Proven

# Shouldered Joints

## High Pressure Integrity Joint

VIKING JOHNSON™

PIPE CONNECTIONS, REPAIR & FLOW CONTROL PRODUCTS FOR THE UTILITIES INDUSTRY

CRANE BUILDING SERVICES & UTILITIES

# Shouldered Joints

## Overview

# Provides the perfect solution for high pressure end load applications

The Viking Johnson Shouldered Pipe Jointing System can claim over 80 years of effective performance worldwide. Its speed and ease of installation, proven reliability, lower installed costs and unique mechanical characteristics offer design installation and economic benefits unmatched by any other pipe jointing method.

The system consists of a comprehensive range of joints and fittings ranging from 40mm to 150mm* (1.5". to 60") in size. For use with shouldered carbon steel (including lightweight steel), stainless steel, lined pipe and other piping materials.

### The Shouldered concept

Based on a simple, yet highly effective design of pipe joint, two or more identical housings fully enclose a specially designed lip seal pressure sensitive gasket and key onto a raised shoulder formed on the pipe end, providing the joint with end-load bearing capabilities. During assembly the seal lip is pre-tensioned over the shoulder. The housing compresses the gasket and internal pressure reinforces the seal, giving reliability of operating up to 117 bar (1700 psi)** working pressure, vacuum service is down to 76cm (29.9") Hg.

* Large sizes are available on request.

** Dependant on size.

### Unique 'C' shaped gasket forms three stage sealing action

Seal enhanced and strengthened by either pressure or vacuum in pipeline

Gasket lip forms seal on pipe ends.

Housing reinforces and compresses gasket to increase seal.

Pressure

Vacuum

**Pipe Materials**

Steel

# Shouldered Joints

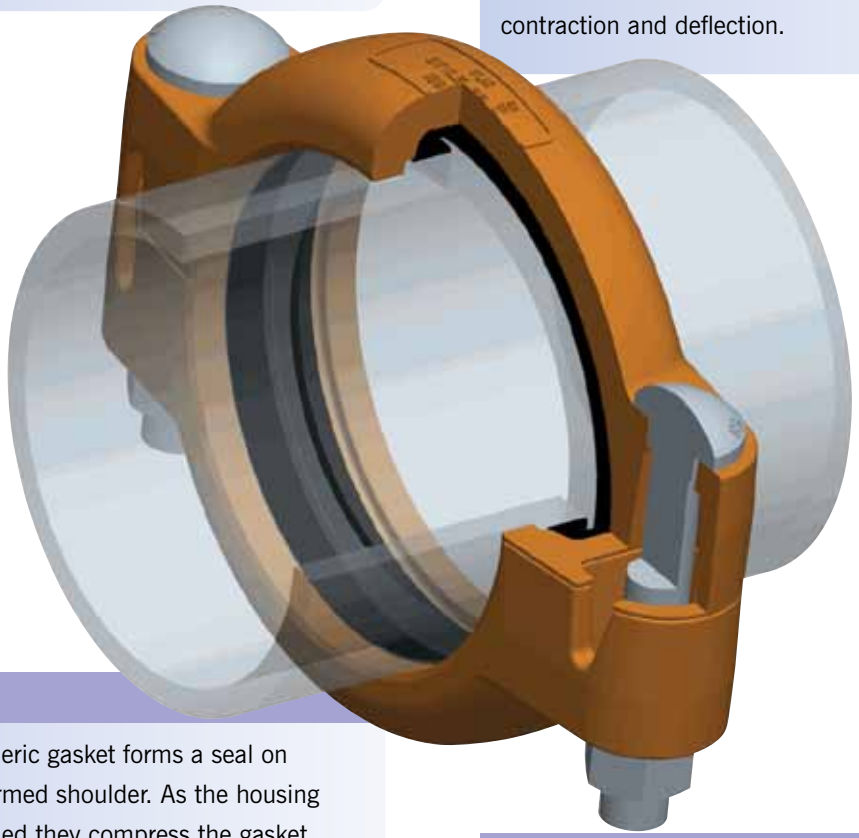
## Product Design Benefits

### Shoulder

The shoulder is formed by a number of methods including the following: Cross-weld ends, weld-on-rings or pre-formed expanded ends. The chosen method is dependant on the required pressure rating of the system and application.

