CAMTECH MANUFACTURING FZCO

Pressure Balanced Lubricated Plug Valves

Empowering Global Flow Control

CAMTECH MANUFACTURING FZCO

CAMTECH MANUFACTURING FZCO is the first and only API accredited valve manufacturing company among UAE, Middle East and GCC, engaged in this business since 1999 for manufacturing mainly Ball Valves, Gate, Globe, Check valves, Butterfly valves, Plug valves, Pig valves & Choke valves in metallurgy such as carbon steel, Stainless steel, Duplex and Super duplex steel, for size range from ½" to 56" and class rating from 150 to 2500.

Our state of the art manufacturing facility based in Jebel Ali Free Zone (UAE) is spread over an area of 10,000 sq.mtr with plant annual capacity of over 40000 components, is fully equipped with modern six axis flexible machining center supported by standalone CNC and associated sub-systems fully equipped to manufacture and supply complete range of valves for Pipelines, Oil and Gas sector, petrochemical, Refineries, Pharmaceutical, Power, Construction, Water Industries and other process industries.

Camtech Manufacturing FZCO is API (6D, 6A, 600 and Q1) accredited and an ISO 9001 - 2008, GOST-R, ISO TS -29001, ISO 14001 & OHSAS 18001 certified company with CE marking and ATEX certification for all products. All our valves are designed, engineered and manufactured in strict conformance to API, ASME, ASTM, ANSI, BS, DIN and other recognized international standards where ever applicable. Our continuous and stringent quality consistency is achieved through rigorous quality control processes and latest testing equipments for Fugitive emission test, Fire safe test, Positive Material Identification, Cryogenic test, Hydro test, Pneumatic test, High pressure gas test.

Over the recent years there is a dramatic increase in facilities handling H2S bearing hydrocarbons. Hence parameters like Hydrogen sulfide concentration, Total system pressure, application temperature, existence of elemental sulfur and chloride content have a bearing on appropriate material selection in this severe environment. Hence all CAMTECH valves are manufactured in strict compliance with NACE MR0175/ISO 15156 to meet customer requirement.

Our central geographical location along with the long term association with major forge masters and foundries locally as well as overseas and with qualified and experienced staff , we are proud to say that our commitment are always achieved on time and every time.

Quality Commitments

Camtech Pressure Balanced Lubricated Plug valves are robust in construction and easy In-Line maintainability.

These valves are used where existing pulsating or static high pressures are present. These valves are suitable for medium that are used in various industries such as petroleum, chemical industry, pharmacy, chemical fertilizer, electric power industry etc under nominal pressure of Class 150-1500 Lbs and working temperature of –29~180°C.

Uniqueness of dynamically and pressure balanced design together with inverted plug design, assure prevention of locking, which has been the problems of conventional design at higher pressure application.

The benefit of dynamic pressure balance plug valve offers is that it ensures equalized pressure between the plug and upper and lower body chamber. Pressure is balance by the two holes in the plug which connects the plug port to upper and lower chamber. The hole in the upper end is provided with a check valve so that the pressure is always equal to the larger chamber and always equal to or greater than the line pressure in the small chamber.

Advantages

- Easy inline maintenance.
- In the event of the plug lock-up, it is possible to inject lubricant to the valve in service.
- Leak tightness of the operating system.
- Assured stem tightness by means of gasket and packing between the stem and the body.
- Fire Safe
- Double injector for lubrication can be provided on request.

