TECHNICAL

DOCUMENTATION

Customer : DESMET BALLESTRA SpA

Project :

Purchase order : 121426 – 2F11A

MRC job nr : 1621000619

Document nr : TDB 619/12

MRC Transmark Italy S.r.l.
Sede Legale : Via Stendhal 65, 20144, MILANO, Italia
Uffici e Magazzino : Via E. Fermi, 28 – 20019 Settimo M.se (MI)
Tel. +39 02.93.58.05.81 – Fax +39 02.93.58.05.77
www.mrctransmark.com – italy@mrctransmark.com
PEC : mrctransmarkitaly@pec.it

Fiscal Code and V.A.T. : 10226360153
IBAN : IT87S0638512603100000011236
SWIFT : IBSPIT2B
Capitale interamente versato : € 46.800.00
R.E.A. MI 1358600
Registro Imprese 102226360153 MILANO

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Section B : Material Certificates

Section C : Use and Maintenance Manual

MRC Transmark Italy S.r.l.
Sede Legale : Via Stendhal 65, 20144, MILANO, Italia
Uffici e Magazzino : Via E. Fermi, 28 – 20019 Settimo M.se (MI)
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Section A

« Drawings »

MRC Transmark Italy S.r.l.
Sede Legale : Via Stendhal 65, 20144, MILANO, Italia
Uffici e Magazzino : Via E. Fermi, 28 – 20019 Settimo M.se (MI)
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Registro Imprese 102226360153 MILANO

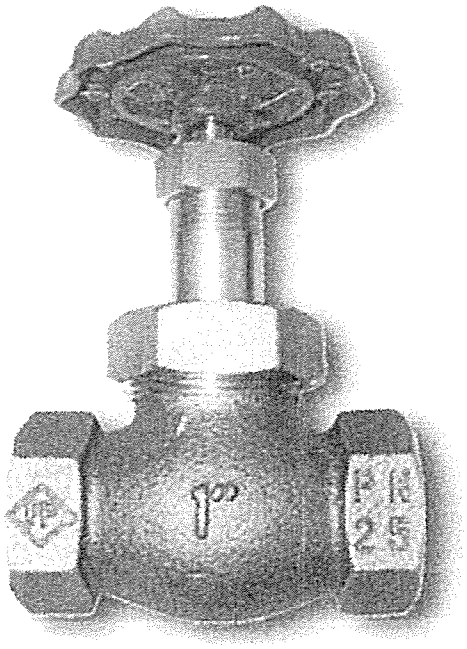
MRC | Transmark

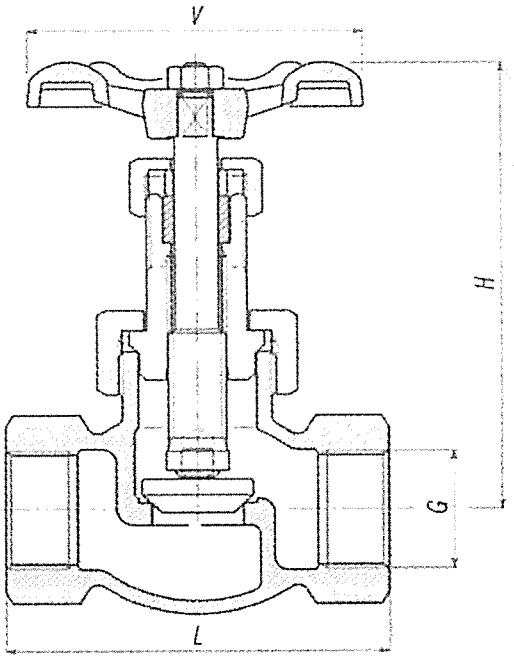
LIST OF DRAWINGS

1621000619

pos	Tag nr	valve	size	class	material		MRC ref.	
					material	trim	article nr	dwg nr
1.1	D-51	Globe	1/2"	200	B62	Bronze	99131930	DC-619-12-01
2.1	D-51	Globe	1 1/2"	200	B62	Bronze	99131934	DC-619-12-01
3.1	F-69	Y-strainer	1/2"	800	A105	F316	99131937	DC-619-12-02
4,1	F-69	Y-strainer	1"	800	A105	F316	99131938	DC-619-12-02
5,1	F-69	Y-strainer	1 1/2"	800	A105	F316	99131939	DC-619-12-02
6,1	F-70	Y-strainer	1/2"	PN16	Bronze	F304	99131942	DC-619-12-04
7,1	F-70	Y-strainer	1 1/2"	PN16	Bronze	F304	99131944	DC-619-12-04
8,1	F-70	Y-strainer	2"	PN16	Bronze	F304	99131958	DC-619-12-04
9,1	R-126	Swing check	1/2"	300	Bronze	Bronze	99131960	DC-619-12-03
10,1	R-126	Swing check	2"	300	Bronze	Bronze	99131961	DC-619-12-03
11,1	T-66	Steam trap	1/2"	PN 40	A105	F304	99131962	DC-619-12-05
12,1	D-51	Globe	3/4"	200	B62	Bronze	99131982	DC-619-12-01