### Housing

Manufactured from malleable iron, ductile iron or rolled steel, housing segments fully enclose the gasket. The housings engage the entire circumference of pipe shoulder to provide full end load restraint. The design allows for controlled linear and angular movement at each joint for expansion, contraction and deflection.



### Gasket

The resilient elastomeric gasket forms a seal on the outside of the formed shoulder. As the housing segments are tightened they compress the gasket and enhance the sealing function. Thus the system pressure reinforces the sealing capabilities of the gaskets. A range of gaskets are available to suit varying applications, temperatures, fluids and mediums.

### Bolts

Bolts are captive head type which is designed to locate in the housing and permit tightening of the nuts from one side only, using a single spanner. A galvanised finish is standard on most sizes.

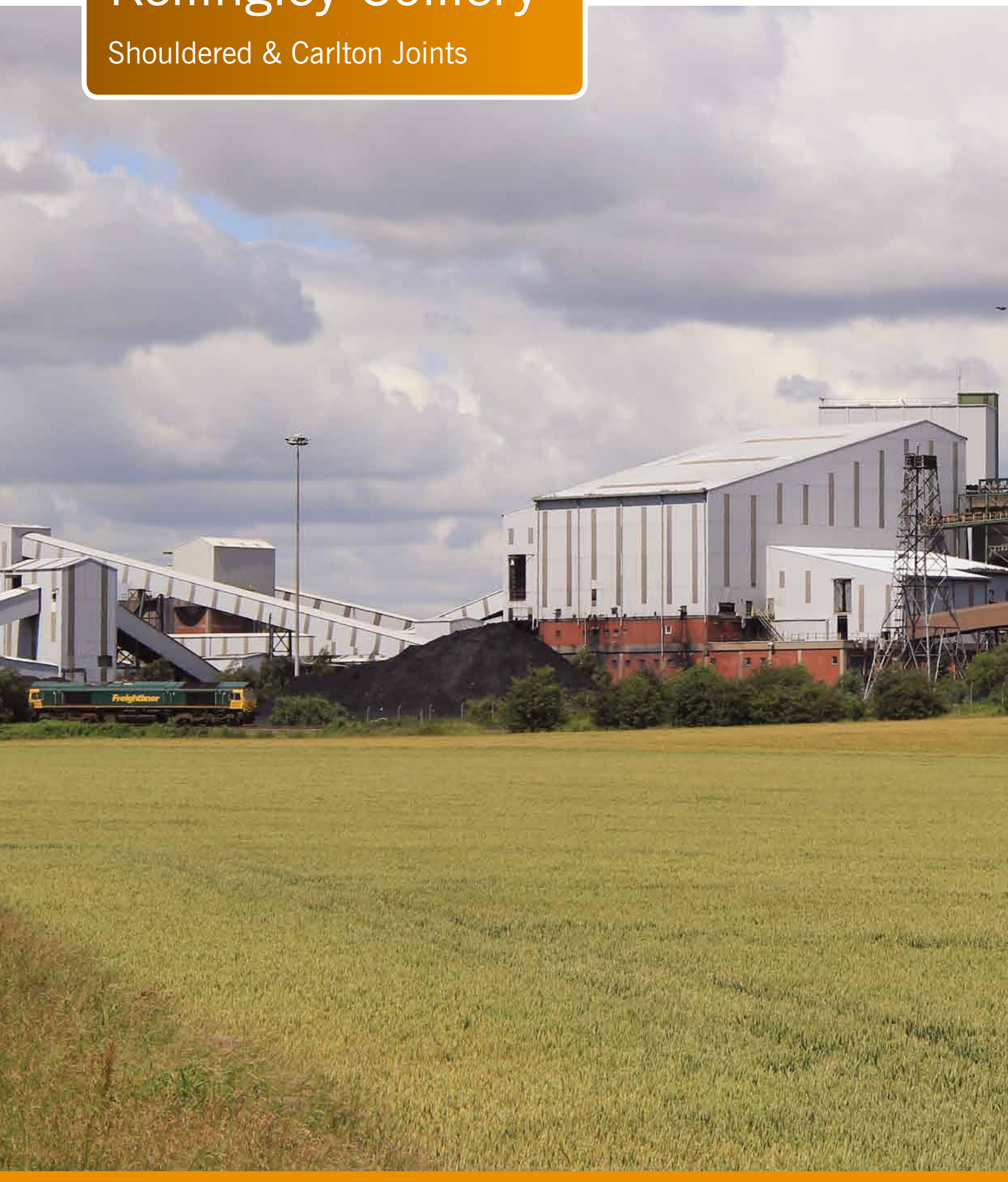
## Customer Benefits

- High pressure to 117 bar depending on size
- Joints have end load bearing capability
- Enhanced joint integrity
- Ideal applications include mining, industrial, water, shipping, petrochemical and building service industries
- Larger sizes can be manufactured on request
- Approved to British Coal Specification 296 Part 1 : 596 & MAS 320

## United Kingdom - Yorkshire

# Kellingley Colliery

Shouldered & Carlton Joints






Telephone: +44 (0)1462 443322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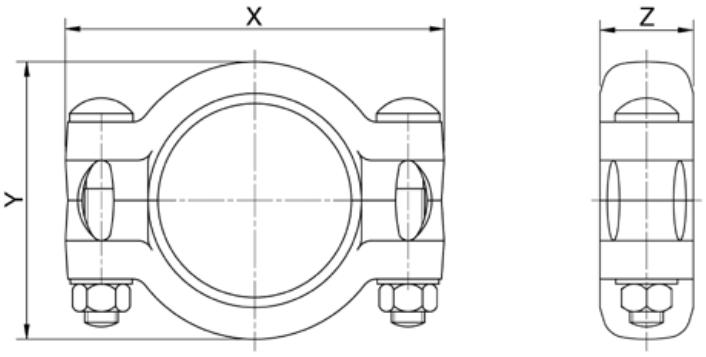
