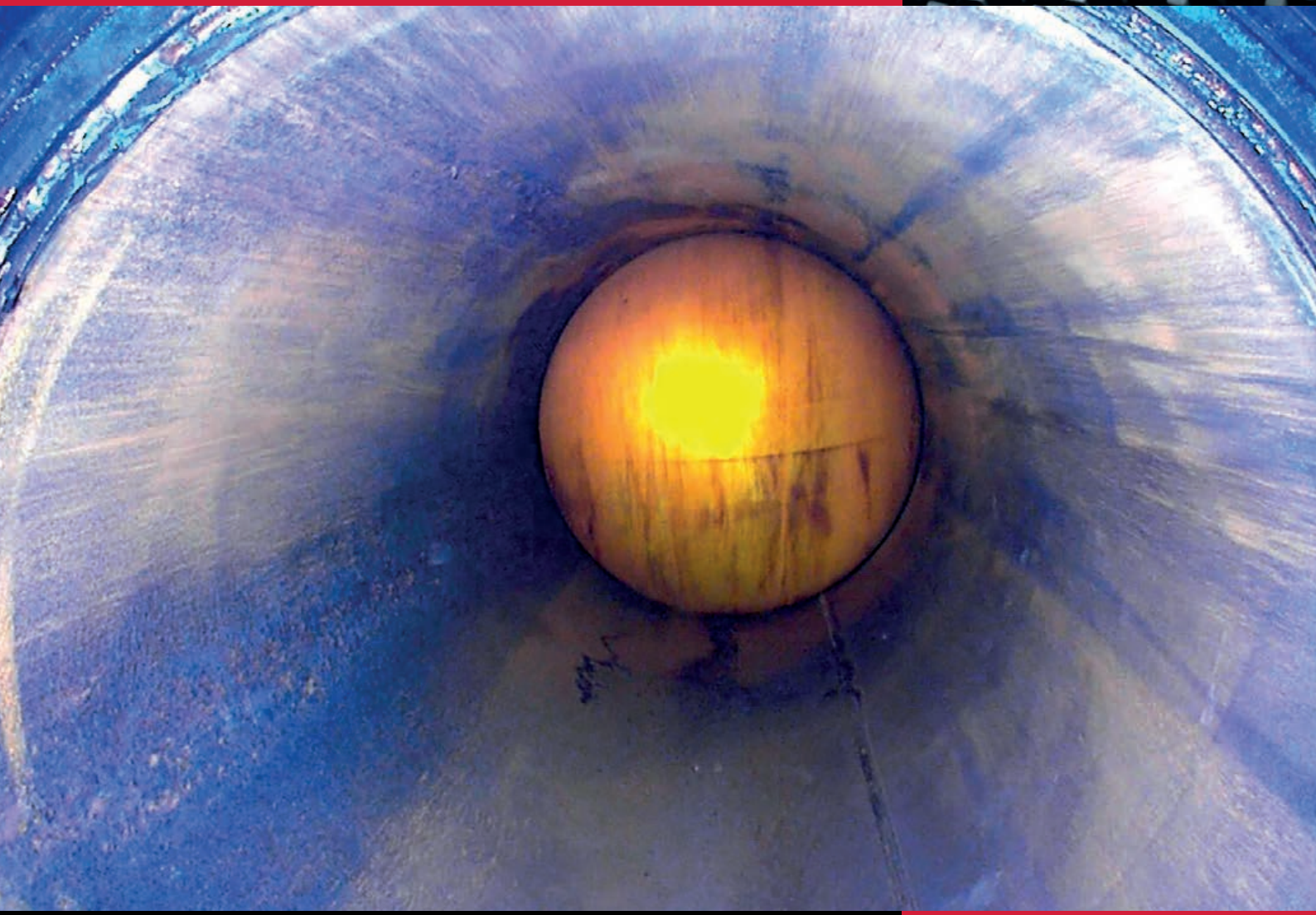
Solid / Inflatable Spheres



Pipeline pigging experts

iNPIPE PRODUCTS

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Progressive, Responsive and Knowledgeable

Inflatable Spheres

Standard Features

- Spheres will pass through short bends, tees and fully-opening conduit valves
- Are accepting of pipeline ovality
- Wear evenly
- Wear – compensating by the adjusting the diameter via inflation

Sphere materials are the result of over 30 years of pigging experience and specifications vary in accordance with the intended application.

iNPIPE PRODUCTS™ has developed various materials and compounds to accommodate every application. Spheres are specially compounded for maximum resilience to wear resistance, durability and a long operating life. Special combinations of materials and manufacturing techniques for example can be utilized to tailor make engineering solutions such as magnetic spheres, special meter proving applications or anti-static applications.