Pos:	Description	Materials
1	Body	BRONZE
2	Disc	BRASS / PTFE
3	Cover	BRASS (forged)
4	Stem	BRASS
5	Body nut	BRASS (forged)
6	Packing	PTFE
7	Handwheel	Carbon steel plate
8	Gland	BRASS





Size	3/8"	1/2"	3/4"	1"	1 1/2"	2"
L	54	62	71	85	110	130
H	100	110	132	150	185	210
V	50	55	60	70	90	100
Weight Kg	0,35	0,48	0,7	0,95	2,22	3,22
Position		1,1	12,1		2,1	

Screwed ends according to iso 228 - NpT
Maximum working pressure 25 bar
Maximum working temperature 0°C to 95° C

Customer : **DESMET BALLESTRA S.p.A.**
Purchase Order nr : 121426 - 2F11A
Tag nr.: **D - 51**
MRC Job nr:: 1621000619

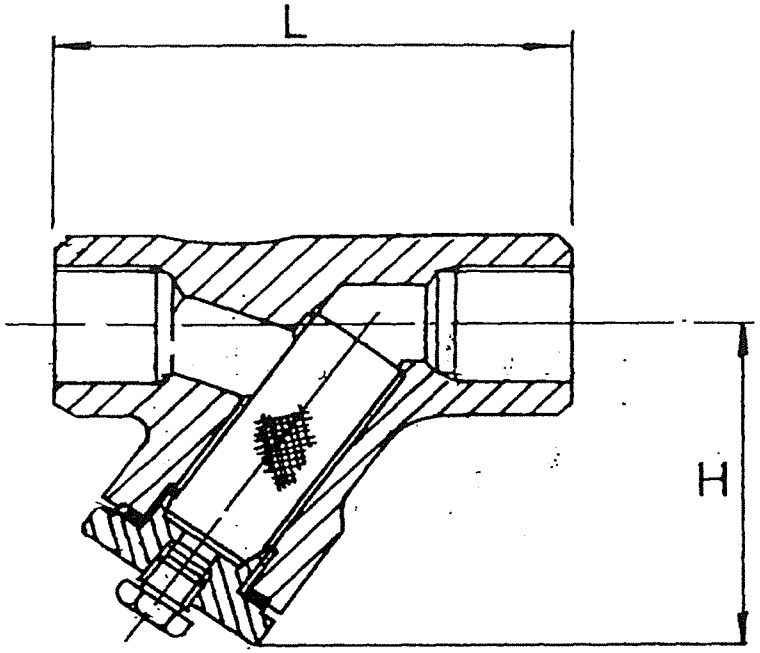
Test Pressure (water)	
Shell	38 bar
Seats	25 bar
Back seat	n.a.
Pneumatic test (air)	
Seats	n.a.

MRC | Transmark qp

Title: GLOBE VALVE UNION BONNET - CLASS 200

Draw :	P.G.	25 January 2012	Manufacturer :		Drawing nr.:	
Appr. :	M.Beghelli.	25 January 2012	RUB. VALDUGGIA		**DC-619-12-01**	
Revision	A					

Pos:	Description	Materials
1	Body	*ASTM A105*
2	Bonnet	*ASTM A105*
3	Screen	*AISI 316*
6	Plug	*ASTM A193 B7*
7	Gasket	*AISI 316/Graphite*



Size	1/2"	3/4"	1"	1 1/4"	1 1/2"	2"
L	150	150	150	160	160	160
H	105	105	105	145	145	145
Weight Kg	1,8	2	2,5	5,5	6	6,5
Position	3,1		4,1		5,1	

Designe according to DIN 3352-DIN 3840
Socket weld according to ASME B16,11
Face to Face according manufacturing standard

Customer : **DESMET BALLESTRA S.p.A.**
Purchase Order nr : 121426 - 2F11A
Tag nr.: **F-69**
MRC Job nr:: 1621000619