# Shouldered Joints

## Specifications




### Shouldered Joints

| Style No. | Shoulder Dia. (mm) | Number of Parts | Gasket Mould No. | Bolts No. - Dia x Length | Bolt Type | Working Pressure bar | Approx Weight (kg) | Overall Dimensions (mm) | | |
|---|---|---|---|---|---|---|---|---|---|---|
| | | | | | | | | X | Y | Z |
| SM48 | 54 | 2 | 396 | 2 - 1/2" x 2 1/2" | CDX | 41.5 | 1.1 | 122 | 87 | 44.5 |
| SF60 | 66.5 | 2 | 109 | 2 - 5/8" x 3 1/2" | CDX | 117.0 | 1.7 | 149 | 100 | 49 |
| SF76 | 82.5 | 2 | 134 | 2 - 5/8" x 3 1/2" | CDX | 117.0 | 2.1 | 169 | 118 | 49 |
| SF89 | 97 | 2 | 145 | 2 - 5/8" x 3 1/2" | CDX | 117.0 | 2.5 | 183 | 133 | 51 |
| SF-HP114 | 122 | 2 | 144 | 2 - 3/4" x 4 3/4" | CDX | 117.0 | 4.5 | 227 | 166 | 56 |
| SF168 | 177.8 | 2 | 651 | 2 - 7/8" x 5 1/2" | CDX | 100.0 | 11.0 | 324 | 228 | 63 |

### Gasket Grade Available

| Grade | Compound | Temperature Range |
|---|---|---|
| E | EPDM Ethytlene Propylene Diene Monomer | -35 to 85ºC (wet heat)<br>-35 to 80ºC (dry heat) |
| T | Nitrile | -20 to 80ºC |
| V | Polychloroprene (Neoprene) | -30 to 90ºC |

## Materials & Relevant Standards

**Housing**
Ductile Iron to BS EN 1563:1997 Symbol EN-GJS-450-10

**Gasket**
Rubber – Grade to suit service

**Bolts**
Steel to BS EN ISO 898-1:2009 Property Class 4.8

**Nuts**
Steel to BS 4190:2001 Grade 4

**Washers**
Steel to BS EN 10083:PT:1:1991 Grade C22E

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To visit our Video Library go to:
http://www.youtube.com/user/CraneBSU

VIKING JOHNSON™

46-48 WILBURY WAY
HITCHIN, HERTFORDSHIRE
SG4 0UD. UNITED KINGDOM

TELEPHONE: +44 (0)1462 443322
FAX: +44 (0)1462 443311
EMAIL: info@vikingjohnson.com

**www.vikingjohnson.com**

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