Transformer Valves Product Summary

2025 Edition

PERMA VALVES

Permanent Reliable !

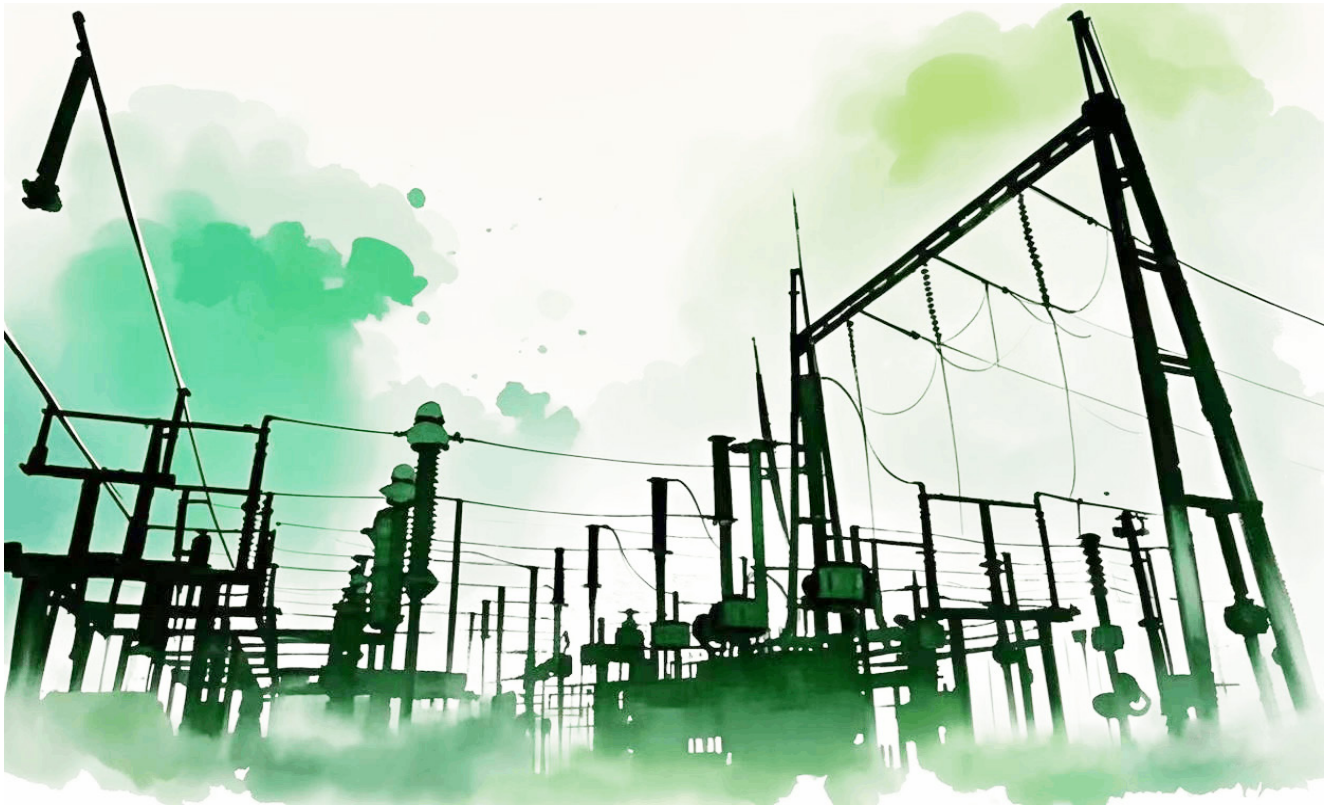
Company Introduction

Hengyang Perma Valves Co.,ltd is a professional transformer valves supplier in China. our products including radiator butterfly valves, drain valves with sampler, sampling device, transformer globe valves, transformer ball valves, transformer gate valves etc. We not only supply our standard valves, but also we can provide customized service for various of our valves .

PERMA VALVES considers product quality and customers' requirements as our highest priority. We always strive to better serve our valued customers. We work hard in combining our customer’s interests with our own. We respect and treasure employees' hard work and share with them the value created by the whole team. We conform to the latest industry standards and place emphasis on managerial, technical and technological innovation. We are looking forward to working with more customers worldwide, creating value together.

PERMA VALVES mainly export valves to the countries in North America, South America, Middle East, South East Asia, East Asia, mainly serve for transformer making industry, transformer repair and maintenance projects, transformer refurbishment projects . we can offer in time delivery for the various needs of our customers.the company name as well as the brand name "Perma" was derived from our business aspiration that keep the satisfaction of our users permanently, and rely on quality first mindset the valves we supply are permanent reliable.

Our company not only make our own brand valves, we also make valves with clients' own brands. We looking for cooperating with agents or distributors from all over the world for marketing of our own brand.



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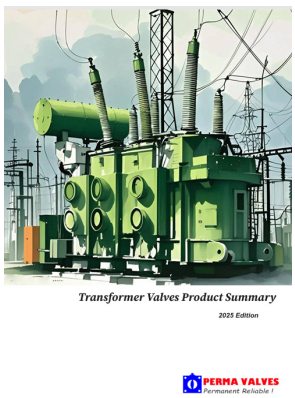
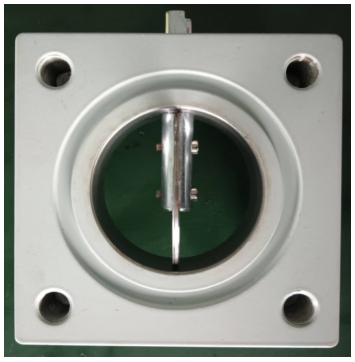


2025 Edition (Current Edition)

General Introduction

Butterfly valves are widly used valves in oil immersed transformers and gas insulated transformers. Due to their simple structure, easy installation, easy operation, small space occupation, and great cost advantages, they are usually the first - choice valves for the radiator pipes of oil immersed transformers. Common butterfly valves for transformer radiator pipes are divided into two types. One is a metal to metal seated butterfly valve with a symmetrical mid- line structure and all-metal sealing. The other is a single-eccentric structure butterfly valve with a rubber sealing ring installed on the butterfly plate. The two types of butterfly valves have their own characteristics.



For the metal to metal seated butterfly valve, due to its symmetrical mid - line structure and the metal disc of the butterfly plate, the resistance coefficient is small, and the transformer oil can pass through smoothly. Since its passage is all - metal sealed, there is no need to worry about the aging problem of the rubber sealing ring, and its service life can be as long as several decades. However, because its sealing method is metal - to - metal sealing and it adopts a mid - line structure, it is difficult for this butterfly valve to achieve zero leakage. There are relatively lenient maximum allowable leakage standards in the BS/EN50216 - 8 standard for reference.

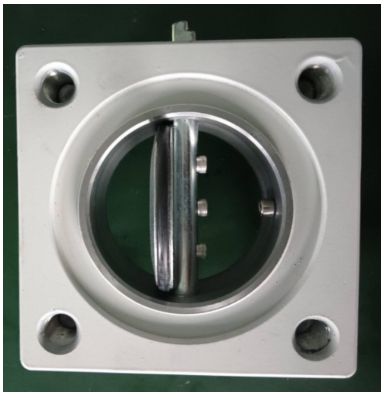
6.2 Tightness of the butterfly blade

Leakage is admitted at the closed butterfly; the following Table 2 shows the admitted leakage according to the nominal diameter. The values of Table 2 apply with oil at 20 °C, 100 kPa and viscosity of 30,5 cSt.

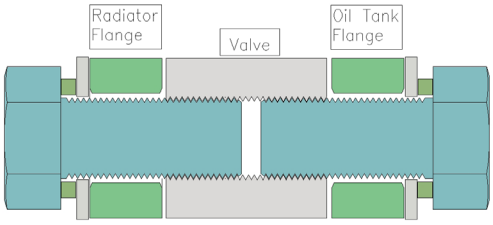
Table 2 – Maximum admissible leakage value

Nominal diameter of valve in mm	**≤ 100**	**>100 - ≤175**	**>175**
Admitted leakage in dm^3/h measured in 1 hour	≤ 0,5	≤ 1,0	≤ 2,0

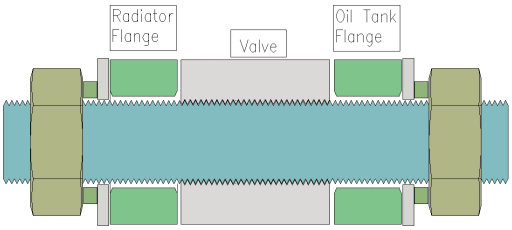
The single - eccentric soft - seal butterfly valve, also known as the vacuum butterfly valve, can achieve complete zero leakage and even vacuum sealing because there is an oil - resistant rubber sealing ring on the butterfly plate. Its weakness is the problem of sealing failure caused by the aging of the rubber sealing ring on the butterfly plate after many years. Our company has been continuously conducting research and development and experiments, optimizing the structure and screening out high - performance seals through strict tests such as hot transformer oil tests and UV aging tests on materials.