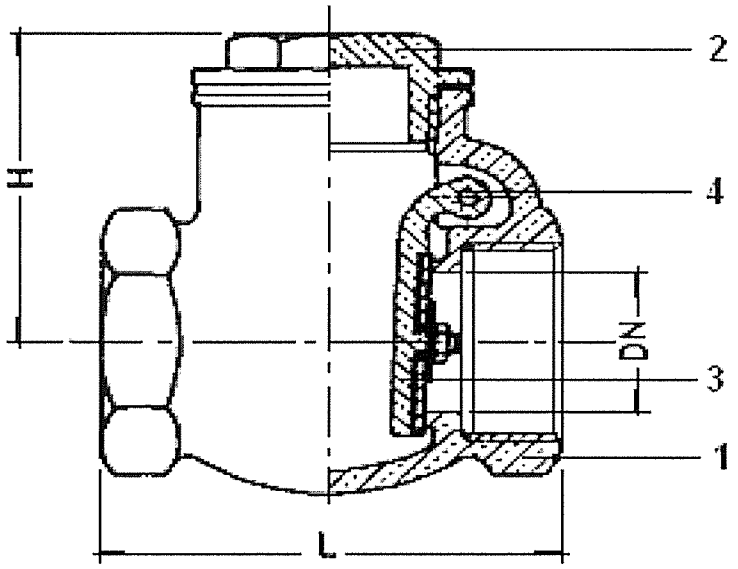
Test Pressure (water)	
Shell	211 bar
Seats	n.a.
Back seat	n.a.
Pneumatic test (air)	
Seats	n.a.

MRC Transmark qp

Title: Y STRAINER - Class 800

Draw :	P.G.	18 Maj 2011	Manufacturer : USV
Appr. :	M.Beghelli.	18 Maj 2011	Drawing nr.: **DC-619-12-02**
Revision	A		

Pos:	Description	Materials
1	Body	Bronze ASTM B62
2	Bonnet	Bronze ASTM B62
3	Disc	ASTM B138+EPDM
4	Pin	Bronze ASTM B138



Size	1/2"	3/4"	1"	1 1/2"	2"	
DN	15	20	25	40	50	
L	58	71	80	105	128	
H	30	38	45	60	70	
Weight Kg	0,3	0,5	0,7	1,4	2,2	
Position				9,1	10,1	

Face to Face according to manufacture standard
Screwed ends according to ASME B1,20,1

Bronze

Customer : **DESMET BALLESTRA S.p.A.**
Purchase Order nr : **121426 - 2F11A**
Tag nr.: **R-126**
MRC Job nr:: 1621000619

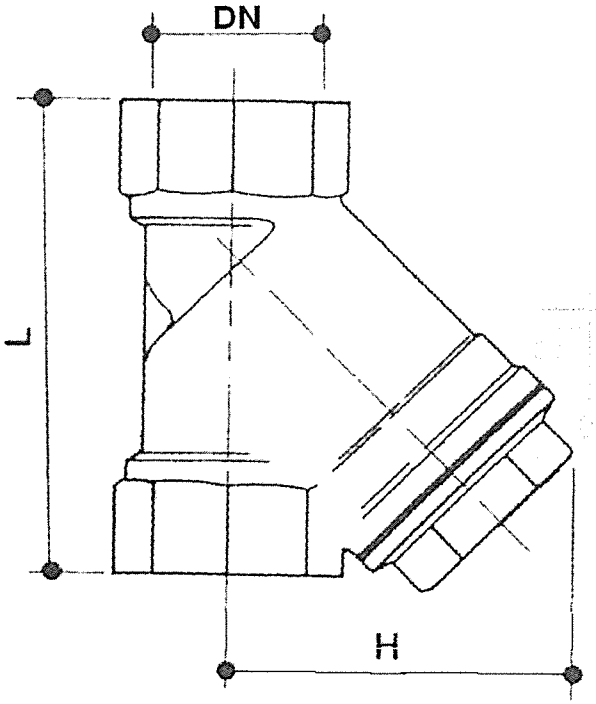
Test Pressure (water)	
Shell	79 bar
Seats	57 bar
Back seat	n.a.
Pneumatic test (air)	
Seats	n.a.