1.0 Filling

a) Filling a Single Valve Sphere

1.a.1 Ensure that the area around the valve is free from dirt by washing out if necessary.

1.a.2 Remove the hexagonal sealing plug.

1.a.3 Using the core extractor, extract the valve and insert the filling tool.

1.a.4 Inflate with the media from the pump to inflate the sphere no more than 2%. Release the quick release coupling and remove the inflation tool.

1.a.5 With the sphere valve uppermost, manually depress the valve to release the trapped air.

1.a.6 Repeat steps 1.a.4 & 1.a.5 until no further air is released.

b) Filling a Larger Double Valve Sphere

1.b.1 Suspend sphere in net with valves orientated top and bottom.

1.b.2 With core extractor tool, remove uppermost valve core.

1.b.3 Insert filler tool in base and fill the sphere.

1.b.4 When liquid is seen at the top valve housing, shake the sphere to dislodge and air bubbles.

1.b.5 Top up liquid and insert upper valve core.

1.b.6 Sphere can then be removed from suspending net for inflation.

2.0 Sphere Inflation

2.1 With valve housings in line vertically, screw inflation tool into uppermost valve, hand tighten only.

2.2 Join the female coupling from pump to the male coupling on the inflation tool.

2.3 Inflate with a pressure pump to approximately one per cent over un-inflated diameter.

2.4 Remove the sizing tool. Gently vent the Schrader valve to allow the escape of any trapped air. When only filling medium remains re-fit the fill tube and pressure pump and pressurise the sphere.

2.5 With the aid of a sizing ring or diameter tape inflate to the required diameter. We recommend that the sphere is not inflated greater than two per cent larger than the inside diameter of the pipe. For meter prover sphere applications, not greater than five per cent.

2.6 Disconnect the female coupling on the pressure pump from the male coupling on the sizing tool.

2.7 Remove the sizing tool.

2.8 Dry the area around the valve aperture and examine for leakage of medium. Providing no leakage occurs, re-fit the sealing plug using the sealing plug removal wrench taking care not over-tighten.

WARNING: The sphere must not be used without the hexagonal sealing plug being correctly in place and sufficiently tight.

The plug seals by means of an 'O' ring which must be in position and in perfect condition. Care should be taken to ensure that the sealing plug is not cross-threaded.

3.0 Storage

3.1 After use spheres should be deflated, emptied of filling medium and cleaned externally.

3.2 The Schrader valve and hexagonal sealing plug should be cleaned, examined and replaced if not in good order.

3.3 Spheres should be stored at an ambient temperature of not less than minus 5 degrees Celsius and away from direct sunlight.

3.4 It is preferable to store spheres in a sphere storage net or self-shaping packing material such as sand or polystyrene.

3.5 Spheres should be turned regularly to avoid flat areas.

4.0 Notes

4.1 Inflation medium must not be allowed to freeze.

4.2 Inflation medium should not contain methanol or other solvents which attack polyurethane.

4.3 For special applications **iNPIPE PRODUCTS™** is able to supply spheres which are suitable for operation up to and including 85 degrees Celsius. Required temperature range must be specified at the time of ordering.

Standard Sphere Lifter

Standard Features

- Manufactured from Polyurethane
- Available from 50° - 80° shore A
- Exceptional Physical and chemical resistant properties
- Seamless construction
- Inflated via Schrader valve c/w brass sealing plugs

Maintaining and cleaning pipelines with spheres reduces pressure loss, increases efficiency and are an effective way to separate or batch different grades of products in multi-product pipelines. Typically used in natural gas pipelines where variations in the temperature & pressure can cause liquid drop-out. This drop-out liquid or condensate varies with the process condition and whether the gas is raw or processed.

Some gas pipelines are designed to transport condensate as two phase flow. Condensate drop-out can cause a number of adverse effects in the pipeline such as corrosion, reduced efficiency, increased operating cost & potential overloading of downstream processing plants.