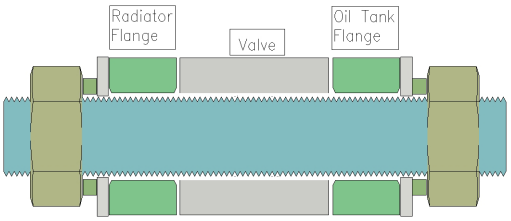
Different Bolting Assembly Method



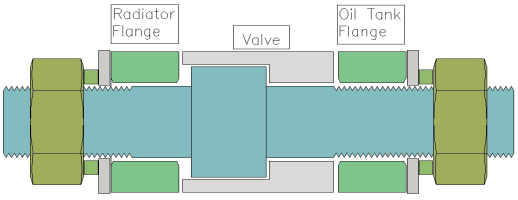
Type: BA1. Hex. headed Screw install from both sides this type of installation suitable for our full thread type bolting holes. When install ation or disassembly the radiators,there will be no influnce on another side of screw. it will be easy for both installation and disassembly. our valve body thickness is about 35 ~ 40mm for 3"(80), it is a installation method by Perma Valves.



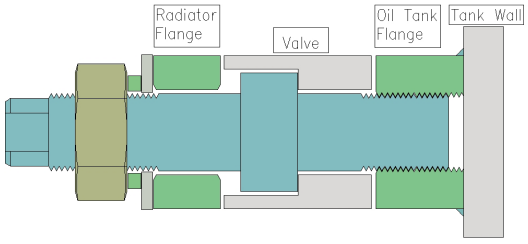
Type:BA2. Full threaded bolts vs full thread bolting holes,when fast -en the nut from one side another side nut shall be fixed to avoid rotat ion of bolt. This type of installation suitable for thin valve body.



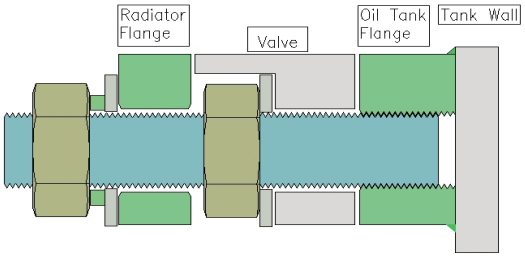
Type:BA3. Full threaded bolts vs through bolting hole,Same as BA2, when fasten the nut from one side , another side nut shall be fixed to aviod rotation of bolts.



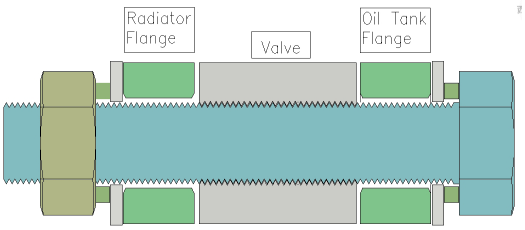
Type:BA4. This bolting hole is though type bolting hole with oval counter sunk hole. the bolt is special made,with oval shaped bulge in middle of the bolt. the advantage of this bolt is, when fasten the nut from one side, the bolt will not rotate, and the nut on another side will not losen.



Type:BA5. This bolting hole is though type bolting hole with round concentric sunk hole, the sunk hole is biger than though bolting hole. the bolt with round shaped bulge in middle, and with a tail on the end of bolt.the tail with flat face on both side for wrench.This type of bolts and bolting hole mainly install on the type of flange with threaded bolt ing holes, and directly weld on transformer tank wall.



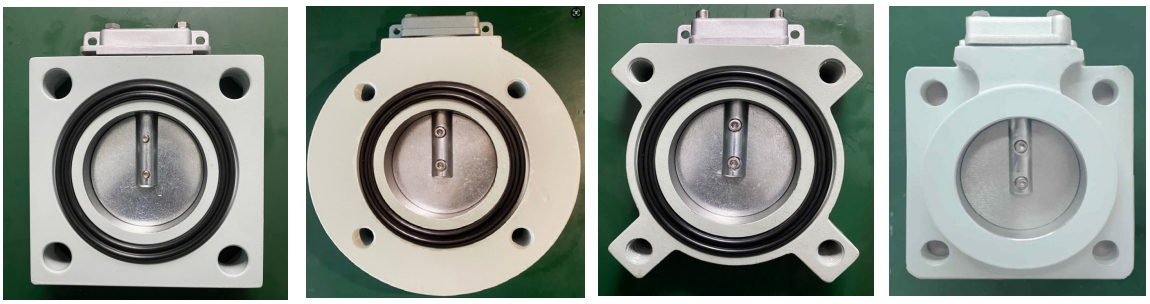
Type:BA6. This installation only available for ourdie casting version radiator butterfly valve. Bolting hole is through type, the bolting area valve body is thin,so there are romms for the nuts.this type of install- -ation mainly suitable for the tank flange direct weld on transformer tankwall, rather than through a tube.



Type: BA7. Hex. headed Screw install from tank side flange, this type of installation suitable for our full thread type bolting holes.When installation or disassembly the radiators,it is very convienent.However when the radiators been installed, and fasten the nuts, the bolts may rotate, in this case, a wrench to fix the hex head of bolt is necessary, This type is easier for radiator installation when compare with BA-1.

Metal Seated Butterfly Valve

Shapes of butterfly valves(Square, Round, X shape, Retangle)



Body Material: Carbon steel, Stainless Steel, Ductile Iron
Design and testing standard: BS/EN50216-8
Suitable temperature: -30~80℃ /120℃, -46~80℃ /120℃, -60~ 120℃
Locking: Option
Standard coating grade:C4, (C5,C5M, CX available on our Marine enviroment series)
Customize :Available

Options of shaft sealing (assembly inside of the valve, resistant to transformer hot oil shall be take into consideration)
NBR HNBR Suitable temperature -30/-45-~105℃ economical
Braided PTFE Packing -50~160℃ Good sealing property, be resistant to aging, economical
Viton -20~180℃
Fluorosilicon Rubber -60~250℃

Options of Flange gaskets (assembly between transformer tank flange and radiator flange, resistant to transformer hot oil , and UV light resistance shall be take into consideration)

NBR/HNBRSuitable temperature -30/-45-~105℃ economical, disadvantage: Poor resistance to UV aging. Not recomand to be Flange gaskets, except indoor installation where sunshine can not reach.
ACM Rubber: -30~105℃ resistant to UV aging, recomand
Viton -20~180℃
Fluorosilicon Rubber -60~250℃

Dimensions Table. for dimensions out of this table please contact Perma sales

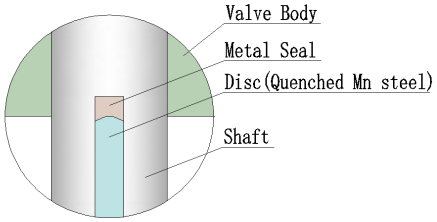
Dimensions	OD	PCD	Thickness	Gasket groove	Bolting type	Bolting Quantity	Bolting Hole		
							Metric	None-tapped hole	UNC
DN25 1″ Round	Φ115	85	35	with/without	TH/FT	4	M12	Φ14	1/2″UNC
DN40 1.5″ Square	90*90	85	35	with/without	TH/FT	4	M12	Φ14	1/2″UNC
DN50 2″ Square	125*125	125	35	with/without	TH/FT	4	M12	Φ14	1/2″UNC
DN50 2″ Round	Φ165	125	35	with/without	TH/FT	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	150*150	160	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	160*160	160	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	150*150	150	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Round	Φ200	160	40/35	with/without	TH/FT/AR/XP	4 or 8	M16	Φ18	5/8″-11UNC
DN80 3″ X shape	-	160	40/35	with/without	FT	4	M16	Φ18	5/8″-11UNC
DN100 4″ Square	170*170	180	40	with/without	FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN100 4″ Round	Φ220	180	40	with/without	FT/AR	8	M16	Φ18	5/8″-11UNC
DN125 5″ Round	Φ250	210	45	with/without	FT/AR	8	M16	Φ18	5/8″-11UNC
DN125 5″ Round	Φ235	200	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN150 6″ Round	Φ285	240	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN175 7″ Round	Φ315	270	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN200 8″ Round	Φ340	295	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN250 10″ Round	Φ395	350	50	with/without	FT/AR	12	M20	Φ23	3/4″-10UNC
DN300 12″ Round	Φ445	400	60	with/without	FT/AR	12/16	M20	Φ23	3/4″-10UNC
DN350 14″ Round	Φ500	460	70	with/without	FT	16	M20	Φ23	3/4″-10UNC