MRC | Transmark qp

Title: SWING CHECK VALVE - CLASS 300

Draw :	P.G.	11 January 2012	Manufacturer : RUB. VALDUGGIA SERIE 300
Appr. :	M.Beghelli.	11 January 2012	
Revision	A		

Drawing nr.: **DC-619-12-03**



DN	3/8"	1/2"	3/4"	1"	1 1/2"	2"
L	55	58	70	87	106	126
H	40	40	50	60	75	90
Weight Kg						
Position		6,1			7,1	8,1

Screwed ends according to ASME B1,20,1 (NpT)

Customer :	DESMET BALLESTRA S.p.A.
Purchase Order nr :	121426 - 2F11A
Tag nr.:	**F - 70**
MRC Job nr::	1621000619

Test Pressure (water)	
Shell	22 bar
Seats	n.a.
Back seat	n:a:
Pneumatic test (air)	
Seats	n:a:

MRC | Transmark

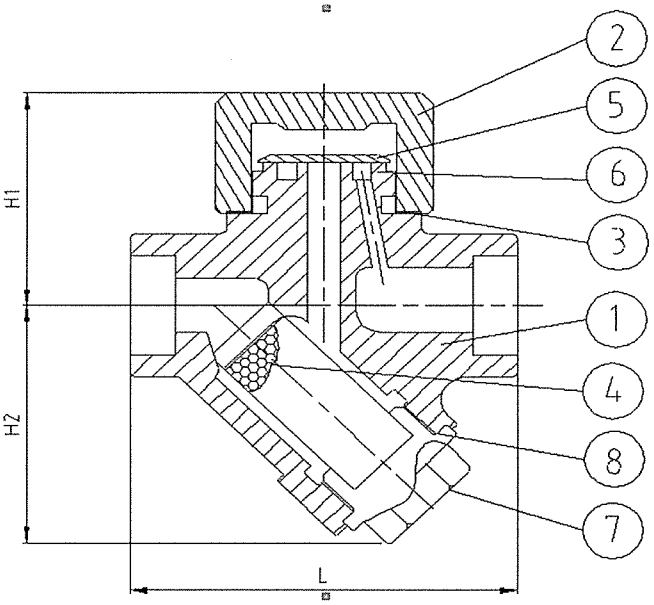
Title: STRAINER - PN 16 - BRONZE

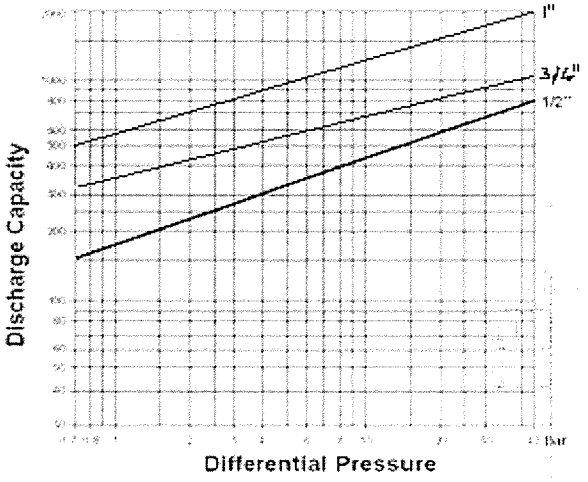
Draw :	P.G.	29 Febr. 2012	
Appr. :	M.Beghelli.	29 Febr. 2012	
Revision	A		

Manufacturer : FP fig. 223

Drawing nr.: **DC-619-12-04**

Pos:	Description	Materials
1	Body	ASTM A105
2	Cover	AISI 303
3	Cover gasket	STAINLESS STEEL
4	Screen	AISI 316
5	Disc	AISI 431-HT
6	Seat	AISI 431-HT
7	Plug	ASTM A105N
8	Plug gasket	S.W. 316/Graphite
9	Name plate	Alluminium





MAX WORKING PRESSURE : 50 bar
MAX WORKING TEMPERATURE : 425 °C
MAX WORKING BACK PRESSURE : 80 %
MINIMUM WORKING PRESSURE : 0,25 bar

Size	1/2"	3/4"	1"			
L	85	100	108			
H1	53	60	60			
H2	55	60	70			
Weight Kg	0,8	1,3	3,4			
Position	11,1					

Construction according to ASME B16,34
Face to Face according to manufacturing standard
Socket weld ends according to ASME B16,11

Customer : DESMET BALLESTRA S.p.A.
Purchase Order nr : **121426 - 2F11A**
Tag nr.: **T-66**
MRC Job nr:: 1621000619

Test Pressure (water)	
Shell	150 bar
Seats	N.A.
Back seat	N.A.
Pneumatic test (air)	
Seats	6 bar

MRC Transmark qp

Title: THERMODYNAMIC STEAM TRAP - PN 40

Draw :	P.G.	1 June 2011
Appr. :	M.Beghelli.	1 June 2011
Revision	A	

Manufacturer :

