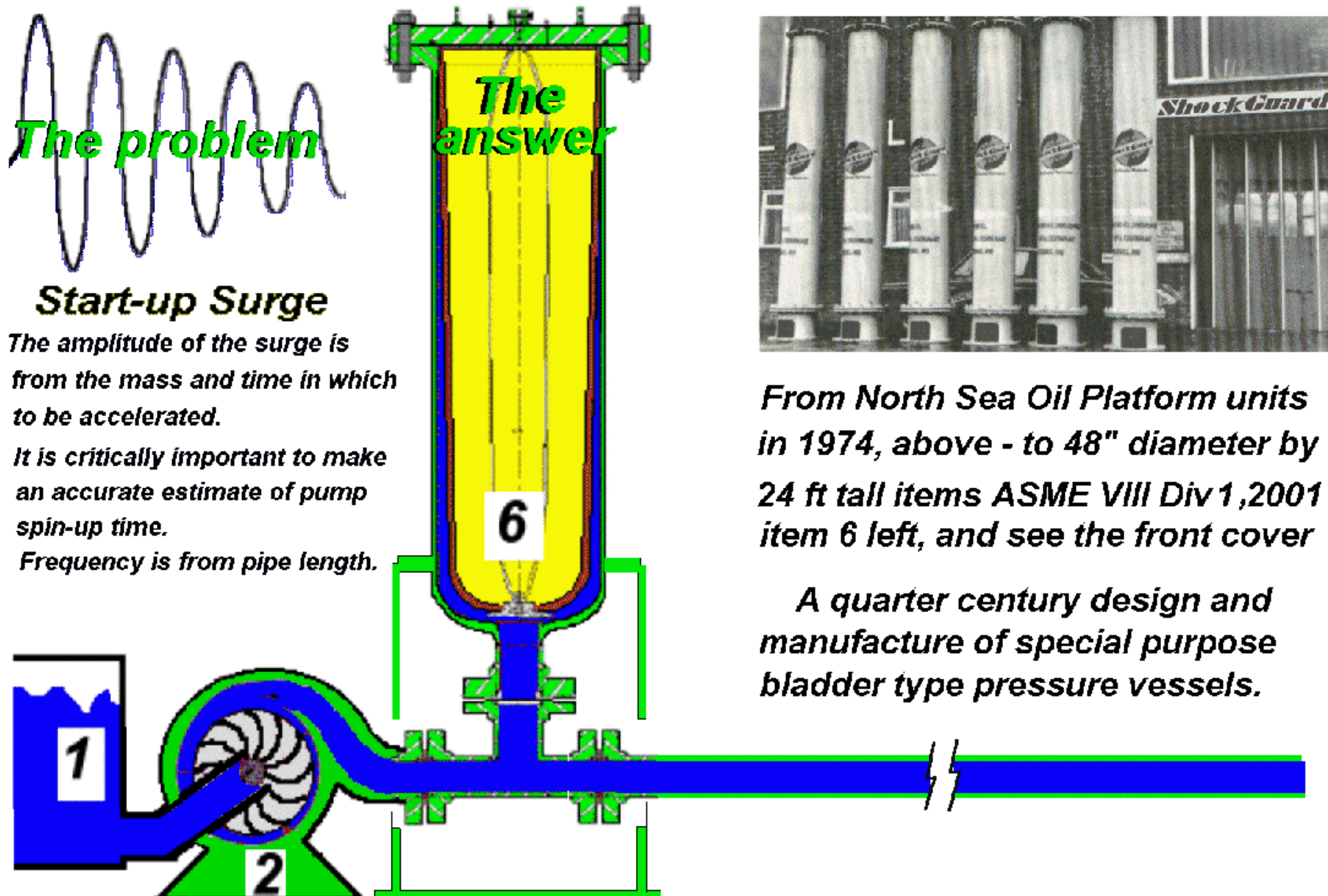


# PREVENT PUMP START-UP SURGE. with **JUMBOFLEX**

Jumboflex dimensional drawing



From North Sea Oil Platform units in 1974, above - to 48" diameter by 24 ft tall items ASME VIII Div 1, 2001 item 6 left, and see the front cover

A quarter century design and manufacture of special purpose bladder type pressure vessels.

**ShockGuard Ltd.** is a licensed run time user of the **Liquid Dynamics International Ltd.** software called **SHOCKVIEW**.