Basic Design Standards

Pressure Temperature Rating	:	ASME B16.34
Design Standard	:	API 6D / API 599
Testing Standard	:	API 6D / API 598
Fire Testing	:	API 6FA
Flange Details (up to 24”)	:	ASME B16.5
Flange Details (26” & above)	:	ASME B16.47
Visual Inspection	:	MSS SP – 55
Face to face	:	API 6D / ASME B16.10

Sizes Range

- 2” - 36” Class 150
- 2” - 36” Class 300
- 2” - 24” Class 600
- 2” - 24” Class 900
- 2” - 20” Class 1500
- 2” – 12” Class 2500

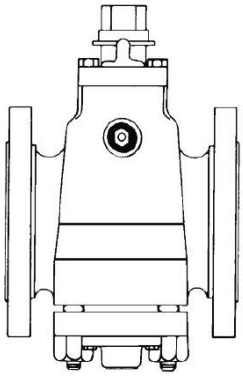
Valve Materials

Pressure Balance Lubricated Plug valves are manufactured using a wide range of materials to suit the service applications.

PLUG VALVE PATTERNS

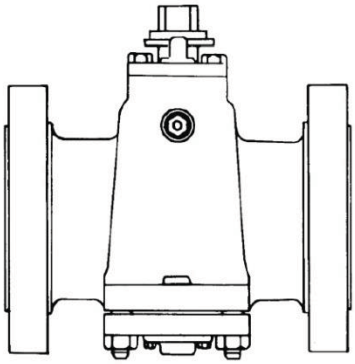
Camtech Pressure Balanced Lubricated Plug valves are available with threaded, flanged or butt welding ends or combination thereof–to meet the needs of your piping systems. Valves are wrench- or gear-operated, as listed in the detailed specification pages. Camtech valves come in a variety of engineered patterns to assure maximum efficiency and economy for the full range of valve services. These include:

SHORT PATTERN



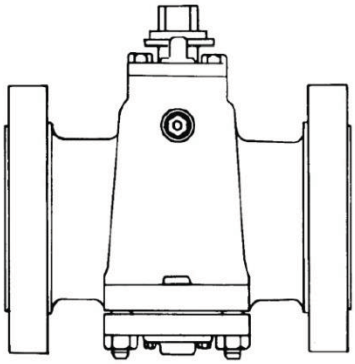
Incorporating the largest practical port area consistent with matching gate valve face-to-face dimensions.

REGULAR PATTERN



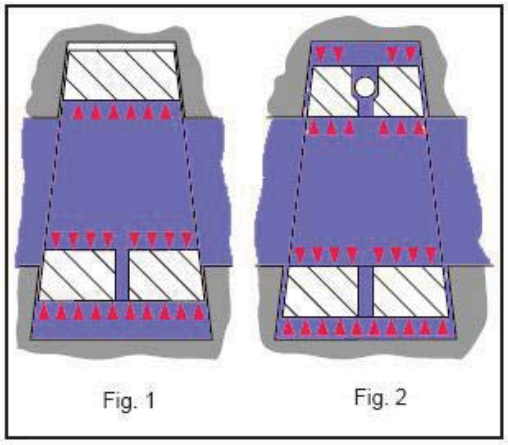
Providing the largest port opening in a trapezoidal configuration. Close to a full port area

VENTURI PATTERN



Having a smaller port than either the regular or short patterns, provides optimized approach and discharge angles, plus smooth flow contours to provide minimum pressure drop.

PLUG BALANCING

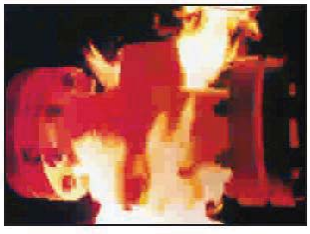


All valves are protected against the possibility of seizure due to taper locking. Taper locking is caused by an imbalance of forces acting on the plug due to line pressure finding its way into the lower part of the plug chamber. As shown by the arrows in Fig.1, the resultant force tends to push the plug upwards, jamming it in its tapered bore, the plug can remain locked even when line pressure is subsequently reduced.

