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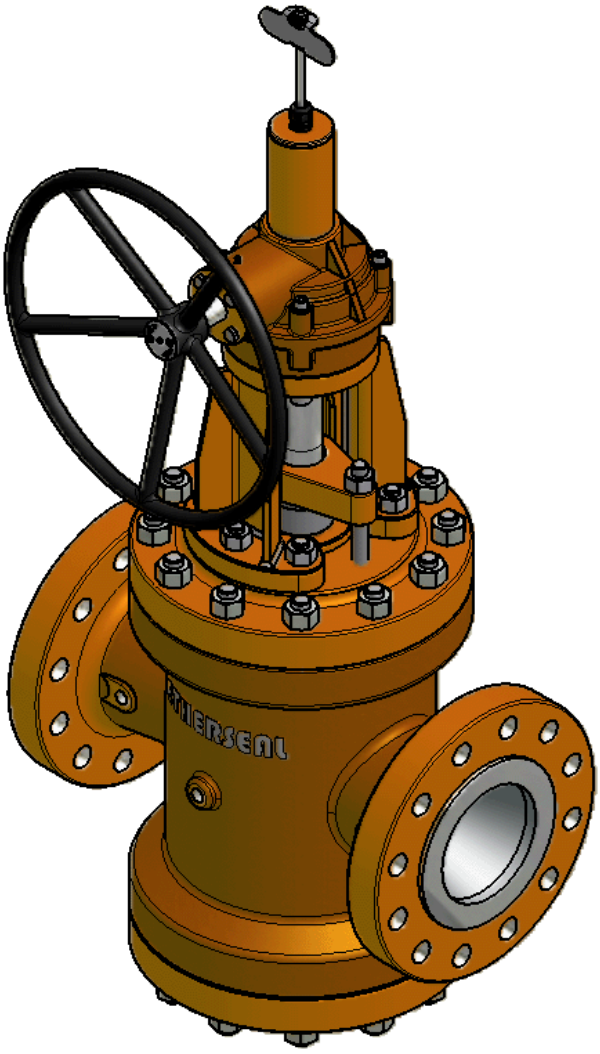
CATALOGUE

DOUBLE BLOCK AND BLEED PLUG VALVE



INDEX

INTRODUCTION OF OUR COMPANY

Nether Seal B.V. has been founded in 2005.

The Company is privately owned by the Management who has more than 20 years of experience in the designing and manufacturing Non Contact Rising Stem Ball Valves and Dual Expanding Double Block & Bleed Plug Valves.

The employees of Nether Seal are highly skilled and well introduced in working with the International Engineering & Procurement Companies and End Users in the Gas and Oil Industry

The Nether Seal production facilities and offices are located in the Netherlands. Generally, all main raw materials such as valve castings and forged parts are obtained from countries within the European Union.

Nether Seal Engineering Department is always equipped with the latest software packages.
Amongst others INVENTOR® and ANSYS ® programs are used to perform calculations and design for machining and production of the valves to the latest technologies and International Standard such API, ANSI, ISO etc.

To control the order processing and evaluate performances towards Customers and Sub Suppliers Nether Seal has integrated a professional Enterprise Resource Planning.
This ERP is operational for all business management functions including Order Processing, Inventory, Manufacturing, Financials and many more.

The Nether Seal Company Policy is to supply the best quality valves and satisfy our Customers beyond their demands.

INTRODUCTION OF OUR COMPANY

The employees of Nether Seal have over 20 years experience in designing and manufacturing Rising Stem Ball Valves and Double Block and Bleed Plug Valves.

Hanno Groos, Hans Kurver and
Jan van der Plas founded Nether Seal.

In September 2006
Nether Seal achieved ISO and PED certification. Lloyd's Business Development Manager hands over Certificates to Nether Seal QA/QC Manager Tazelaar.

RISING STEM BALL VALVES

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DOUBLE BLOCK AND BLEED PLUG VALVES

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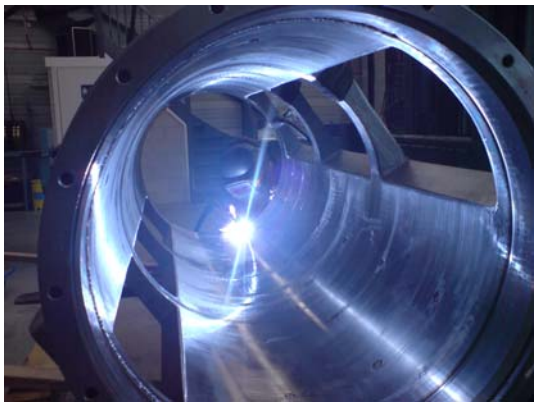
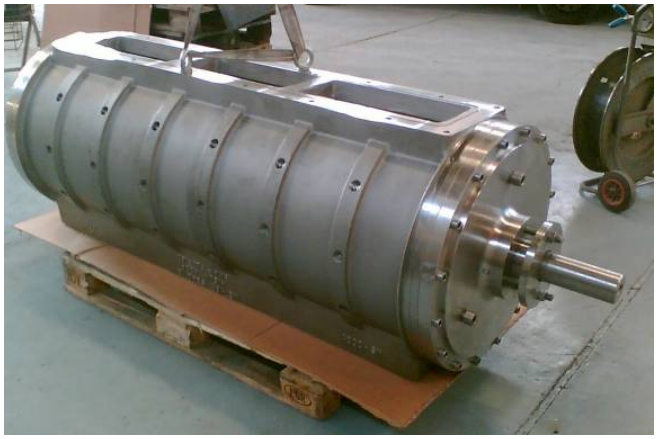
ROTARY FEEDER VALVES