Metal to Metal Seated Radiator Butterfly Valve

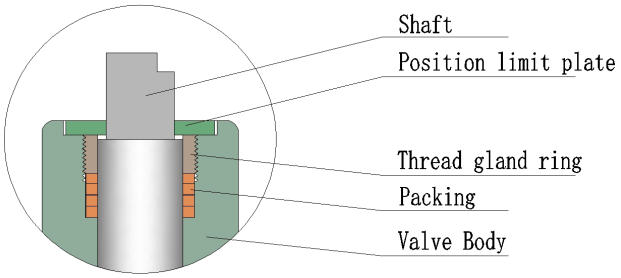
Design Feature and advantages

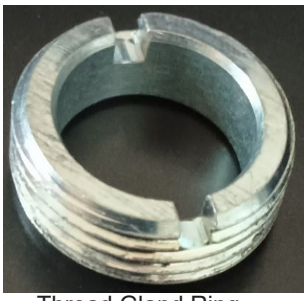
Perma valves staff pay highly attention on the aging and anti-corrosive issues of transformer valves, when design the radiator butterfly valves, we had done a lot of tests on different sealing materials, such as UV aging tests, Ozone aging tests, most important hot transformer oil tests. when we design the metal to metal seated radiator butterfly valves, we had take long service life as the most important target. Following are our basic design features which make sure long term reliable service.

1. Shaft & disc Sealing
Shaft & disc sealing area is the joint of disc and forked shaft, it is a place where leakage easy happend. most of radiator butterfly valve manufacturers use rubber as sealing material here. Our sealing material here is soft metal extrusion seal, which aging problem will never happen here. Our disc material is chilled spring steel.



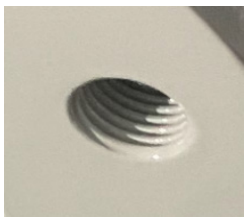
2. Stem Packing Design
Our Stem sealing design is rely on valve stuffing box, this sealing design is popular in high pressure general industrial valves, it turn out to be a very reliable design. On one hand, by fastner the screwed gland ring, the sealing materials been compressed tightly and form as vacuum tight sealing. on the other hand, the sealing materials can be replace in case of aging, after many years of using. and besides, the sealing material can be braided PTFE packing, which is a durable material with good sealing property. compare with the design shaft with O-ring grooves, our shaft seals can be with higher compress rate and adjustable, replaceable features.



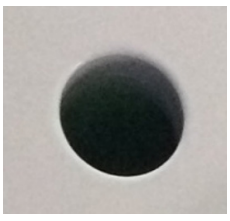

Thread Gland Ring

3. Multiple bolting hole design of choose
In order to suit different design of transformer tank and radiator flanges, we can supply butterfly valves with different type of bolting holes.

A. Full threaded Bolting hole. (**FT** type)

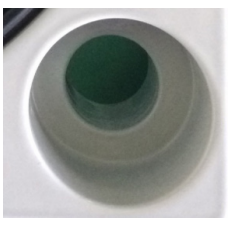


B. Through type Bolting hole (**TH** type)



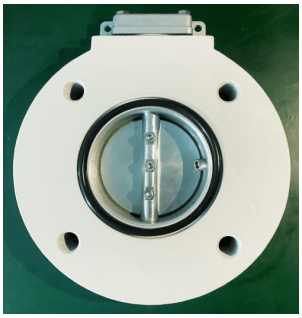
C. Elliptical sunken anti-rotation bolting hole (**AR** type)

D. Round sunken concentric bolting hole (**XP** type)



Vacuum Tight Butterfly Valve

Shapes of butterfly valves(Square, Round, X shape, Retangle)


Body Material: Carbon steel, Stainless Steel, Aluminum, Brass, etc.
Testing : Vacuum test - 0.1Mpa, Air test 0.6Mpa
Suitable temperature: -30~80℃ /120℃ , -46~80℃ /120℃ , -60~ 120℃
Locking: Option
Standard coating grade:C4, (C5,C5M, CX available on our Marine enviroment series)
Customize :Available

Options of shaft sealing (assembly inside of the valve, resistant to transformer hot oil shall be take into consideration)
NBR HNBR Suitable temperature -30/-45-~105℃ economical
Braided PTFE Packing -50~160℃ Good sealing property, be resistant to aging, economical
Viton -20~180℃
Fluorosilicon Rubber -60~250℃

Options of Flange gaskets (assembly between transformer tank flange and radiator flange, resistant to transformer hot oil , and UV light resistance shall be take into consideration)

NBR/HNBRSuitable temperature -30/-45-~105℃ economical, disadvantage: Poor resistance to UV aging. Not recomand to be Flange gaskets, except indoor installation where sunshine can not reach.
ACM Rubber: -30~105℃ resistant to UV aging, recomand
Viton -20~180℃
Fluorosilicon Rubber -60~250℃

Options of disc sealing ring
NBR HNBR Suitable temperature -30/-45-~105
Viton -20~180 ,Fluorosilicon Rubber -60~250

Dimensions Table. for dimensions out of this table please contact Perma sales

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							Metric	None-tapped hole	UNC
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DN40 1.5″ Square	90*90	85	35	with/without	TH/FT	4	M12	Φ14	1/2″UNC
DN50 2″ Square	125*125	125	35	with/without	TH/FT	4	M12	Φ14	1/2″UNC
DN50 2″ Round	Φ165	125	35	with/without	TH/FT	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	150*150	160	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	160*160	160	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Square	150*150	150	40/35	with/without	TH/FT/AR/XP	4	M16	Φ18	5/8″-11UNC
DN80 3″ Round	Φ200	160	40/35	with/without	TH/FT/AR/XP	4 or 8	M16	Φ18	5/8″-11UNC
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DN125 5″ Round	Φ250	210	45	with/without	FT/AR	8	M16	Φ18	5/8″-11UNC
DN125 5″ Round	Φ235	200	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN150 6″ Round	Φ285	240	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
DN175 7″ Round	Φ315	270	45	with/without	FT/AR	8	M20	Φ23	3/4″-10UNC
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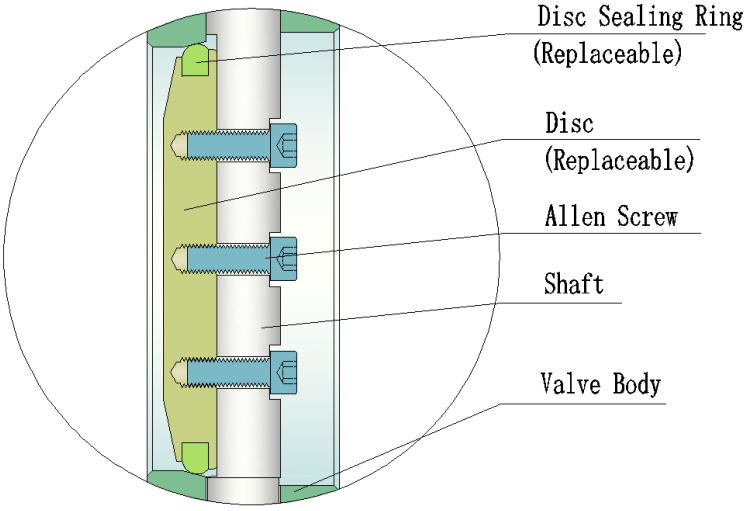
DN300 12″ Round	Φ445	400	60	with/without	FT/AR	12/16	M20	Φ23	3/4″-10UNC
DN350 14″ Round	Φ500	460	70	with/without	FT	16	M20	Φ23	3/4″-10UNC

Vacuum tight Radiator Butterfly Valve

Design Feature and advantages

Vacuum tight radiator butterfly valve is very different from metal to metal seated radiator butterfly valves. the structure is valve shaft and disc offset,that means the disc is located on onside of the shaft.and there is a rubber sealing ring on the disc. this disc rubber sealing ring makes the valve disc sealing can be vacuum tight. due to rubber seals always have to take aging issue into consideration, our design have take replaceable rubber sealing parts into consideration, so when the rubber seals have aging problem after many years of using, users can replace the rubber seals on site. on one hand it can be save cost for the user, on the other hand, replace the sealing parts is easier and time saving when compare with replace new valves.