To be read in conjunction with G.A. Drawing No. S.00.SL.002.

1.0 Introduction

To ensure that the sphere lifter will operate correctly, first make sure that the correct sized lifting cup assembly (item 2) is fitted to the lifting pump assembly (item 1). Please note that all lifting cup assemblies are interchangeable with the lifting pump assembly.

2.0 Operation

2.1 Lifting:

2.1.1 Ensure that the sealing face of the lifting cup (item 2.1) is clean.

2.1.2 Position the lifting cup (item 2.1) onto the outer surface of the sphere to be lifted.

2.1.3 Open the isolation valve (item 1.3) making sure that the bleed valve (item 1.4) is in the closed position.

2.1.4 Operate the lifting pump assembly (item1) by means of the handle assembly (item 1.1) until the vacuum gauge (item 1.2) reads a minimum of 0.6 Bar.G & close the isolation valve (item 1.3).

2.1.5 Wait for 30 seconds to ensure there has been no leakage, this will be indicated by a drop in pressure on the vacuum gauge. If the pressure does drop repeat steps 2.1.1 to 2.1.5.

2.1.6 The sphere may now be lifted.

2.2 Release :

2.2.1 Place the sphere in a suitable location for release.

2.2.2 Open the bleed valve (item 1.4), thus releasing the vacuum holding the sphere.

3.0 Fault Diagnosis

3.1 Periodically check that the lifting assembly (item 2) especially the sealing lip of the lifting cup (item 2.1) is undamaged, replace any damaged items if required.

3.2 If the 0.6 Bar.G vacuum pressure cannot be maintained check all o-ring & bonded seals (items 1.5/1.6 & 1.7) & connections of the lifting pump assembly, replace any damaged items if required.

4.0 Maintenance and Storage

4.1 Ensure all metallic components are cleaned, greased & in good condition.

4.2 Store in a clean, safe place, free from extremes of temperature and humidity. Polyurethane products should always be stored out of direct sunlight.

