"
76821	12" - 14"	24"	12"	14"	21.6 PSI	37.4 lbs	3' 3"	9.8"	7.9"	31.5"
76648	14" - 16"	24"	14"	16"	21.6 PSI	42.3 lbs	3' 3"	12.0"	10.2"	31.5"
76649	18" - 20"	24"	18"	20"	21.6 PSI	65.7 lbs	3' 3"	15.0"	12.8"	31.5"
78247	24" - 28"	24"	24"	28"	14.4 PSI	110.7lbs	3' 10"	18.3"	15.4"	38.2"

## Rehabilitation Long Packers

### How to calculate the contact area of the Long Packers

Legend	Formula
<b>Ln</b> = Contact length in inches. <b>Lg</b> = Packer rubber body length (sleeve) in inches. <b>D</b> = Pipeline diameter, for which contact length is calculated in inches. <b>d</b> = deflated packer diameter in inches.	$Ln = Lg - (3.14 \times (D - (d - 0.59)) / 2) - 8.27$

Designed for economy without wheels or bypass. Available sizes for use in pipes with a diameter from 8" to 32".



The following example is based on a 8-12" packer in a 10" pipe - (part# 78256)

$$Ln = \underbrace{58}_{\text{packer body length}} \text{ minus } (3.14 \times \underbrace{(10}_{\text{pipeline diameter}} \text{ minus } \underbrace{(5.7}_{\text{deflated packer diameter}} \text{ minus } 0.59)) \text{ divided by } 2) \text{ minus } 8.27$$

step 1: calculate  $5.7 \text{ minus } 0.59 = 5.11$

step 2: calculate  $10 \text{ minus } 5.11 = 4.89$

step 3: calculate  $3.14 \times 4.89 \text{ divided by } 2 = 7.6773$

step 4: calculate  $58 - 7.6773 - 8.27 = 42.05$

$Ln = 42.05''$  (contact area)

## (SAE SIZES) LONG CARRIER PACKERS

Item	Nominal Size		Size usage Range		Inflation	Weight	Deflated Size		Usable
	Diameter	Length	Min	Max	PSI	Lbs	Length ft.	Diameter	Length
78256	8"- 12"	4' 11"	8"	12"	21.6 PSI	10 lbs	5' 2"	5.7"	4' 10"
67042	8"- 12"	6' 6"	8"	12"	21.6 PSI	12 lbs	6' 10"	5.7"	6' 5"
78257	8"- 12"	8' 2"	8"	12"	21.6 PSI	13 lbs	8' 4"	5.7"	8' 1"
77386	8"- 12"	9' 10"	8"	12"	21.6 PSI	15 lbs	10' 1"	5.7"	9' 9"
78258	8"- 12"	13' 1"	8"	12"	21.6 PSI	18 lbs	13' 3"	5.7"	13'
77237	8"- 12"	16' 3"	8"	12"	21.6 PSI	21 lbs	16' 2"	5.7"	16' 2"
78259	12"- 16"	4' 11"	12"	16"	21.6 PSI	20 lbs	5' 2"	9.6"	4' 10"
77925	12"- 16"	6' 6"	12"	16"	21.6 PSI	23 lbs	6' 10"	9.6"	6' 5"
77926	12"- 16"	8' 2"	12"	16"	21.6 PSI	25 lbs	8' 4"	9.6"	8' 1"
78260	12"- 16"	9' 10"	12"	16"	21.6 PSI	27 lbs	10' 1"	9.6"	9' 9"
78261	12"- 16"	13' 1"	12"	16"	21.6 PSI	32 lbs	13' 3"	9.6"	13'
78262	12"- 16"	16' 3"	12"	16"	21.6 PSI	37 lbs	16' 2"	9.6"	16' 2"
78263	16"- 20"	4' 11"	16"	20"	14.4 PSI	38 lbs	5' 4"	13.4"	4' 10"
77553	16"- 20"	6' 6"	16"	20"	14.4 PSI	42 lbs	7'	13.4"	6' 5"
77239	16"- 20"	8' 2"	16"	20"	14.4 PSI	46 lbs	8' 7"	13.4"	8' 1"
78264	16"- 20"	9' 10"	16"	20"	14.4 PSI	50 lbs	9' 11"	13.4"	9' 9"
78265	16"- 20"	13' 1"	16"	20"	14.4 PSI	63 lbs	13' 6"	13.4"	13'
77238	16"- 20"	16' 3"	16"	20"	14.4 PSI	72 lbs	16' 7"	13.4"	16' 2"
60179	20"- 24"	4' 11"	20"	24"	11.5 PSI	54 lbs	5' 4"	15.9"	4' 10"
67040	20"- 24"	6' 6"	20"	24"	11.5 PSI	60 lbs	7'	15.9"	6' 5"
60190	20"- 24"	8' 2"	20"	24"	11.5 PSI	66 lbs	8' 7"	15.9"	8' 1"
70072	20"- 24"	9' 10"	20"	24"	11.5 PSI	74 lbs	10' 2"	15.9"	9' 9"
70218	20"- 24"	13' 1"	20"	24"	11.5 PSI	83 lbs	13' 6"	15.9"	13'
70066	20"- 24"	16' 3"	20"	24"	11.5 PSI	92 lbs	16' 9"	15.9"	16' 2"
60758	24"- 32"	4' 11"	24"	32"	8.6 PSI	85 lbs	5' 4"	21.1"	4' 10"
60759	24"- 32"	6' 6"	24"	32"	8.6 PSI	94 lbs	6' 7"	21.1"	6' 5"
60760	24"- 32"	8' 2"	24"	32"	8.6 PSI	101 lbs	8' 7"	21.1"	8' 1"
60761	24"- 32"	9' 10"	24"	32"	8.6 PSI	108 lbs	10' 2"	21.1"	9' 9"
60763	24"- 32"	13' 1"	24"	32"	8.6 PSI	124 lbs	13' 6"	21.1"	13'
60764	24"- 32"	16' 3"	24"	32"	8.6 PSI	139 lbs	16' 7"	21.1"	16' 2"