**SHOCKVIEW** enables us to quickly and accurately run your proposed piping system, in our computers, and tell you what the maximum level of pump start up surge, or shutdown shock will be.

From this first model, which is free to you, we can then determine which of our alleviators is most suited to the needs of your system.

If you wish further models of your system, please contact Dave Charles of **Liquid Dynamics International** with at least the following information:

### Pipe Parameters:

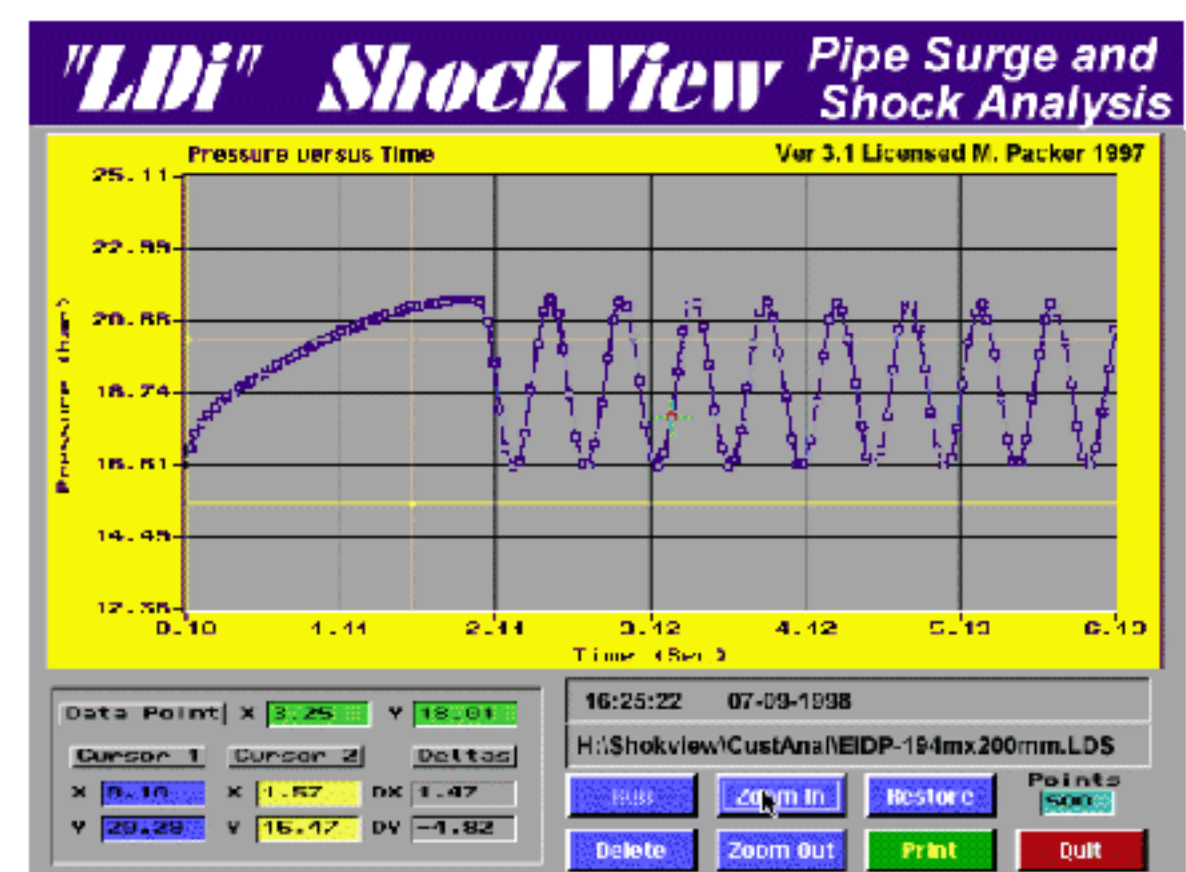
"L" Length, "Di" Internal Diameter, "t" Wall thickness, "bM" Material. (modulus if known)

### Liquid specifics:

Flow rate "Q" Kg/Sec. if known, SG, cP viscosity at temp.

### Pump manufacturer inertia data :

"S" Seconds Spin-up time. (the most important figure.)



See "Reading a SHOCKVIEW plot" page 7

**SHOCKGUARD**<sup>®</sup>  
Shock prevention for pipeline systems.

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USA Americas 910-270-2737