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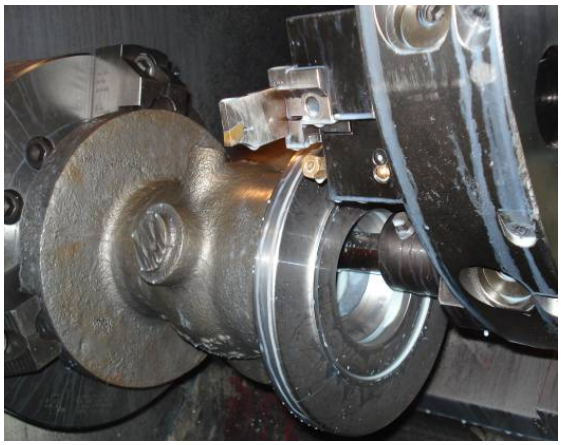
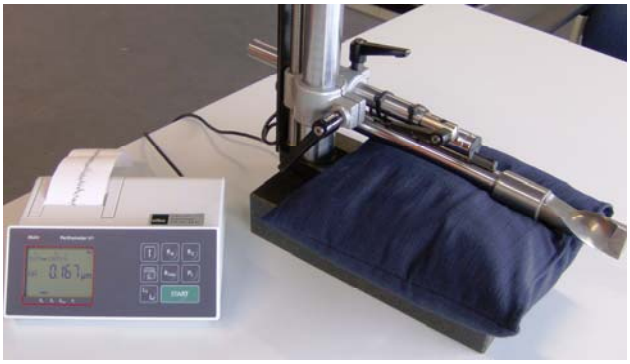
PRODUCTION AND INSPECTION





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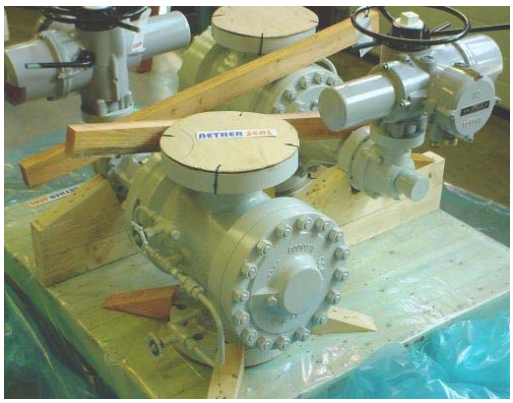
PRESSURE TESTING

PACKING AND TRANSPORT



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CERTIFICATE OF APPROVAL

This is to certify that the Quality Management System of:

Nether Seal B.V.
Nieuwkoop, The Netherlands

has been approved by Lloyd's Register Quality Assurance to the following Quality Management System Standards:

ISO 9001 : 2008

The Quality Management System is applicable to:

Design and manufacturing of rising stem ball, double block and bleed, axial flow, gate, globe, check, needle, ball, plug, bottom, sampling, rotary star, safety and special valves.

Approval Certificate No:
RQA661201

Original Approval	:	1 September 2006
Current Certificate	:	1 September 2009
Certificate Expiry	:	31 August 2012

Issued by: Lloyd's Register Nederland B.V. for and on behalf of Lloyd's Register Quality Assurance Limited

MGMT. SYS.
RvA C 010

This document is subject to the provision on the reverse
Weena-Zuid 170, 3012 NC Rotterdam, The Netherlands
This approval is carried out in accordance with the LRQA assessment and certification procedures and monitored by LRQA.

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Lloyd's Register

EC CERTIFICATE OF CONFORMITY

In accordance with the requirements of the Pressure Equipment Directive 97/23/EC and The Pressure Equipment Regulations 1999, UK Statutory Instrument 1999 No. 2001 and 2002 No. 1267

This is to certify that the Quality Management System of:

Nether Seal B.V.
Nieuwkoop, The Netherlands

has been assessed against the requirements of Annex III, **Module H** of the Pressure Equipment Directive 97/23/EC, and Schedule 4, Module H of The Pressure Equipment Regulations 1999 and conforms to the requirements for the products shown below:

Rising stem ball, double block and bleed, axial flow, gate, globe, check, needle, ball, plug, bottom, sampling, rotary star, safety and special valves, manufactured from casted carbon steel, low alloy steel or austenitic stainless steel and forged carbon steel, low alloy steel or austenitic stainless steel.

Approval is subject to the continued maintenance of the quality system in accordance with the requirements of the above Directive and Regulations.