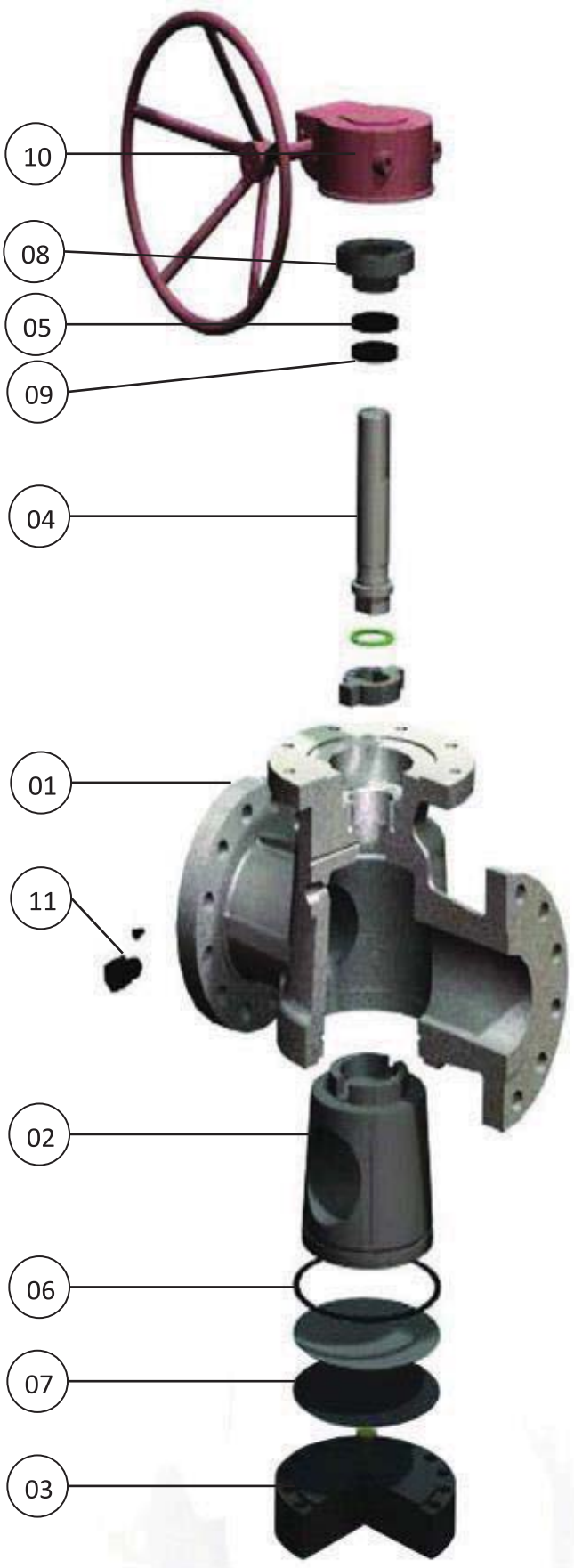
In an attempt to combat taper locking, conventional valves utilize the pressure of the plug sealant, acting on the upper face of the plug, to react against the upwards force. This reduces, but does not eliminate the possibility of taper locking and requires regular sealant injection to maintain valve freedom.

FIRE SAFE

The Metal-to-metal sealing, the diaphragm seating of metal to metal or graphite and the graphite stem seal provides improved features of the valve when subjected to a fire - not only a standard defined fire but also the varying temperatures and durations likely in a real plant fire.



PLUG VALVE FEATURES



1. BODY : Body is as cast and precisely machined for optimum flow path. The body houses the plug which is Sealing member. Body has provision for connection to the pipeline, strength requirement for containment of fluid, seating surface for the plug, lubrication system and stem sealing.

2. PLUG : Plug is precisely machined with ground finish to match the body seat for leak tightness. Grooves are provided for lubrication and sealing purpose. Different flow passage are provided depending upon the requirement.

3. COVER : The cover is put on the bottom of the body with provision of stud and nuts. This cover is designed for maximum pressure and matching the surface of the body.

4. STEM : Stem is provided with burnish finish for lower torque and sufficient strength for smooth operation of the plug.