1. Replaceable Disc and disc sealing Ring
The disc is fixed with the shaft by allen screws when the disc in full open position, the disc can be dis-assembly by unfasten the allen screws. then the disc can be pull out. the old disc seal ring can be pick out by tools, then replace the new sealing ring on the disc.



2. Stem Packing Design
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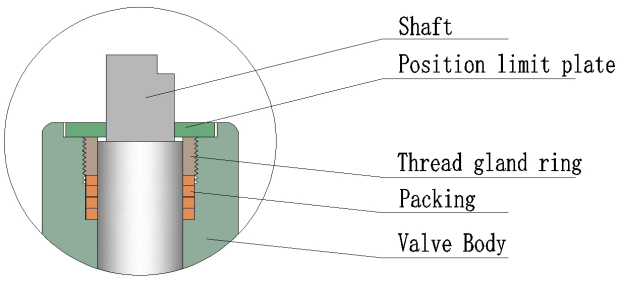
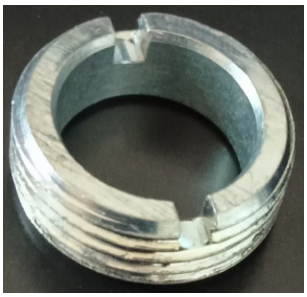




Thread Gland Ring

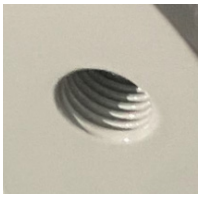
3. Multiple bolting hole design of choose
In order to suit different design of transformer tank and radiator flanges, we can supply butterfly valves with different type of bolting holes.

A. Full threaded Bolting hole. (**FT** type)

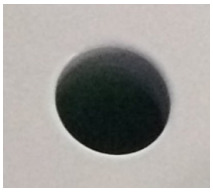
B. Through type Bolting hole (**TH** type)

C. Elliptical sunken anti-rotation bolting hole (**AR** type)

D. Round sunken concentric bolting hole (**XP** type)

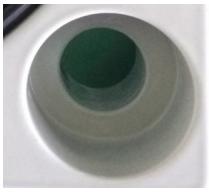


FT



TH

AR

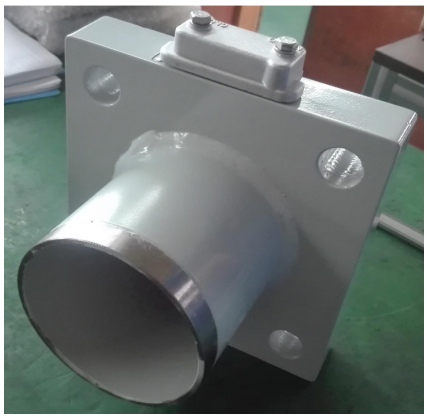


XP

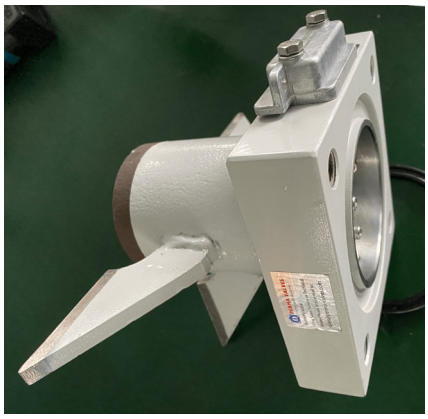
Welding Type Radiator Butterfly Valve

Most of the time the radiator Butterfly Valve been installed between transformer tank flange and radiator flange, and there are 2 rubber gaskets on both side of the radiator butterfly valve. Rubber gaskets have good sealing property, but aging issue always a problem for transformer industry. the hot transformer oil, UV light (sunshine), Ozone(trioxygen),rubber compress or other enviroment issues always cause aging of the rubber seals. Every time when transformer need repare or need replace radiators, the valve shall be shut off. but if the rubber gasket between transformer tank flange and the radiator butterfly valve have problem of leakage, it will be very difficult to replace due to the transformer tank is full of transformer oil. Welding type radiator butterfly valve will avoid this problem. welding type radiator butterfly valve is connected to transformer tank by a tube and sealed by welding. Perma valves supply welding type radiator butterfly valves for both metal to metal seated and vacuum tight.

Metal to metal seated / Vacuum tight



Welding tube without supports



Welding tube with supports

Body Material: Carbon steel, Stainless Steel,
Testing : Vacuum test - 0.1Mpa, Air test 0.6Mpa
Suitable temperature: -30~80℃ /120℃ , -46~80℃ /120℃ , -60~ 120℃
Locking: Option
Standard coating grade:C4, (C5,C5M, CX available on our Marine enviroment series)
Customize :Available， tube with supports or without.

Options of shaft sealing (assembly inside of the valve, resistant to transformer hot oil shall be take into consideration)
Braided PTFE Packing -50~160℃ Good sealing property, be resistant to aging, economical
Viton -20~180℃
Fluorosilicon Rubber -60~250℃
Welding type radiator butterfly valve required long service life,and maintanance free.when select stem packing material, on one hand we should select the material with long service life, on the other hand the material have to be replaceable and easy to replace.

Options of Flange gaskets (for welding type radiator butterfly valve, the valve body is welding with transformer tank with a tube, there is no flange gasket on inlet of radiator butterfly valve. there is only one gasket on butterfly valve outlet which contact with radiator flange. the gasket have to be resistant to transformer hot oil , and UV light resistance shall be take into consideration)

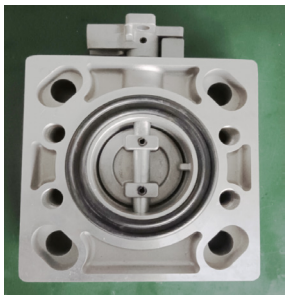
NBR/HNBR Suitable temperature -30/-45-~105℃ economical, disadvantage: Poor resistance to UV aging. Not recomand to be Flange gaskets, except indoor installation where sunshine can not reach.
ACM Rubber: -30~105℃ resistant to UV aging, recomand
Viton -20~180℃
Fluorosilicon Rubber -60~250℃

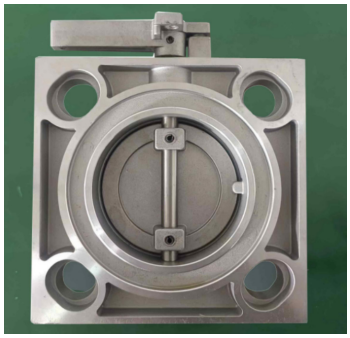
Disc sealing Ring: For welding type radiator butterfly valve, the sealing ring shall be durable and replaceable, due to the valve body weld together with transformer tank, the valve service life shall be equal to the transformer life circle. when if the disc sealing ring aged after many years of using, the disc sealing ring shall be replace to gain new service life.

Welding tube dimensions: 2", 3", 4", or other customized dimensions.