Authorisation is hereby given to use the LRV Notified Body Identification Number in accordance with the requirements of the specified Directive and Regulations in relation to the products as identified above.

Certificate No:	0038/PED/RQA/661202
Original Approval:	1 September 2006
Current Certificate:	1 September 2009
Certificate Expiry:	31 August 2012

LRV Notified Body Number 0038

P. Fontijn on behalf of Lloyd's Register Verification

A5.138

DOUBLE BLOCK AND BLEED PLUG VALVES

In order to avoid extraordinary production or maintenance cost and in some cases environmental pollution, today's business gives extra attention to the process of selecting the correct valve.
Double tight shut-off valves with sealing both up-and downstream are requested more frequently.

To meet these requirements Nether Seal has developed the Dual Expanding Double Block and Bleed Plug Valve.

Unlike other valves, like Ball, Gate, Butterfly Valves and ordinary Plug Valves, the Nether Seal Dual Expanding Double Block and Bleed Plug Valve sealing mechanism is designed on a radial move only. The sealing is not liable to friction, shear or tear, so no abrasion on the seal. This means an exceptionally long life time compared to other type of valves.

Normally, the double block and bleed function can only be achieved using two valves and a spool piece with a drain valve. The Nether Seal Double Block and Bleed Plug Valve has a double block and bleed function up-and downstream.

Cost reduction, less space and less maintenance for a long period can be achieved using the Nether Seal Double Block and Bleed Plug Valve.

Easy operation is ensured with Nether Seal Double Block and Bleed Plug Valves. Besides hand wheel and gear operation, all kind of actuators like electric, hydraulic or pneumatic can be installed.

The design of the Nether Seal Double Block and Bleed Plug Valve is based upon low cost and easy maintenance. For maintenance no special tools are required and both top-and bottom access is possible while the valve is in-line.

The stem packing can be renewed while the valve is under pressure thanks to the backseat, a standard feature of the Nether Seal Double Block and Bleed Plug Valve.

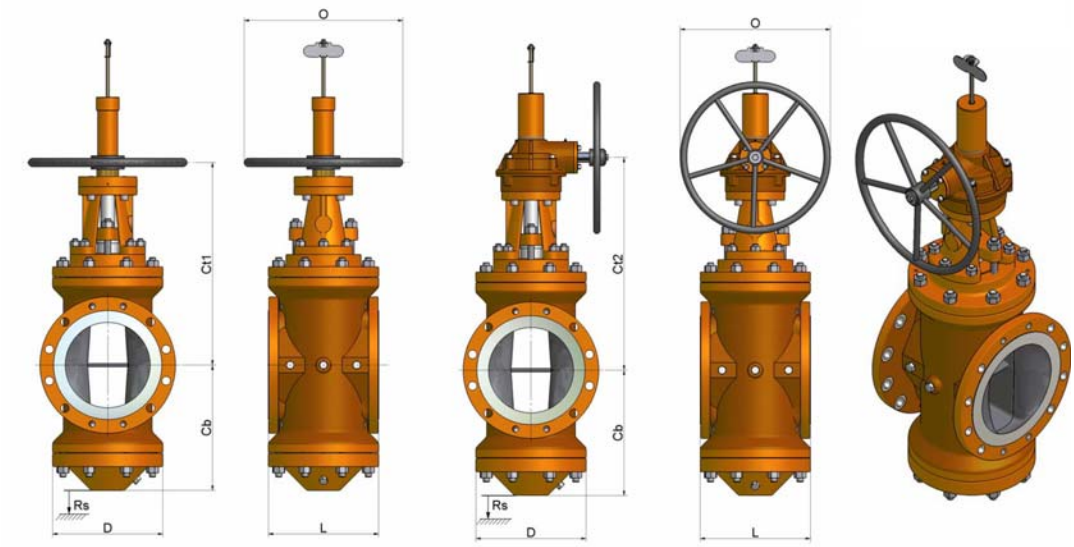
The plug can not rotate caused by in line forces, due to the self-locking operating mechanism.

The Nether Seal Double Block and Bleed Plug Valves have been designed to pass the Fire Safe tests by independent inspection agencies according to API 6FA and British Standard 6755 part 2 successfully.

APPLICATIONS
DOUBLE BLOCK AND BLEED PLUG VALVES

- Fiscal metering Gas and Oil.
- Airport fuel supply (JET A1) tank storage and hydrants.
- Ship loading and truck loading service.
- Tank storage.
- Crude oil transport pipe line service.
- Gas service.
- MTBE service.
- Clean hydrocarbon service (+165 degrees C)
- Low temperature service (- 46 degrees C)