5. STEM SEAL : Graphite stem seal is provided for leak tightness to atmosphere and for fire safe.

6. GASKET : Gasket is provided between the body and the cover. This provides leak tightness to atmosphere and for fire safe.

7. DIAPHRAGM : Provides additional fire safe sealing for the cover.

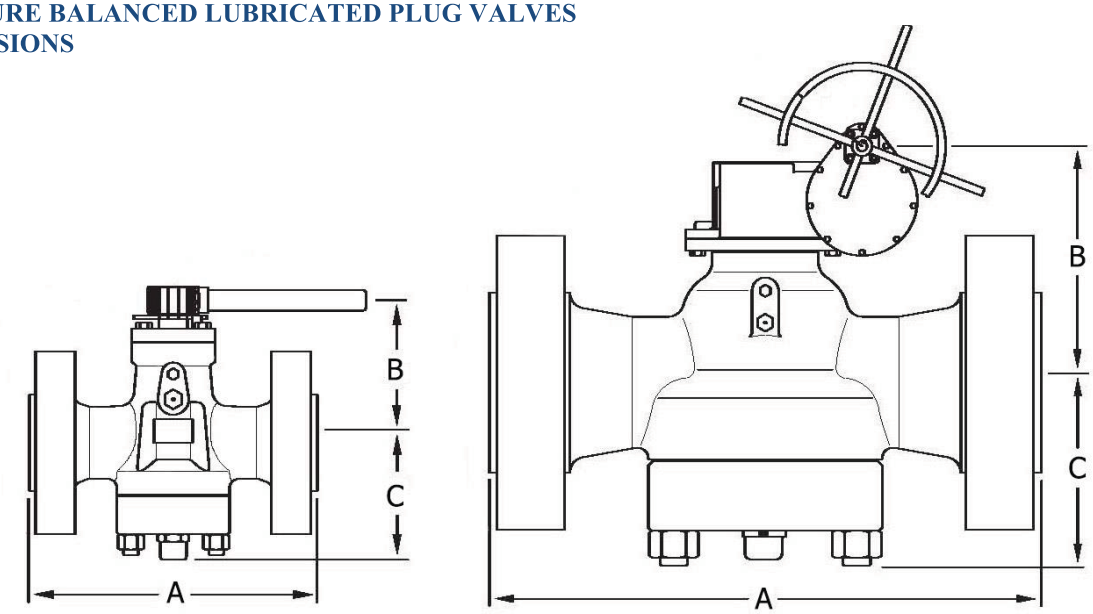
8. GLAND : Gland compresses the stem seal for provides optimum sealing under pressure.

9. O-RING : O-Rings are provided as primary seal between the body and the stem.

10. GEAR BOX : Quarter turn gear box of rigid construction is provided for smooth operation. Various operators are provided like Wrench, Gear, Etc.

11. INJECTORS : Injectors are provided on the body for injecting lubricant in the body and to the stem sealing in case of emergency.

PRESSURE BALANCED LUBRICATED PLUG VALVES
DIMENSIONS



CLASS 150

SIZE		2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
A	SHORT	178	203	229	267	292	330	356									
	REGULAR				394	457	533	610									
	VENTURI						533	610	686	762	864	914	1067	1245	1295	1372	1524
B		178	220	235	265	315	380	460	485	530	585	610	660	710	750	780	795
C		95	105	125	170	215	245	285	295	315	415	460	515	535	580	610	640
Weight (Kg)	SHORT	19	33	52	80	160	245	350									
	REGULAR				95	180	280	400									
	VENTURI						270	390	640	785	885	955	1855	2870	3700	4530	5360