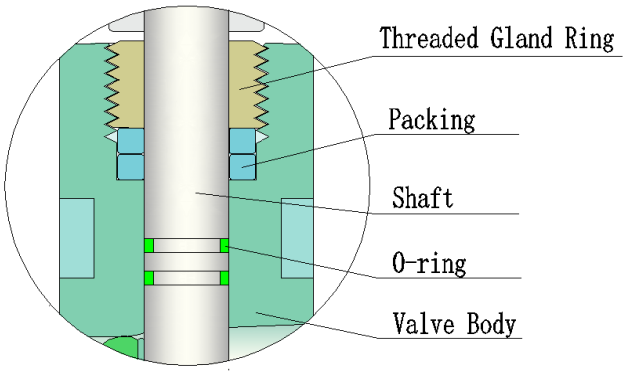
Die Casting Aluminum Radiator Butterfly Valve

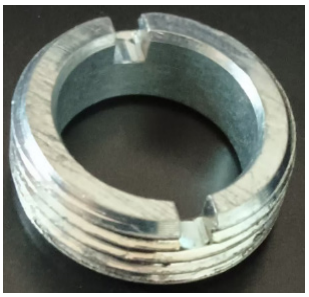
the major parts of Aluminum radiator butterfly valves are die cast aluminum parts. which is very light, easy installation and cost saving. Alumimum radiator butterfly valves belongs to vucuum tight.





1. Stem Packing Design
Perma Aluminum radiator butterfly valve stem sealing design with double seals, on the top there is a stuffing box, by fastner the screwed gland ring, the sealing materials been compressed tightly and form as vacuum tight sealing. the sealing materials can be replace in case of aging, after many years of using. on lower position, there are 2 O-rings on shaft, which makes the shaft sealing more reliable.





Thread Gland Ring

Stainless Steel Casting form Radiator Butterfly Valve WN80, Vacuum tight

Material: Cast Stainless Steel Grade 304/316
DN80/3" PCD160
Thickness: 40mm
Bolting Hole diameter: 18mm
Installation type. BA6
Rubber seals: NBE/ ACM/VITON etc.

Customzied Butterfly Valves

Perma Valves provide customized services for some of our products, in many transformer repair or refurbishment projects, the valves need to replace. while the origina! manufacturer of the valve is no longger able to provide thesame products, especially some transformers have already run for several decades, in this case, you can send theinformation of the old valve to us, with the information like valve material, dimensions of flange, working temperat. ure and enviroments. Our engineers will workout a solution and provide a drawing of new valve which can be repl. ce the old valve, and our sales person will make quotation for the customized valve.Following photos are some ofthe cases and examples.

Radiator Butterfly Valves for High Corrosive Application (C5, C5M)

Corrosive and aging issues are the most common problems for radiator butterfly valves. Perma pay great attention to solve these problems, and most important is, we always seeking economic solutions. we provide the products with reliable quality as well as competitive costs.

Whether in coastal areas or offshore regions, the corrosion of metal equipment by salt spray is inevitable. Therefore, we have developed corrosion resistant butterfly valve products for the marine salt corrosion environment.We subject the products to special treatments to enable them to remain stable in a salt spray environment for a long time. For the treated products, different treatment methods can respectively pass the neutral salt spray test for 1000 to 1500 hours. Normally when the products for marine enviroment, the first choice will be stainless steel and bronze. these materials have good corrosion resistant property , but these materials also means higher costs . Perma developed corrosion resistant radiator butterfly valves with steel valve body, and the valve body with Hot dip galvanized treatment or with **Dacromet** treated, then the surface coated with fusion bonded polyurethane, and then add a salt spray resistant and UV resistant **Fluorocarbon** paiting as top coating. with such treatment, the valve with very good corrosion resistant in matine enviroment.

Hot Dip Galvanized thickness test

HDG valve Before Painting

Coating corrosion resistant property compare vs Advantages and dis-advantages

Dacromet: Dacromet's main components usually include zinc flakes that form a protective layer, aluminum flakes enhancing coating compactness and stability, chromate compounds acting as binders and corrosion inhibitors and reacting with zinc and aluminum flakes, and organic components improving processing performance and flexibility.
advantage:good looking, good resistant in marine environement, good painting adhesion. can be done many layers. 4 layers dacromet treated steel parts salt spray test can be 1000+ hours. with extra painting, the salt spray test time can be much longger, even double.
disadvantage: costs high.

Hot dip galvanized:
advantage: economy, Thickness 75~120 μm. good resistant in marine environement, 90μm HDG steel parts salt spray test can be 1000+ hours, with extra painting, the salt spray test time can be much longger.
dis-advantage: not good looking, MOQ no less than 300 sets. thread bolting holes without HDG.

Fusion Bonded Ployurethane +Fluorocarbon Coating: UV (sunshine)resistant, protect dacromet layers or HDG

Ball valves are widly used in oil filled transformers, it can be as drain valves, as well as radiator valves. there are 2 PTFE seats on both side of the valve ball, the seats are tightly contact with valve body and ball, form as reliable sealing. It allows for a smooth and unrestricted flow of media through the valve. Since the valve's passage has a consistent diameter with the pipeline in full - port designs, there is minimal resistance to the flow. Perma Valves supply wide range of ball valves, specify by different connections, different structure. basicly we specify our ball valves based on different connections. Most widly used is flange type, then thread ends and welding type.

Flanged Type Ball Valve

Flange type connection is most popular in industrial pipe connections, it is easy for installation and easy for replacement and maintanance. Perma Flanged ball valves are divided into 1 piece valve body, 2 pieces valve body, 3 pieces valve body . 1 piece type valve body is normally reduce bore, 2 pieces and 3 pieces body normally full bore.

Body Material: Carbon steel, Stainless Steel, Brass, Bronze
Flange standard: EN1092, GOST 12815,ASME B16.5
Suitable temperature: -30~160℃, -46~160℃, -60~ 160℃
Locking: Option
Standard coating grade:C4
EN/DIN/GOST Sizes: DN15,DN20,DN25,DN40,DN50,DN80,DN100,DN150,DN200
ASME Sizes: 1/2", 3/4", 1", 1.1/2",2", 3", 4", 6", 8"
Customize :Available

Threaded Type Ball Valves
Thread type Ball valves are ball valves with NPT or BSPT/BSP/G thread on both sides, mainly female thread, but male thread also available. Valve construction can be 1 piece body, 2 pieces body and 3 pieces body.

Body Material: Carbon steel, Stainless Steel, Brass, Bronze
Suitable temperature: -30~160℃, -46~160℃, -60~ 160℃
Locking: Option
Standard coating grade:C4 , stainless steel products without coating
EN/DIN/GOST Sizes: DN15,DN20,DN25,DN40,DN50,DN80
ASME Sizes: 1/2", 3/4", 1", 1.1/2",2", 3",
Customize :Available

Welding type Valve

Welding type ball valves normally with welding tubes, can be BW welding or Socket welding. we usually chose 3 pieces type as welding type ball valve.

Available materials: carbon steel, stainless steel
Availabel sizes: DN15,DN20,DN25,DN32,DN40,DN50,DN80
NPS:1/2",3/4",1",1.1/4",1.1/2",2",3"
Welding type: Butt welding, socket welding

3 Way Ball Valve

3 way ball valves are the valve with 3 connections, and 3 passages. the ball can be T port or L port, by control the direction of ball, the fluid can be distribute according to seting status. 3 way ball valves also can be flange connection and thread connection.

Flanged Type
Available materials: carbon steel, stainless steel
Availabel sizes: DN15,DN20,DN25,DN32,DN40,DN50,DN80,DN100,DN150,DN200
NPS:1/2",3/4",1",1.1/4",1.1/2",2",3",4",6",8"
Flange standard: ASME B16.5, EN 1092, GOST 12815/33295
Suitable Temperature: Carbon Steel: -30~160℃, Stainless Steel: -46~160℃,

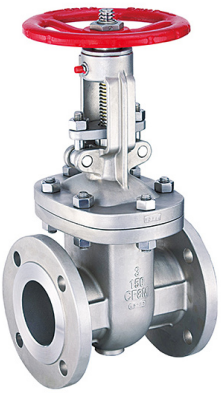
Thread ConnectionType
Available materials: carbon steel, stainless steel
Availabel sizes: DN15,DN20,DN25,DN32,DN40,DN50,DN80,
NPS:1/2",3/4",1",1.1/4",1.1/2",2",3"
Thread Type: NPT thread, BSP/BSPT thread, G thread etc.
Suitable Temperature: Carbon Steel: -30~160℃, Stainless Steel: -46~160℃,

Stainless Steel Gate Valves & Carbon steel Gate Valve & Bronze Gate Valve

1. Thread ends Stainless steel Gate Valves & Carbon steel Gate Valves

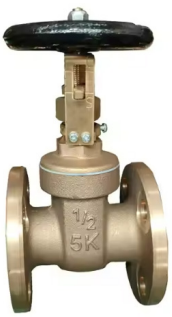

2. Flange ends Stainless steel Gate Valves.





3. Thread ends Brass/bronze Gate Valves

4. Flanged ends Brass/ Bronze Gate Valves


Due to gate valve series with many different types, connections there are flange type and thread ends, Bonnet design there are OS&Y type and inside screw type, there are thread connection bonnet and bolted bonnet, the materials of valve also can be various. we do not display all details in this summary catalogue. in case of gate valves inquiry please contact our sales staff.