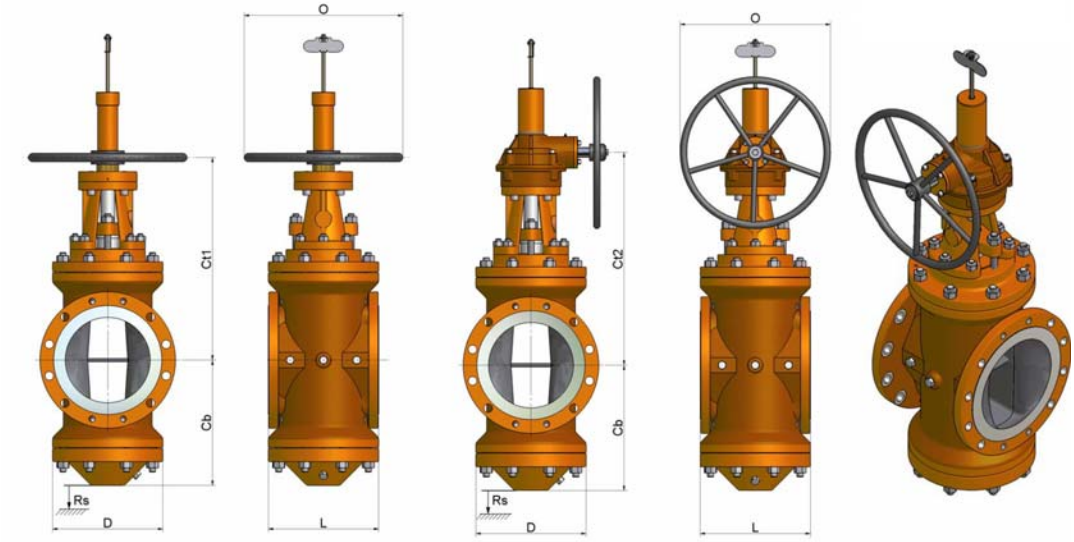
DIMENSIONAL DATA
ANSI Class 150lbs
Reduced Port



Size	L	Cb	Ct1/Ct2	O	Rs	D	N	Operator	Weight	Cv Value	Valve type no.
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[-]	[kg]	[GPM]	[-]
2	178	188	242	300	235	200	-	Handwheel	35	215	D2RC150H
3	203	231	257	300	288	210	-	Handwheel	45	220	D3RC150H
4	229	228	341	650	285	226	-	Handwheel	90	600	D4RC150H
6	266	284	391	650	480	295	4	Handwheel	145	1420	D6RC150H
8	292	337	447	450	495	320	4	Gearbox	220	2400	D8RC150G
10	330	385	523	450	530	330	4	Gearbox	350	3800	D10RC150G
12	355	465	541	650	576	385	4	Gearbox	450	4850	D12RC150G
14	381	498	712	650	622	400	4	Gearbox	540	6000	D14RC150G
16	406	538	876	850	700	415	8	Gearbox	750	7200	D16RC150G
18	432	564	925	850	706	421	4	Gearbox	1350	8000	D18RC150G
20	813*	596	1239	850	744	590	-	Gearbox	1700	17300	D20RC150G
24	914*	652	1242	850	815	710	-	Gearbox	3500	29600	D24RC150G
30	1270*	729	1680	850	911	950	-	Gearbox	7500	42500	D30RC150G
36	1981*	798	1880	850	998	1100	-	Gearbox	10500	92400	D36RC150G

NOTE:
Dimensions based on ANSI B16.10 and are for information only. Certified dimensional drawings available on request.
* Dimension according Nether Seal standard.

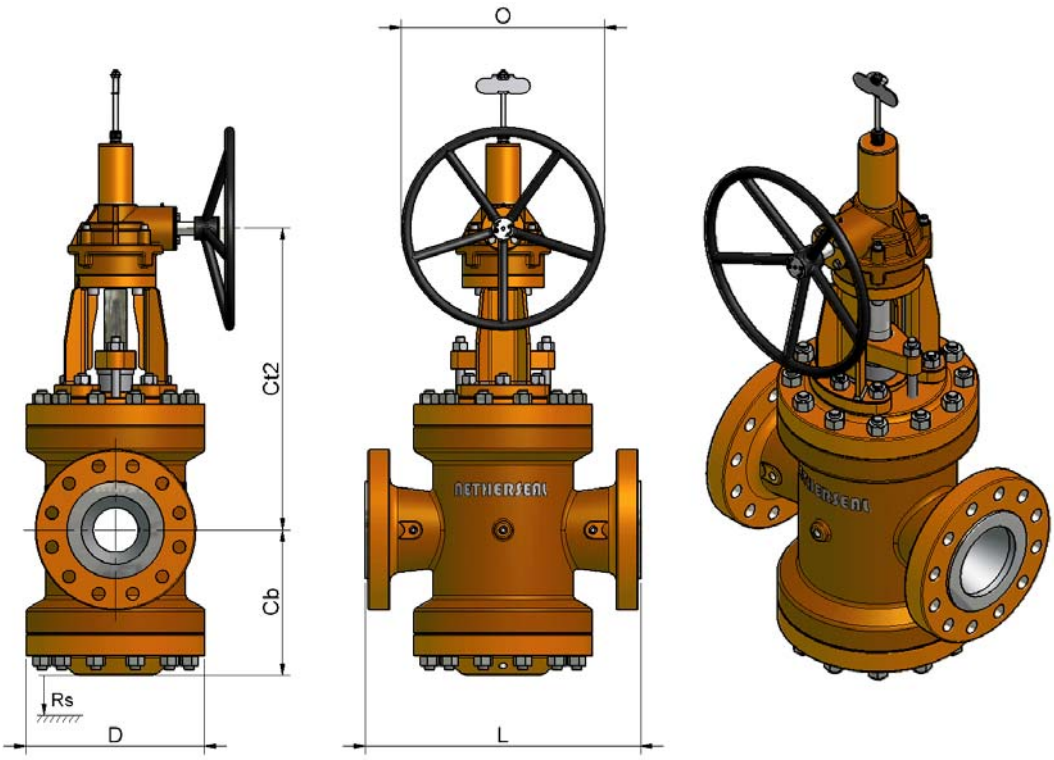
DIMENSIONAL DATA
ANSI Class 300lbs
Reduced Port