CLASS 300

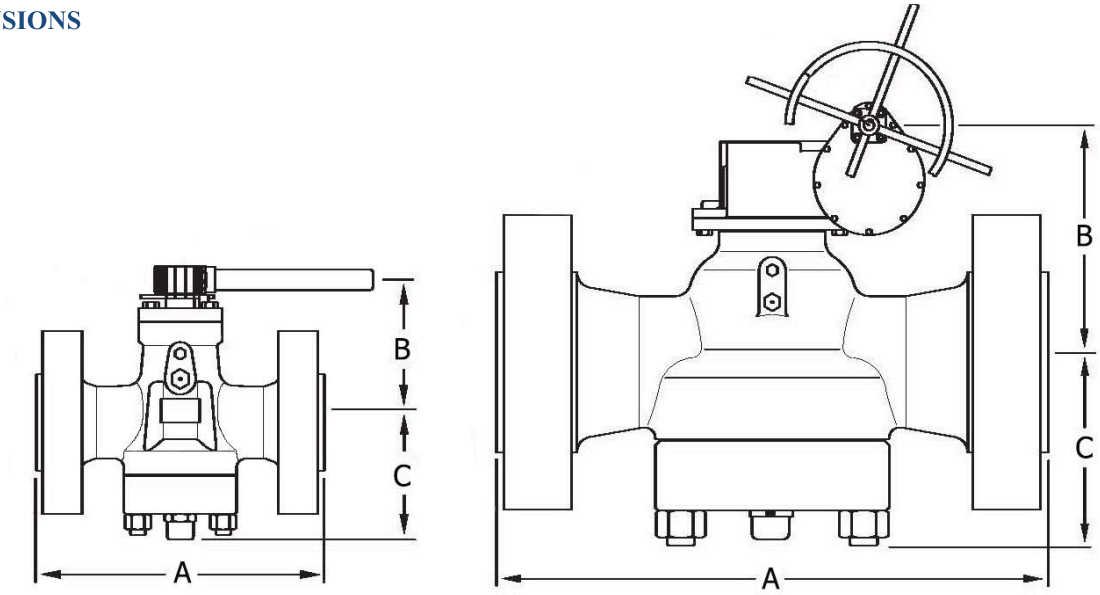
SIZE		2	3	4	6	8	10	12	14	16	18	20	24	28	30	32	36
A	SHORT	216	283	305	403	419	457	502									
	REGULAR				403	502	568	711									
	VENTURI						457	502	762	838	914	991	1143	1346	1397	1524	1727
B		148	168	200	250	290	330	475	385	425	465	640	670	720	760	790	810
C		95	110	135	175	210	245	285	295	315	415	470	525	545	585	620	650
Weight (Kg)	SHORT	21	38	60	85	190	280	430									
	REGULAR				178	276	356	508									
	VENTURI						290	445	795	905	1095	1575	2060	2960	3850	4620	5480

CLASS 600

SIZE		2	3	4	6	8	10	12	14	16	18	20	24
A	REGULAR	292	356	432	559	660	787	838					
	VENTURI				559	660	787	838	889	991	1092	1194	1397
B		148	168	210	295	355	550	400	525	445	500	545	570
C		95	110	135	245	295	315	375	375	430	465	475	495
Weigh t (Kg)	REGULAR	25	48	85	254	405	585	620					
	VENTURI				150	305	440	615	865	1165	1655	1850	2160

■ Above dimensions are in mm. and sizes are in NPS. ■ Weights are relevant to flanged end valves.

PRESSURE BALANCED LUBRICATED PLUG VALVES
DIMENSIONS



CLASS 900

SIZE		2	3	4	6	8	10	12	14	16	18	20	24
A	REGULAR	368	381	457	610	737	838	965					
	VENTURI				610	737	838	965	1029	1130	1219	1321	1549
B		180	220	260	295	360	580	420	535	450	550	565	585
C		135	180	165	255	300	350	405	375	430	465	475	495
Weigh t (Kg)	REGULAR	25	85	125	265	590	660	1295					
	VENTURI				265	590	660	1295	1650	1980	3030	4082	5130