### Rehabilitation Lateral Packers

Suitable for repairs of pipes with smaller diameters, especially for house connection installations. Rounded on both ends to simplify handling and slipping past bends. Equipped with 1/4" pneumatic quick-connect couplings and eyelet bolts.

#### How to calculate the contact area of the Lateral Packers

Size	Formula
3" - 4"	$Ln = Lg - (3.14 \times (D - (d - 0.59)) / 2) - 4.73$
4" - 6"	$Ln = Lg - (3.14 \times (D - (d - 0.59)) / 2) - 5.51$
6" - 8"	$Ln = Lg - (3.14 \times (D - (d - 0.59)) / 2) - 7.09$

Legend:

Ln = Contact length in inches.  
 Lg = Packer rubber body length (sleeve) in inches.  
 D = Pipeline diameter, for which contact length is calculated in inches.  
 d = deflated packer diameter in inches.

The following example is based on a 4-6" packer in a 5" pipe - (part# 60492)

$$Ln = 156 \text{ minus } (3.14 \times (5 \text{ minus } (2.6 \text{ minus } 0.59)) \text{ divided by } 2) \text{ minus } 5.51$$

step 1: calculate  $2.6 \text{ minus } 0.59 = 2.01$

step 2: calculate  $5 \text{ minus } 2.01 = 2.99$

step 3: calculate  $3.14 \times 2.99 \text{ divided by } 2 = 4.6943$

step 4: calculate  $156 - 4.6943 - 5.51 = 145.8$

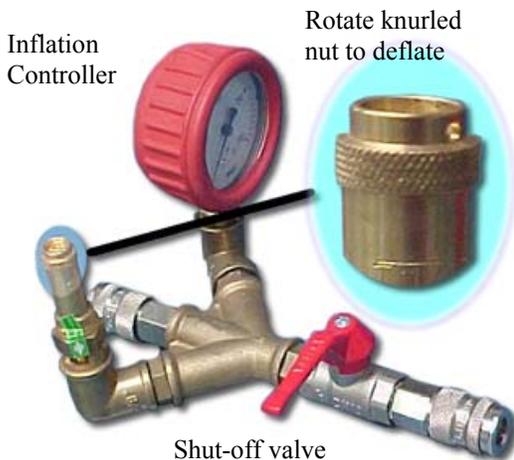
Ln = 145.8" (contact area)