Size	L	Cb	Ct1/Ct2	O	Rs	D	N	Operator	Weight	Cv Value	Valve type no.
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[-]	[kg]	[GPM]	[-]
2	216	188	242	300	235	220	-	Handwheel	40	225	D2RC300H
3	283	231	305	450	288	235	-	Handwheel	65	230	D3RC300H
4	305	266	368	300	333	280	-	Gearbox	120	630	D4RC300G
6	403	285	475	650	485	340	-	Gearbox	180	1420	D6RC300G
8	419	350	683	650	495	360	4	Gearbox	350	2860	D8RC300G
10	457	421	858	650	523	365	4	Gearbox	550	5890	D10RC300G
12	502	461	891	850	576	370	-	Gearbox	700	7010	D12RC300G
14	762	498	969	850	622	440	-	Gearbox	1050	7600	D14RC300G
16	838	532	1043	850	665	450	-	Gearbox	1350	10300	D16RC300G
18	914	564	1217	850	706	465	-	Gearbox	2200	10300	D18RC300G
20	991	595	1330	850	744	620	-	Gearbox	2500	18000	D20RC300G
24	1321*	652	1442	850	815	780	-	Gearbox	6000	29700	D24RC300G

NOTE:
Dimensions based on ANSI B16.10 and are for information only. Certified dimensional drawings available on request.
* Dimension according Nether Seal standard.

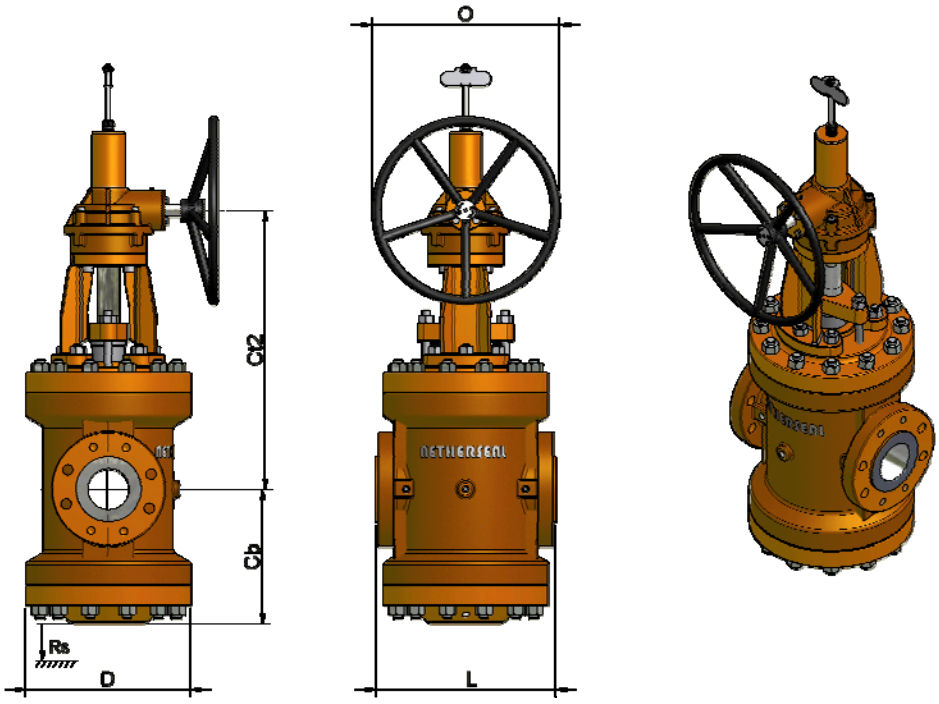
DIMENSIONAL DATA
ANSI Class 600lbs
Reduced Port



Size	L	Cb	Ct1/Ct2	O	Rs	D	N	Operator	Weight	Cv Value	Valve type no.
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[-]	[kg]	[GPM]	[-]
2	292	188	266	300	235	240	-	Gearbox	65	310	D2RC600G
3	356	231	336	450	288	255	-	Gearbox	100	380	D3RC600G
4	432	266	405	450	333	310	-	Gearbox	250	1100	D4RC600G
6	559	322	523	650	450	395	-	Gearbox	520	2650	D6RC600G
8	660	377	752	650	470	385	-	Gearbox	750	5810	D8RC600G
10	787	450	944	650	650	400	-	Gearbox	1050	9300	D10RC600G
12	838	461	980	650	576	445	-	Gearbox	1500	13600	D12RC600G

NOTE:
Dimensions based on ANSI B16.10 and are for information only. Certified dimensional drawings available on request.
* Dimension according Nether Seal standard.