CLASS 1500

SIZE		2	3	4	6	8	10	12	14	16	18	20
A	REGULAR	368	470	546	705	832	991	1130				
	VENTURI				705	832	991	1130	1257	1384	1537	1664
B		180	225	270	425	465	500	565	630	650	730	750
C		135	185	225	275	320	370	430	430	490	530	570
Weigh t (Kg)	REGULAR	65	120	260	510	775	1235	1705				
	VENTURI				510	775	1235	1705	2645	3580	4515	5465

CLASS 2500

SIZE		2	3	4	6	8	10	12
A	REGULAR	451	578	673	914	1022	1270	1422
B		190	235	320	435	490	525	595
C		145	195	250	300	340	390	450
REGULAR		80	155	260	650	1075	1840	2600

■ Above dimensions are in mm. and sizes are in NPS. ■ Weights are relevant to flanged end valves. ■ Dimension B, C & weights are subject to change without notice. ■ For dimensions and weights for other sizes, consult the factory. ■ Dimension L mentioned is for flanged end valves only. ■ Some dimensions standard do not exist, these dimensions are manufacturer standard. ■ End connection of Flanged End Raised Face is Standard. Ring Joint, Butt-Weld end can also be provided on request.

EXTENSION STEM FOR PRESSURE BALANCED LUBRICATED PLUG VALVES FOR BURIED INSTALLATION

Extended stems can also be supplied with wrench operated, Gear operated or actuated, in case of buried installation of the Plug Valve or in case of installation of the valve in plant locations where a normal access of manouvre is not possible. Valve extension for underground service includes piping for lubrication and terminated close to the operator and is supplied with water tight seals.
Extension length should be advised by customer. The position of the Plug is indicated by an indicator on the top of the gear box.

DOUBLE BLOCK AND BLEED TWIN SEAL PLUG VALVE

Double Block and Bleed Twin Seal Plug Valves are perfectly designed for the most demanding service conditions and manufactured according to API 6D. These valves provide true bubble tight double block and bleed feature within a single body.
This Compact Design within the standard API 6D end to end dimension offers both space and weight saving.

The Taper Plug is Pressure Balanced, metal to metal seal with lubrication as a Secondary back up seal.

The advantages of these double block and bleed valves are as follows,

- End connections are offered as per the customer requirements, such as flanged end, Butt-weld end, etc.
- Compact, lightweight alternative to gate valves and ball valves in series.
- Reduced leak paths – eliminates inter-valve pipework on double block and bleed configurations.
- The stem is anti-blowout design with quarter turn maneuverability and low operating torque. The valve can be installed in any position.
- All materials selection is available as per the specifications requirements.

HARD FACING / OVERLAY

Pressure Balanced Lubricated Plug Valves can be supplied with plug taper and body seat hard-surfaced with nickel or cobalt base alloys. The most common damages of valves are either due to abrasion by solids suspensions in the flow lines, or the exposure of main components like Body seat and plug, to the corrosive service.

These hard facing materials provide a protective coating having a low coefficient of friction for easier operation at elevated temperatures. These also serve with excellent resistance to abrasion in iron ore, coal, limestone, copper ore and other water-carried slurries.

In-House HVOF - Tungsten carbide coating carried out on the sealing surface of plug and seat results in abrasion and wear resistant surface which is ground for better sealing.

Moreover the use of electroless nickel plating on plug surface provides more corrosion protection to hydrogen sulphide crack-resistant base metal. Standard ENP is in accordance with ASTM B733 with a minimum 0.003" (75 Microns) thickness, unless otherwise specified in the customer's specification.

SPECIAL TREATMENT ON THE PLUG

Special treatments are done on the plug surface depending upon the application. These features are optional to the valve and are provided as required by the customer's requirement. These special treatments are provided on carbon steel plugs.

- Case Hardening - The case hardening is done to increase only the hardness of the plug surface which is subjected to wearing, making the surface tougher and resistance to impact, but keeping the mechanical properties of the base material unchanged. This increases the life of the plug.