4.3 Return to Inpipe Products for any repair work that maybe required.

Inflatable Spheres

Pipe nominal size (outside diameter)	Sphere O/D (overall diameter)	Sphere weight (un-inflated)*	Wall thickness/ Cavity O/D+ 2%	Void vol mm3	Fluid wt kg	iNPIPE PRODUCTS™ PRODUCT CODE
2.5” Valve size 1	Ø65.9mm	0.151kg*	10mm	53946	0.05	S03IS00P066
3” Valve size 1	Ø69.5mm	0.181kg*	12mm	52490	0.05	S03IS00P070
3” Valve size 1	Ø73.1mm	0.211kg*	16mm	38687	0.04	S03IS00P073
3” Valve size 1	Ø74.1mm	0.221kg*	16mm	41285	0.04	S03IS00P074
3” Valve size 1	Ø75.1mm	0.231kg*	17mm	38687	0.04	S03IS00P075
3” Valve size 1	Ø79mm	0.281kg*	18mm	44305	0.04	S03IS00P079
3” Valve size 1	Ø82.5mm	0.311kg*	20mm	42777	0.04	S03IS00P082
3” Valve size 1	Ø84.5mm	0.341kg*	21mm	42777	0.04	S03IS00P084
4” Valve size 1	Ø93mm	0.471kg*	25mm	44305	0.04	S04IS00P093
4” Valve size 1	Ø94mm	0.491kg*	26mm	41285	0.04	S04IS00P094
4” Valve size 1	Ø101.7mm	0.521kg*	20mm	130889	0.13	S04IS00P102
4” Valve size 1	Ø104mm	0.571kg*	21mm	132807	0.13	S04IS00P104
4” Valve size 1	Ø109mm	0.671kg*	23mm	139338	0.14	S04IS00P109
5” Valve size 1	Ø118mm	0.711kg*	19mm	187401	0.19	S05IS00P119
5” Valve size 1	Ø127mm	0.971kg*	23mm	278261	0.28	S05IS00P127
6” Valve size 1	Ø142.5mm	1.281kg*	24mm	441869	0.44	S06IS00P142
6” Valve size 1	Ø151mm	1.651kg*	28mm	448920	0.45	S06IS00P151
6” Valve size 1	Ø157mm	1.911kg*	32mm	421160	0.42	S06IS00P157
6” Valve size 1	Ø160.3mm	2.051kg*	33mm	439069	0.44	S06IS00P160
7” Valve size 1	Ø175mm	2.841kg*	40mm	321555	0.32	S07IS00P175
7.5” Valve size 1	Ø184.7mm	3.381kg*	45mm	444680	0.44	S07IS00P185
7.5” Valve size 1	Ø186.6mm	3.511kg*	46mm	443273	0.44	S07IS00P187
7.5” Valve size 1	Ø190mm	2.431kg*	23mm	1563457	1.56	S07IS00P190
8” Valve size 1	Ø203mm	3.371kg*	30mm	1531111	1.53	S08IS00P203
8” Valve size 1	Ø209.4mm	3.851kg*	32mm	1609503	1.61	S08IS00P209
8” Valve size 1	Ø212mm	4.101kg*	34mm	1563457	1.56	S08IS00P212
10” Valve size 1	Ø229mm	5.821kg*	42mm	1596256	1.6	S10IS00P229
10” Valve size 1	Ø252.8mm	5.521kg*	30mm	3752491	3.75	S10IS00P253
10” Valve size 1	Ø260.4mm	7.00kg*	32mm	3852500	4.00	S10IS003
10” Valve size 1	Ø270mm	8.00kg*	32mm	3952500	6.00	S10IS004
12” Valve size 1	Ø285mm	5.921kg*	23mm	7148128	7.15	S12IS00P285
12” Valve size 1	Ø304.8mm	9.021kg*	32mm	7310853	7.31	S12IS00P305
12” Valve size 1	Ø315mm	10.921kg*	38mm	7148128	7.15	S12IS00P315
14” Valve size 1	Ø323.9mm	12.521kg*	42mm	7220148	7.22	S14IS00P324
14” Valve size 1	Ø331.5mm	14.109kg*	46mm	7202098	7.2	S14IS00P332
16” Valve size 1	Ø360.5mm	20.609kg*	60mm	7292652	7.29	S16IS00P360
16” Valve size 1	Ø384.2mm	16.109kg*	35mm	16241164	16.42	S16IS00P384
16” Valve size 1	Ø408mm	23.109kg*	47mm	16210169	16.21	S16IS00P408
18” Valve size 1	Ø435mm	23.409kg*	38mm	24226014	24.23	S16IS00P435
20” Valve size 1	Ø466.7mm	23.109kg*	32mm	34278975	34.22	S20IS00P467
20” Valve size 1	Ø486mm	31.109kg*	32mm	39349206	39.35	S20IS00P486
22” Valve size 1	Ø536mm	39.109kg*	43mm	47712938	47.71	S22IS00P536
24” Valve size 1	Ø582.7mm	58.109kg*	57mm	53946271	53.95	S24IS00P583
26” Valve size 1	Ø621mm	85.372kg*	76mm	54015344	54.02	S26IS00P621
26” Valve size 1	Ø642mm	100.372kg*	87mm	53670566	53.67	S26IS00P642
28” Valve size 1	Ø681mm	99.372kg*	69mm	83829738	83.83	S28IS00P681
30” Valve size 1	Ø725mm	109.372kg*	65mm	110293398	110.29	S30IS00P725
30” Valve size 1	Ø735.8mm	117.372kg*	70mm	110738878	110.74	S30IS00P736
32” Valve size 1	Ø784mm	143.372kg*	76mm	132175163	132.18	S32IS00P784
34” Valve size 1	Ø844mm	213.372kg*	103mm	135975498	135.98	S34IS00P844
36” Valve size 1	Ø868mm	246.372kg*	115mm	135975498	135.98	S36IS00P868