## (SAE SIZES) LATERAL CARRIER PACKERS

Item	Nominal Size		Size Usage Range		Inflation	Weight	Deflated Size		Usable Length
	Dia.	Length	Min	Max	PSI	LBS	Length FT	Dia. In.	FT
60052	3" - 4"	23.5"	2.8"	4"	36 psi	1 lbs	2' 3"	1.8"	1' 11"
60053	3" - 4"	3' 3"	2.8"	4"	36 psi	2 lbs	3' 7"	1.8"	3' 2"
60059	3" - 4"	4' 11"	2.8"	4"	36 psi	2 lbs	5' 3"	1.8"	4' 10"
60060	3" - 4"	6' 6"	2.8"	4"	36 psi	2 lbs	6' 11"	1.8"	6' 4"
60061	3" - 4"	9' 10"	2.8"	4"	36 psi	3 lbs	10' 1"	1.8"	9' 9"
60069	3" - 4"	13'	2.8"	4"	36 psi	4 lbs	13' 4"	1.8"	12' 11"
60081	3" - 4"	16' 3"	2.8"	4"	36 psi	4 lbs	16' 3"	1.8"	16' 2"
60307	4" - 6"	23.5"	4"	6"	36 psi	2 lbs	2' 3"	2.6"	1' 11"
60308	4" - 6"	3' 3"	4"	6"	36 psi	3 lbs	3' 7"	2.6"	3' 2"
60309	4" - 6"	4' 11"	4"	6"	36 psi	4 lbs	5' 3"	2.6"	4' 10"
60311	4" - 6"	6' 6"	4"	6"	36 psi	5 lbs	6' 11"	2.6"	6' 4"
60461	4" - 6"	9' 10"	4"	6"	36 psi	6 lbs	10' 1"	2.6"	9' 9"
60492	4" - 6"	13'	4"	6"	36 psi	8 lbs	13' 4"	2.6"	12' 11"
60298	4" - 6"	16' 3"	4"	6"	36 psi	9 lbs	16' 3"	2.6"	16' 2"
60314	6" - 8"	23.5"	6"	8"	36 psi	3 lbs	2' 3"	3.3"	1' 11"
60330	6" - 8"	3' 3"	6"	8"	36 psi	4 lbs	3' 7"	3.3"	3' 2"
60331	6" - 8"	4' 11"	6"	8"	36 psi	5 lbs	5' 3"	3.3"	4' 10"
60343	6" - 8"	6' 6"	6"	8"	36 psi	6 lbs	6' 11"	3.3"	6' 4"
60516	6" - 8"	9' 10"	6"	8"	36 psi	9 lbs	10' 1"	3.3"	9' 9"
60955	6" - 8"	13'	6"	8"	36 psi	11 lbs	13' 4"	3.3"	12' 11"
60005	6" - 8"	16' 3"	6"	8"	36 psi	13 lbs	16' 3"	3.3"	16' 2"

### Available accessories for these products:



Inflation Controller Protects equipment from over inflation damage and controls pressure with accurate gauge (required use for warrantee claims). Nickel plated brass 1/4" quick-connect couplings with stainless steel bearings for long life. Liquid filled stainless steel gauge. Stainless gas ball valve. Precision machined brass safety relief over pressure relief valve eliminates over-inflation hazards; available in 15, 22, and 36 PSI. 60 PSI output pressure gauge. Maximum input pressure 120PSI recommended. For higher input pressures please request custom controller configurations. Custom controllers and gauges are also available.



PART#60513

Sava pushrods are sold separately in 5 foot sections. Two or more sections can be coupled together to achieve any desired length. All sections have our exclusive coupler locking mechanism that assures the rods will not decouple inside the pipe. Rods are made of semi-ridged anti-corrosive composite. Metal parts are chrome plated machined brass. Flexible enough to bend 90° into the pipe through a manhole. Rods will not kink or break.

## Inflation Hoses



SAE

3/8"ID all-weather inflation hoses. Weather stability from -40F to +212F, also resistant to oil & fuel degradation & remains flexible in low temperatures. Fiber reinforcement braid insures minimum burst pressure of 1,000 PSI.

Item#	Length	Fittings	Color
77682S16	16'	SAE	Yellow
77682S32	32'	SAE	Yellow
76683S16	16'	SAE	Red
76683S32	32'	SAE	Red
77679S16	16'	SAE	Blue
77679S32	32'	SAE	Blue
77680S16	16'	SAE	Green
77680S32	32'	SAE	Green
77678S16	16'	SAE	Black
77678S32	32'	SAE	Black

## Inflation/Lift Hoses

Lift hose shown here with inline gauge (not included)



Inflation / Lift Hose. Custom fitted with gauges, dump valves, over inflation relief valves, etc. (please specify requirements).

Standard inclusions:  
polypropylene braided sheathing with aluminum alloy attachment carabineers, nickel plated, brass 1/4" quick-connect/ disconnect coupling and nipple with stainless steel bearings for long service life. Solid machined stainless steel couplers available on request.

**\*Custom fittings and gauges extra (please call for price)**

Part#	Length	I.D.	Weight
60957	16'	5/16"	2 lbs
60958	32'	5/16"	4 lbs