- Antifriction Coating – Antifriction coating on the plug is generally carried out to reduce the friction between the plug and the body seat. PTFE coating is done on the plug surface which results in advantages like, Low Torque, resistance to seizure, wear resistance, less friction between the plug and the body seating surface.

DIFFERENT OPERATORS

Camtech valves can be supplied with manual wrench / gear operation, as well as electric, pneumatic and hydraulic actuators.

PRESSURE TEST DURATION AS PER API 598 & API 6D

VALVE SIZE		TEST DURATION		VALVE SIZE		TEST DURATION	
DN (mm)	NPS (inch)	SHELL	SEAT	DN (mm)	NPS (inch)	SHELL	SEAT
API 598				API 6D			
15 – 50	½ - 2	15 sec	15 sec	15 – 50	½ - 2	2 min	2 min
65 – 150	2 ½ - 6	60 sec	60 sec	65 – 150	2 ½ - 6	5 min	5 min
200 – 300	8 – 12	120 sec	120 sec	200 – 300	8 – 12	15 min	5 min
350 & over	14 & over	300 sec	300 sec	350 & over	14 & over	30 min	5 min

LUBRICANTS / SEALANTS

Camtech valves are designed in a way that no spares will be required, the only minimal maintenance can be quickly done in-line and with the valve under pressure through sealant injection. These sealants are high viscosity fluids, specially produced to seal and lubricate plug valves. Only Camtech supplied and recommended sealants should be used in Camtech valves. The use of a sealant or commercial greases not recommended by us can impair the functioning of the valve and in the worst case seize it completely.

Sealants should be selected based on service media and operating temperature. Sealant is injected into the valve to ensure valve tight shut-off and maintain low torque. These sealants have excellent lubricating properties and great film strength. They supplement Super molykote treatment to reduce friction between the seating surfaces and provide a very effective seal, even at higher line pressures.

Consult factory for recommended sealant for the use.

SEALANT INJECTION EQUIPMENT

All Camtech Pressure Balanced Lubricated Plug Valves are fitted with giant button head sealant injectors positioned at a side feed in the body to ensure quick and easy sealant injection.
Proper injection equipment must be used to inject the sealant. All the injection equipment must be fitted with flexible hoses giving a hook-on connection to the sealant injectors on the valve, enabling a safe set up for the injection operation in just few seconds.

Trolley mounted, pneumatically operated large capacity injector pump can also be used which are suitable for large numbers or sizes of valves, the pump are designed to take few sealant cans. The pump will run when connected to an air supply that could be a compressed air system or an air bottle.

The sealant injection equipment is specialized high pressure equipment and no other injection tools shall be used unless with our recommendation.

The operating conditions must be specified at enquiry stage enabling us to advise which type of sealant is suitable. The sealant is available as a spare part item and can be ordered as cartridges (suitable for hydraulic gun pump) or Drums (suitable for pneumatic pump). For the selection of the correct lubricant, Camtech staff is always available at the customer's request to recommend the suitable lubricant.

QUALITY SYSTEM, INSPECTION AND TESTING.

The CAMTECH Quality Control department verifies all processes from material receipt, in process, to final customer inspection. Major NDT facilities are in-house like the PMI, ultrasonic, to check the material quality and the product quality. All products are supplied with Certified Test Reports including Pressure Testing, NDT, and chemical-physical analysis, along with any other specified test certifications. All of the valves are hydrostatically tested per API 598 / API 6D Standard. A complete range of equipment and instrumentation are available to perform standard and special tests.

In addition to conventional hydrostatic testing, Camtech is fully equipped to carry enhanced gas tests, at ambient, low and high temperatures. Leakages can be verified by means of mass spectrometer and calibrated flow meter for accurate readings.

OTHER ACCREDITIONS

CAM-PBLPV-00 (2014)

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