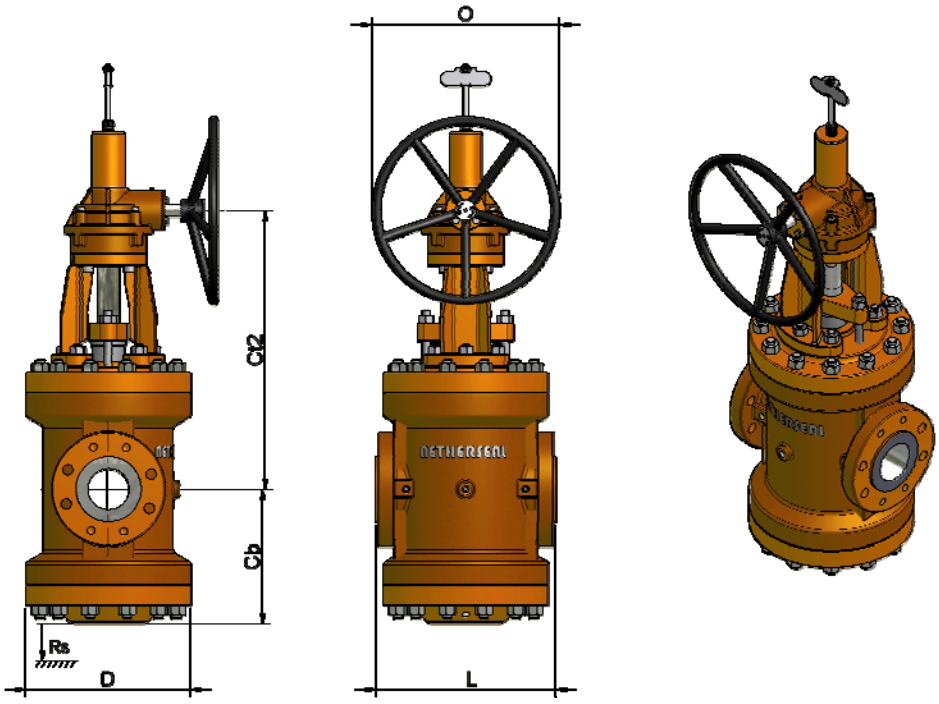
DIMENSIONAL DATA
ANSI Class 150lbs
Full Port



Size	L	Cb	Ct1/Ct2	O	Rs	D	N	Operator	Weight	Cv Value	Valve type no.
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[-]	[kg]	[GPM]	[-]
4	432*	326	391	300	407	280	-	Gearbox	220	2070	D4FC150G
6	534*	377	447	450	470	325	-	Gearbox	280	4860	D6FC150G
8	635*	421	523	450	526	355	-	Gearbox	450	9000	D8FC150G
10	788*	461	541	650	576	365	-	Gearbox	660	16020	D10FC150G
12	815*	498	712	650	622	370	-	Gearbox	900	23400	D12FC150G
14	864*	532	876	850	665	440	-	Gearbox	1350	28800	D14FC150G
16	889*	564	925	850	706	450	-	Gearbox	2300	39600	D16FC150G
18	1220*	595	1239	850	744	465	-	Gearbox	3000	52200	D18FC150G
20	1220*	652	1242	850	815	620	-	Gearbox	3100	67500	D20FC150G
24	1397*	729	1680	850	911	780	-	Gearbox	7500	100080	D24FC150G
30	1728*	798	1880	850	998	1045	-	Gearbox	9800	131200	D30FC150G

NOTE:
Dimensions are for information only. Certified dimensional drawings available on request.
* Dimension according Nether Seal standard.

DIMENSIONAL DATA
ANSI Class 300lbs
Full Port



Size	L	Cb	Ct1/Ct2	O	Rs	D	N	Operator	Weight	Cv Value	Valve type no.
[inch]	[mm]	[mm]	[mm]	[mm]	[mm]	[mm]		[-]	[kg]	[GPM]	[-]
4	457*	326	368	450	407	280	-	Gearbox	200	1980	D4FC300G
6	559*	377	475	650	470	325	-	Gearbox	320	4860	D6FC300G
8	686*	421	683	650	526	355	-	Gearbox	660	9000	D8FC300G
10	788*	461	858	850	576	365	-	Gearbox	1050	15390	D10FC300G
12	815*	498	891	850	622	370	-	Gearbox	1500	22500	D12FC300G
14	864*	532	969	850	665	440	-	Gearbox	2850	27900	D14FC300G
16	889*	690	1043	850	1090	885	-	Gearbox	3500	37800	D16FC300G
18	1220*	595	1217	850	744	465	-	Gearbox	5000	50400	D18FC300G
20	1220*	652	1330	850	815	620	-	Gearbox	5200	64800	D20FC300G
24	1397*	729	1442	850	911	780	-	Gearbox	9000	91800	D24FC300G

NOTE:
Dimensions are for information only. Certified dimensional drawings available on request.
* Dimension according Nether Seal standard.