Stainless Steel Globe Valve & Carbon Steel Globe Valve & Bronze Globe Valves

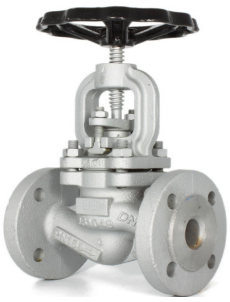
Globe valve is a popular choice when transformer designers select drain valves of transformer. Globe valve is the best choice of drain valve due to it's special fluid passage structure. the fluid get into the valve from inlet, then move upward through the valve seat then arrive the room of outlet,with this structure bubbles will be difficult to get into the transformer tank during oil drain process. Perma Valves supply both thread ends globe valves and flange ends globe valves, we can also customize welding type globe valve, which directly weld with transformer tank. some of the globe valves will be show on our drain valves catalogue pages due to those are widely used as drain valve in transformer industry.

1. Thread Ends Stainless Steel Globe Valves & Bronze Globe Valves




2. Flanged Stainless steel Globe Valves & carbon steel Globe Valves





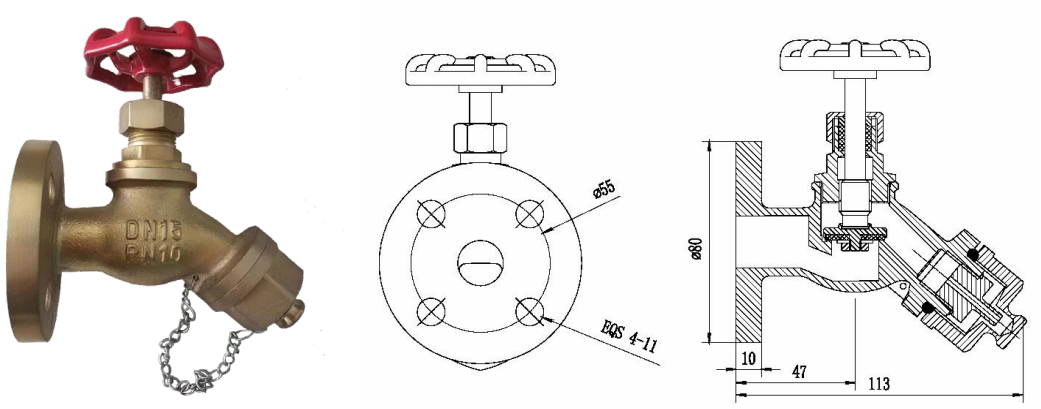

3. Bronze / Brass Globe Valves



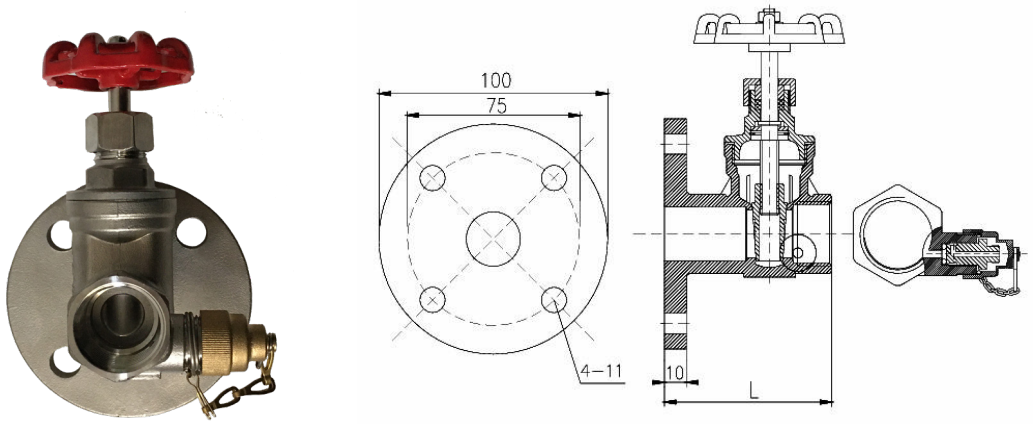
Globe Valve locking device & position indicator


The oil drain valve of an oil - immersed transformer is a vital component for its maintenance and operation. It drains the insulating oil during maintenance, repair or component replacement, enabling safe and efficient oil removal from the transformer tank to support maintenance tasks. The best drain valve type is globe valve due to it's structure avoid bubbles come into the transformer tank. while Ball valves and Gate Valves are also windly used as drain valve due to the oil drain efficient is high. Following drain valves are most popular types in international market.

1. DIN 42568 standard Brass drain valve (with oil sampling nipple)



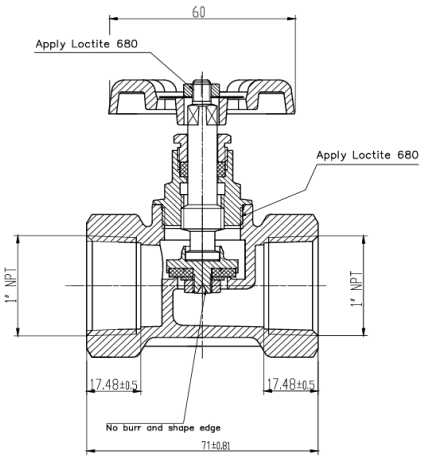
2. Stainless steel Gate valve type drain valve with oil sampler DN25

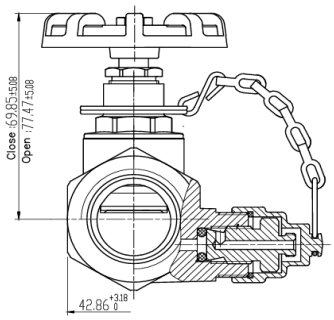


3. Ball Valve type Single flange drain valve

Available dimensions: NPS 1/2" ,1",1.1/2",2",3",4" DN15,DN25,DN40,DN50,DN80,DN100
Available materials: Carbon Steel, Stainless Steel
Locking device: with/without
Inlet: Flange ASME B16.5/ EN1092/GOST 33259

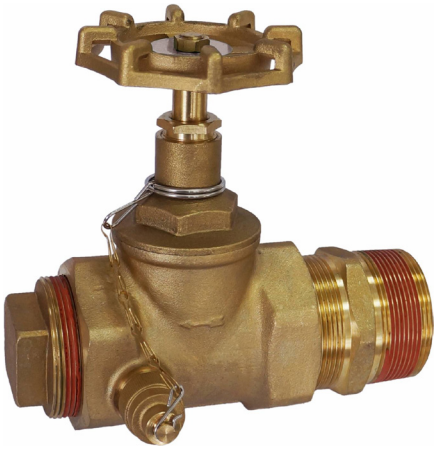
1. NPT thread ends Drain valve with oil sampler 1" forged brass

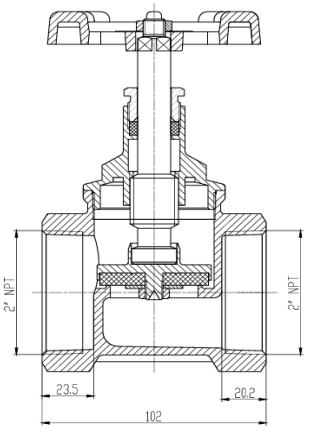


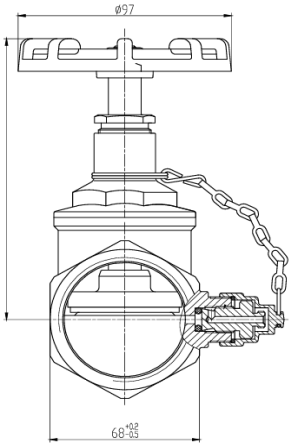


Material: Forged brass
Connection fitting: Brass / Stainless Steel
End plug: Brass / Stainless Steel