Solid Spheres

Pipe nominal size (outside diameter)	Sphere O/D (overall diameter	Sphere weight (un-inflated)*	iNPIPE PRODUCTS™ PRODUCT CODE
2”	Ø32mm	0.020kg*	S02SS00P032
2”	Ø36mm	0.050kg	S02SS011
2”	Ø48mm	0.070kg*	S02SS00P048
2”	Ø50mm	0.080kg*	S02SS00P050
2”	Ø54mm	0.100kg*	S02SS00P054
2”	Ø59mm	0.130kg*	S02SS00P059
2”	Ø64mm	0.160kg*	S02SS00P064
2.5”	Ø65.9mm	0.180kg*	S03SS00P066
3”	Ø69.5mm	0.210kg*	S03SS00P070
3”	Ø73.1mm	0.240kg*	S03SS00P073
3”	Ø74.1mm	0.250kg*	S03SS00P074
3”	Ø75.1mm	0.260kg*	S03SS00P075
3”	Ø79mm	0.310kg*	S03SS00P079
3”	Ø82.5mm	0.340kg*	S03SS00P083
3”	Ø84.5mm	0.370kg*	S03SS00P085
4”	Ø93mm	0.500kg*	S04SS00P093
4”	Ø94mm	0.520kg*	S04SS00P094
4”	Ø101.7mm	0.660kg*	S04SS00P102
4”	Ø104mm	0.700kg*	S04SS00P104
4”	Ø109mm	0.810kg*	S04SS00P109
5”	Ø118mm	1.020kg*	S05SS00P118
5”	Ø127mm	1.280kg*	S05SS00P127
6”	Ø142.5mm	1.780kg*	S06SS00P142
6”	Ø151mm	2.190kg*	S06SS00P151
6”	Ø157mm	2.450kg*	S06SS00P157
6”	Ø160.3mm	2.550kg*	S06SS00P160
7”	Ø175mm	3.340kg*	S07SS00P175
7”	Ø177mm	3.360kg*	S07SS00P177
7.5”	Ø179.5mm	3.700kg*	S07SS00P179
7.5”	Ø184.7mm	3.950kg*	S07SS00P185
7.5”	Ø186.6mm	4.190kg*	S07SS00P187
7.5”	Ø190mm	4.270kg*	S07SS00P190
8”	Ø203mm	5.210kg*	S08SS00P203
8”	Ø209.4mm	5.690kg*	S08SS00P209
8”	Ø212mm	5.940kg*	S08SS00P212
10”	Ø229mm	7.480kg*	S10SS00P253
10”	Ø252.8mm	9.970kg*	S10SS00P285
12”	Ø285mm	14.420kg*	S12SS00P285
12”	Ø304.8mm	17.680kg*	S12SS00P305
*Weight tolerance+/- 5% by weight			

iNPIPE PRODUCTS™ has developed an extensive range of heavy duty, high quality pipeline spheres in solid or inflatable designs for ease of handling and effective use. **iNPIPE PRODUCTS™** spheres were developed to be used in the various stages of pipeline construction, acceptance testing, commissioning, batch separation, and pipeline maintenance or cleaning operations.

PIGGING PRODUCTS

Alongside our extensive product range, **iNPIPE PRODUCTS™** also has the capacity to offer custom engineering solutions.

DELIVERY

iNPIPE PRODUCTS™ is based on a 6 acre site housing all engineering, manufacturing and testing disciplines in 3 specific bays to ensure accurate project control and on time delivery all over the world.

The company has developed significant logistics skills and expertise to ensure that goods are shipped quickly, customs cleared and delivered to client's sites efficiently anywhere in the world in the shortest possible time.

Right first time ensures **iNPIPE PRODUCTS™** as the premier supplier of pigging products and services for over 30 years.

SERVICE

iNPIPE PRODUCTS™ provides pigging support services and tailored solutions for technically challenging pipeline conditions.

By precisely meeting our client's requirements and providing a turnkey solution, we have gained a significant reputation with major operators and contractors worldwide.

TRAINING

iNPIPE PRODUCTS™ provides comprehensive training courses of excellent quality.

The tutorial sessions provide individuals with an understanding of pigging / pipeline / isolation / testing and its applications.

Training tutorials can be conducted at our UK factory or at client's sites if required. Project/product specific certificates are issued upon successful completion of the course.

For further details, please contact iNPIPE PRODUCTS™

iNPIPE PRODUCTS™ offers the latest in cutting edge technology, with design and manufacturing capabilities in-house.

iNPIPE PRODUCTS™ facilities allow for the manufacture and production of both standard and customised products, with turning and forming machinery for the production of high quality machined parts.

iNPIPE PRODUCTS™ places emphasis on providing client-led solutions and offering a full advisory service.

iNPIPE PRODUCTS™ provides an unrivalled product range that includes Metal Bodied Pigs/Scrapers, Foam Pigs, Spheres, Weld Testers, Pig Signallers as well as Launching and Receiving hardware. We are world leaders in the design and manufacture of pigging, pipeline pigging and pigging components.

Pipeline pigging experts

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