OPENING AND CLOSING SEQUENCE DBBV

The features of the Nether Seal Double Block and Bleed Expanding Plug Valves are zero leakboth sides of the seat and friction free operation.
The mechanical movement of the special designed helix shaped trunnion stem operates the plug including the slips with 90 degrees rotation and a wedging movement to expand the plug between the slips and consequent sealing towards the body seal area.
Due to the vulcanized viton to the slips 100% zero leak is obtained.

1. DBBV is in open position

Valve is in full open position and the plug is not in contact with the body sealing area. The slips with the soft vulcanized seals are outside the flow.

2. DBBV start to close

At first the plug together with the attached slips will make a rotation of 90 degrees. During this operation there is no contact between the slips and the body.

OPENING AND CLOSING SEQUENCE DBBV

When the plug with the attached slips have ended the rotation and the soft seals are in position towards the body sealing areas, the plug will be wedged between the slips and the slips will expand vertically towards the body seal areas.

3. DBBV is closed

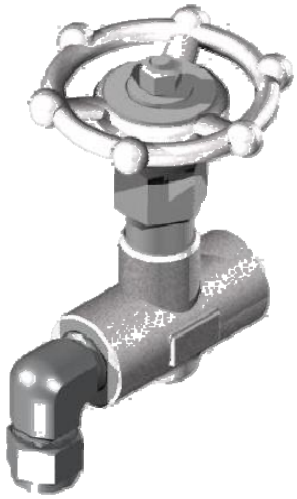
Valve is now in fully closed position.
The vulcanized seals have been compressed towards the body seal area (standard with ENP) on both sides of the valve. The design of the slips protects the vulcanized seals to be damaged in case excessive torque is applied.

4. DBBV start to open

The slips will be vertically retracted from the body sealing area and reverse operations apply as described before.

PRESSURE RELIEF BLEED SYSTEMS DBBV

When the DBBV is in closed position, the pressure inside the body cavity can increase due to thermal expansion.
This can be a dangerous situation and a pressure relief system will avoid possible damage to the DBBV and consequently cause leakage.
Nether Seal offers various options of relief systems which are most commonly applied for any situation. The standard size for relief systems is ½" (NPT), optionally other sizes can be provided.



Manual Bleed Valve (MBV)

The MBV is the most simple and economical execution to relieve the cavity pressure manually and check the integrity of the sealing of the slip seals.
The manual bleed valve is connected to the body and can drain to a waste line.

Caution: when the bleed valve is in closed position, thermal expansion can increase the operating torque or even damage the DBBV with consequent leakage.

Manual Bleed Valve with Thermal Relief (MBTR)

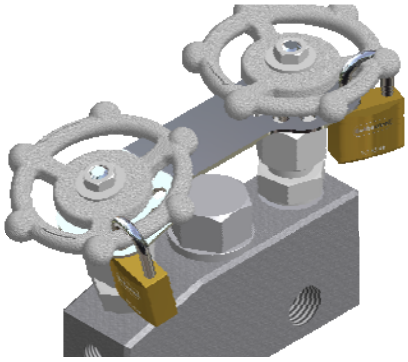
The MBTR system is most widely used.
This system is based on automatic bleeding towards the high pressure side of the DBBV in case the differential pressure reaches 25 PSI (1.7 BARG). In addition to this, the integrity of the slip seals can be verified by the manual bleed valve.
The MBTR system is comprising of two isolating/bleed valves and one safety relief check valve which is set at 25 PSI.
The system functions when the bleed valve is closed and the isolating valve is in open position.