2. NPT thread ends Drain valve with oil sampler 2" forged brass





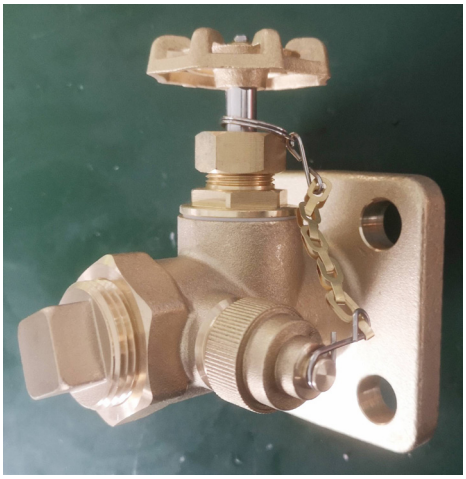


Material: Forged brass
Connection fitting: Brass / Stainless Steel
End plug: Brass / Stainless Steel

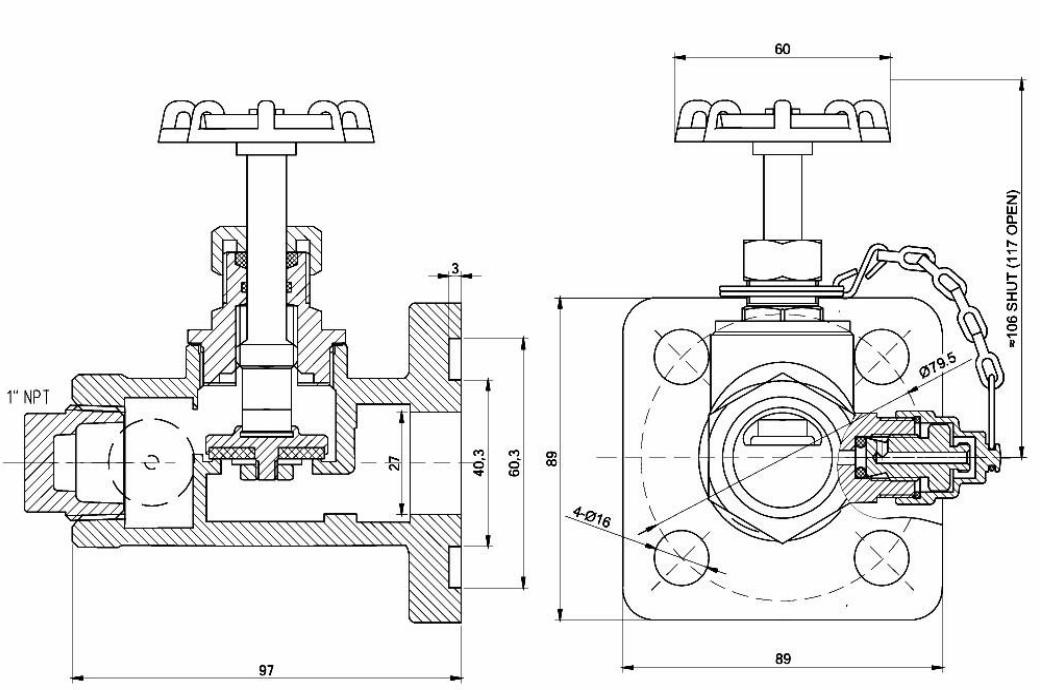
3. Brass Drain Valve without oil sampler

Square flange Drain valve with oil sampler / without sampler

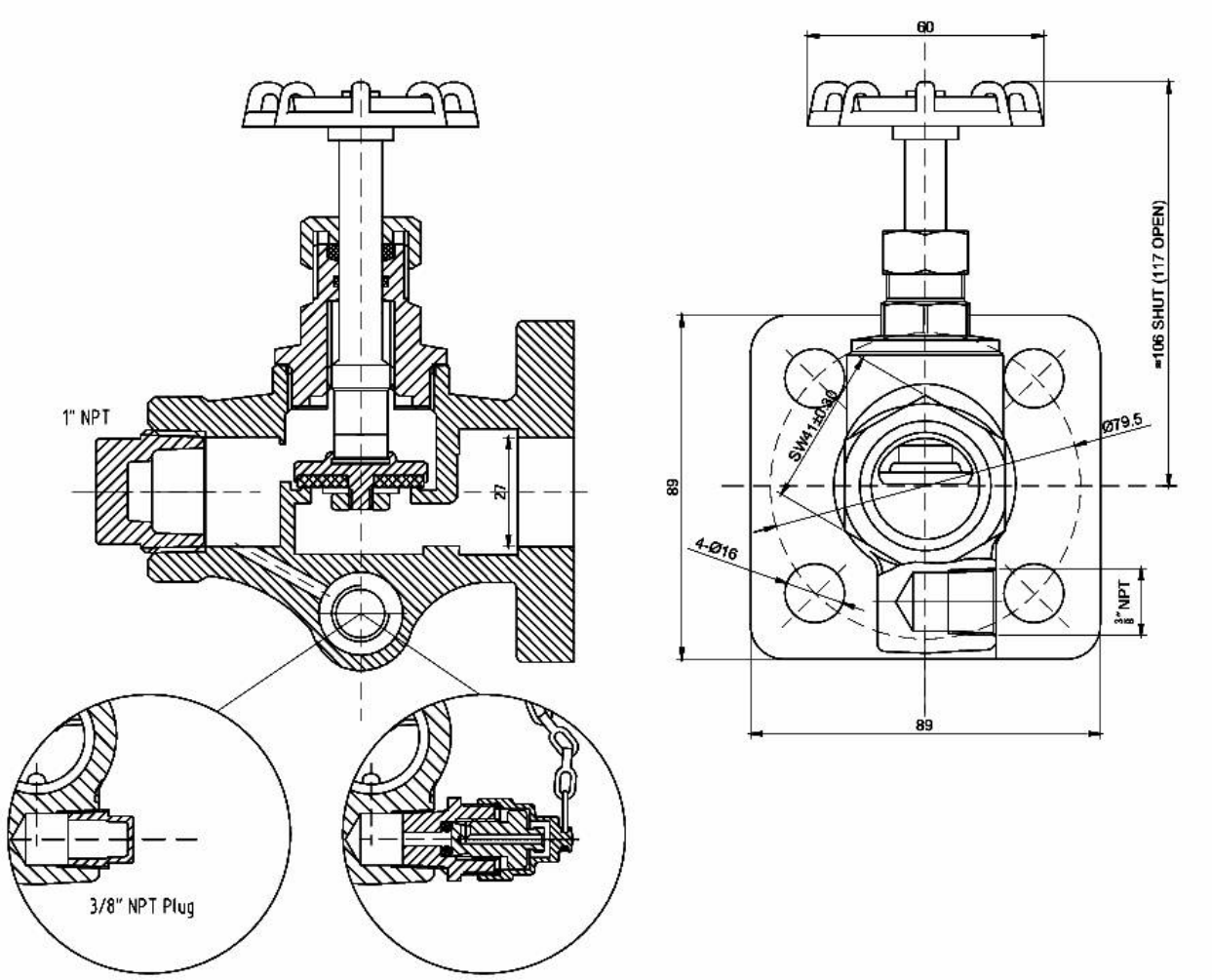
1. Oil sampler located on outlet (new version)



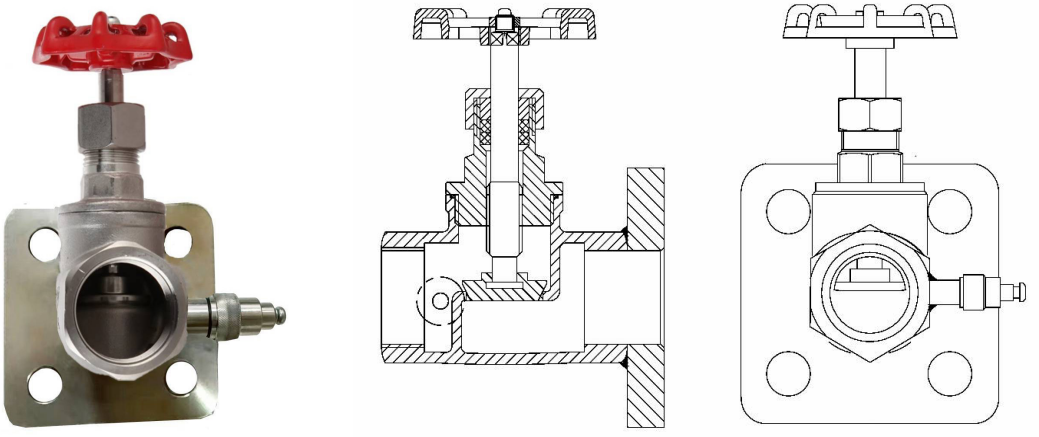
（Oil sampler body and valve body is integral）



2. Oil sampler located on bottom (old version) Valve body and oil sampler separately.



3. Stainless Steel Drain Valve 1" & 2" with oil sampler / without sampler



This stainless steel Drain valve is customized, mainly for 1" and 2"
Material can be 304 stainless steel, 316 stainless steel or 316L stainless steel. the valve flange and valve body is joint together by high quality welding, and tested by vacuum. if the working enviroment is high corrosive area,the valve body can be have further treatment, such as Dacromet treatment, with dacromet the stainless steel will have much better resistant for high corrosive enviroment, such as marine enviroment. besides, the valve also can be with fusion bonded fluorocarbon coating.

Oil sampling Devices

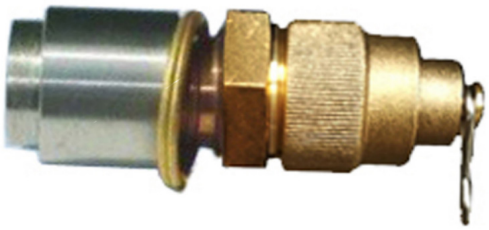
There are multiple functions in the device, such as lubricate and washing, waste oil discharge, air discharge and oil sampling. the application result shows that: this new type of full sealed transfo-rmer oil sampling device has the advantages of flexible operation, easy to use, safe and reliable, it radically solves the problem of full sealed transformer oil sampling difficultly in power system,and greatly improves the work efficiency offull sealed tranasformer oil sampling.

1. NPT thread Oil samplers

Material: Forged Brass
Parts: Body, Trim, Cover, Seat, Chain
Sizes: 1/2" 3/8”
Application : as Oil sampling device , fixed with Globe drain valve Ball Drain valve, Flange, or NPT female thread pipe.

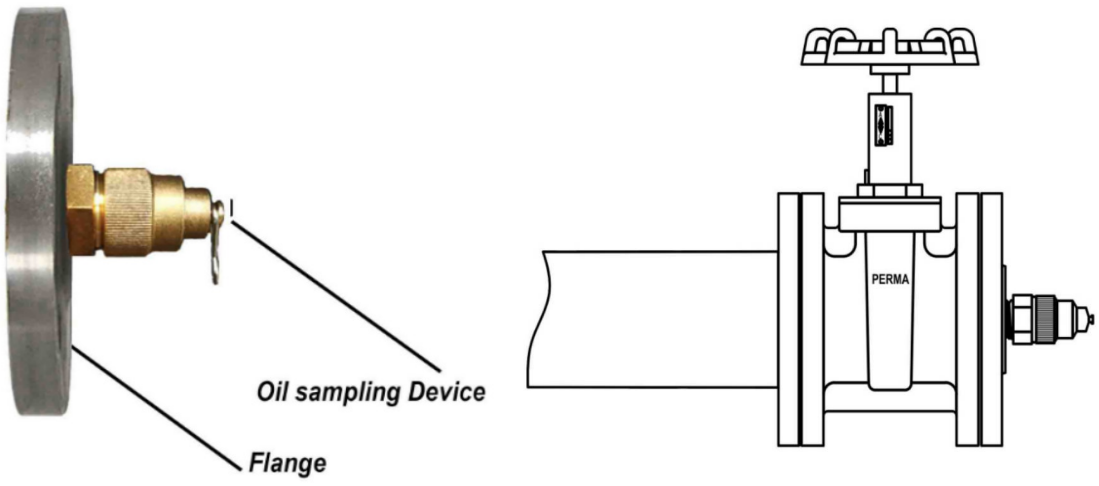
2. Oil sampler with Welding tube

Oil sampling device with welding endWelding connector material: carbon steel/Stainless steelWelding ends: Socket welding or butt weldingOil sampler Material: forged brassSampler sealing material: Viton,PTFE



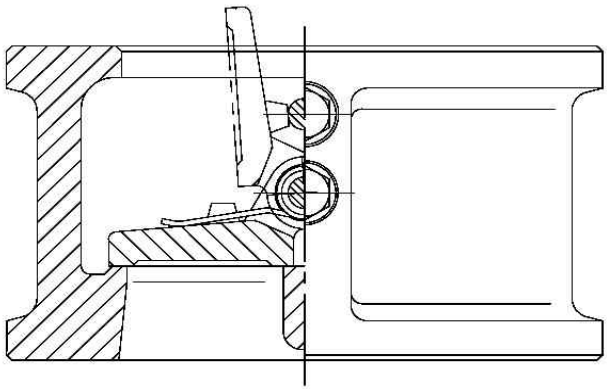
3. Flange type oil sampler.

Oil sampling device with welding endWelding connector material: carbon steel/Stainless steelWelding ends: Socket welding or butt weldingOil sampler Material: forged brassSampler sealing material: Viton,PTFE



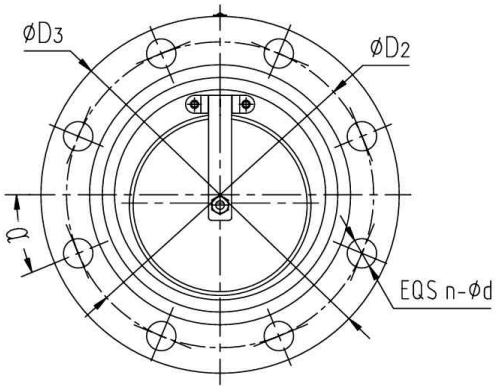
Check valve is a device make sure the transformer oil flow direction as it should be. it protect the oil pump and the whole cooling pipe system. the check valve normally install on the outlet of oil pump of Forced oil circulation transformer. there are two types of check valves, dual plate check valve and single disc swing check valve.

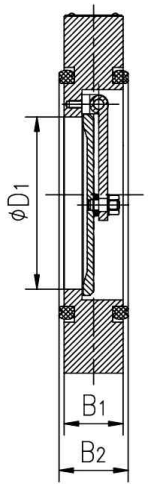
Dual Plate Check Valve



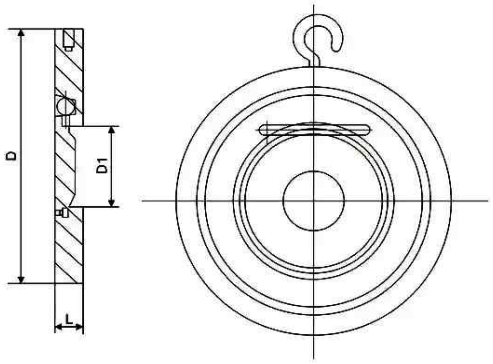
Material: Carbon Steel, Stainless Steel. Bronze
Connection: Wafer/ Flange
Customize: Available

Single Disc swing check Valve Flange type.





Single Disc swing check Valve Wafer type.



The rubber seals for oil-immersed transformers are essential components to ensure the normal operation of transformers. They prevent the leakage of transformer oil, ensuring that the oil remains within the oil tank to play its roles in cooling and insulating.They isolate the internal components of the transformer from the outside world, preventing external dust, moisture and other impurities from entering the transformer and affecting its performance and service life.

Material introduction
NBR/HNBR

Doubel line type Gasket

Flat Gasket

NBR/HNBR have good performance in transformer oil, and can be work well with cold enviroment. However, NBR rubber does not perform well in terms of heating aging resistance and UV aging resistance

ACM

Doubel line type Gasket

Irregular-shaped Gasket

ACM have wonderful performance in transformer oil and have very good heating resistance and UV light (sunshine) resistance.

Viton & Fluorosilicone

Viton and Fluorosilicone rubber seals both have wonderful performance in transformer oil and have very good heating resistance and UV light (sunshine) resistance. however, normal type viton do not suitable for low temperature, normal type shall be no less than -20℃. Customized low temperature type viton can be suitable for -30℃. Fluorosilicone rubber suitable for -60℃ ~250℃.