PRESSURE RELIEF BLEED SYSTEMS DBBV

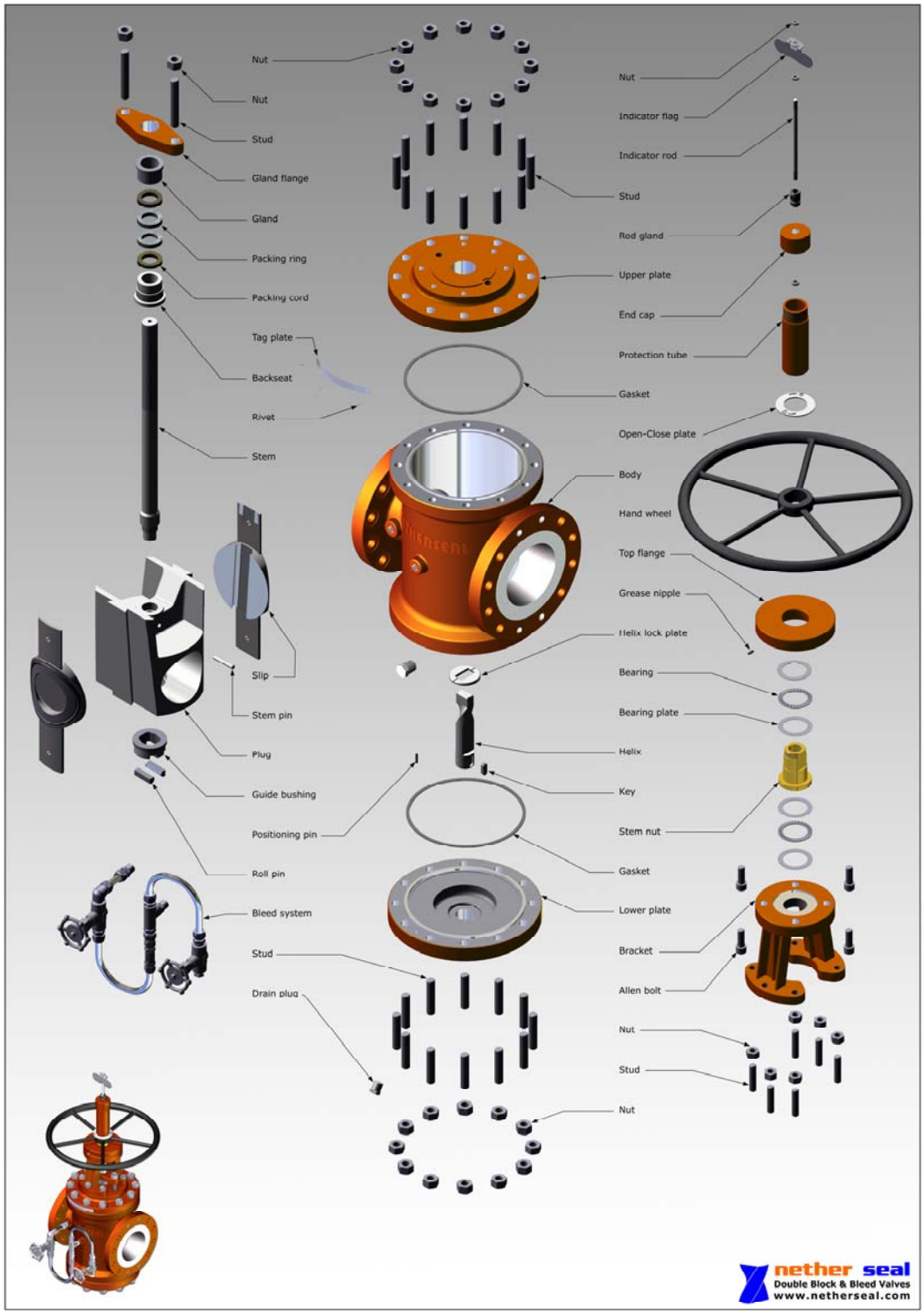
Automatic Body Bleed (ABB)

This mechanical device is operated by the stem of the DBBV.
When the DBBV is closing the ABB will open and releases the fluid or gas through the drain, subsequently the cavity of the DBBV will be depressurized. The drain can be connected to a waste line.
The ABB will be supplied with a isolating needle type globe valve.

Options to all the above systems are locking devices on the bleed/isolating valves and various types of pressure gauges.



EXPLODED VIEW DBBV



STANDARD MATERIALS DBBV

Description	Material
Body	ASTM A216 WCC + ENP
Upper plate	ASTM A350 LF2
Lower plate	ASTM A350 LF2
Bracket	St.52.3(S355JO)
Plug	ASTM A216 WCC + ENP
Slip	ASTM A536 Gr.80-55-06 + Viton A
Stem	ASTM A564 630 (17/4PH)(H1150DA)
Stem Pin	St. H60
Helix	ASTM A564 630 (17/4PH)(H1150DA)
Guide bushing	ASTM A182 F6a
Roll pin	ASTM B637 (Inconel 718)
Helix lock plate	ASTM A350 LF2
Key D6885A	St. C45K
Drain plug	ASTM A350 LF2
Backseat	ASTM A182 F6a
Packing ring	Graphite
Packing cord	Graphite braided
Gland	ASTM A182 F6a
Gland flange	St.52.3 (355JO)
Stud	ASTM A193 B7
Nut	ASTM A194 2H
Gasket	Spiralwound F316L Graphite
Tag plate	ASTM A240 Gr.316
Bearing	Commercial
Bearing plate	Commercial
Rivet	DIN 267 p.11 A1
Bleed system	Carbon steel
Open-Close plate	ASTM 240 Gr.304
Top flange	St.52.3 (S355JO)
Grease nipple	DIN 267 p.11 A1
Allen bolt D912	8.8
Stem nut	CuAL10Ni
Protection tube	ASTM A106
Indicator flag	ASTM A240 Gr.304
Indicator rod	AISI 316
Rod gland	Nylon
End cap	St.52.3 (S355JO)
Handwheel	Carbon Steel
Positioning pin	DIN 267 p.11 A2/70