Drawing nr.: **DC-619-12-05**

Section B

« Material certificates »

MRC Transmark Italy S.r.l.
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PEC : mrctransmarkitaly@pec.it

Fiscal Code and V.A.T. : 10226360153
IBAN : IT87S0638512603100000011236
SWIFT : IBSPIT2B
Capitale interamente versato : € 46.800.00
R.E.A. MI 1358600
Registro Imprese 102226360153 MILANO

1621000619

Certificate reference list

Tag nr	pos	valve	size	class	material		MRC ref.		page
					material	trim	article nr	certicate nr	
D-51	1.1	Globe	1/2"	200	B62	Bronze	99131930	390	4 - 5
D-51	2.1	Globe	1 1/2"	200	B62	Bronze	99131934	390	4 - 5
F-69	3.1	Y-strainer	1/2"	800	A105	F316	99131937	10066	1
F-69	4,1	Y-strainer	1"	800	A105	F316	99131938	5899	2
F-69	5,1	Y-strainer	1 1/2"	800	A105	F316	99131939	10067	3
F-70	6,1	Y-strainer	1/2"	PN16	Bronze	F304	99131942	390	4 - 5
F-70	7,1	Y-strainer	1 1/2"	PN16	Bronze	F304	99131944	390	4 - 5
F-70	8,1	Y-strainer	2"	PN16	Bronze	F304	99131958	390	4 - 5
R-126	9,1	Swing check	1/2"	300	Bronze	Bronze	99131960	390	4 - 5
R-126	10,1	Swing check	2"	300	Bronze	Bronze	99131961	390	4 - 5
T-66	11,1	Steam trap	1/2"	PN 40	A105	F304	99131962	110	6 - 7
D-51	12,1	Globe	3/4"	200	B62	Bronze	99131982	390	4 - 5

U.S.V. S.R.L. COMPONENTI PER IMPIANTI

Y strainer - Basket filters - Temporary strainers - Forged valves - Sight glasses

FILTRI Y - FILTRI A CESTELLO - FILTRI TEMPORANEI - SPIE VISIVE - VALVOLE

Uffici: Via Porpora, 152 - 20131 Milano - tel. 02-2666344 Fax 02-2666393

Off./Magaz.: Via Monterosa snc - Paruzzaro (NO) tel. 0322-538728

www.usvsrl.it

ISO 9001: 2008 Cert. n° 2442/3

CE 1115

CERTIFICATE N°	10066
EN 10204 3.1 ☐	
DATE	30/04/2012

MOD 8.2.4-01 Rev. 2

customer	MRC Transmark Italy S.r.L
description	2 FILTRI Y CLASSE 800 DN 1/2" SW A105/316 DDT 173
order n°	43000662
serial n°	TAG

pressure test	bar	
HYDROSTATIC	PNEUMATIC	
BODY / BACKSEAT	SEAT	SEAT
205	NA	NA

TEST RESULT SATISFACTORY

THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL SUPPLIERS CERTIFICATES

VISUAL AND DIMENSIONAL TEST RESULT SATISFACTORY

WE DECLARE THAT THE MENTIONED PRODUCTS ARE IN ACCORDANCE WITH YOUR ORDER AND HAS BEEN DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE 97/23/EC PRESSURE EQUIPMENT DIRECTIVE (PED).

PRODUCT COMPONENTS, WHERE APPLICABLE, HAS BEEN MANUFACTURED AND HEAT TREATED, IN ACCORDANCE WITH SPECIFICATIONS.

TEST PROCEDURE AND SPECIFICATION

- ☑ API 598
- ☐ EN 12266-1
- ☑ ASME B.16.34
- ☐ MSS SP 55
- ☐ MSS SP 61

COMPONENT		CHEMICAL ANALYSIS [%]							
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni
		Ti	Cu	Fe	Al	Co	N	V	Nb
		Sn	W						CE

FORGING CODE	HEAT NR	MECHANICAL PROPERTIES				IMPACT TEST			
		Tensile	Yield	Elong.	R. of area	1 joule	2 joule	3 joule	HB
		Rm [N/mm2]	Rp 0,2% [N/mm2]	E [%]	RA [%]				
BODY 1/2" 800	ASTM A105N	0,180	0,870	0,200	0,009	0,008	0,090	0,020	0,060
		0,015	0,180		0,022			0,017	0,002
E040	10/73676	0,010							0,360
		494,0	307,0	33,7	59,0				157
BONNET 1/2"	ASTM A105N	0,17	1,25	0,27	0,005	0,01	0,00	0,03	0,00
			0,20		0,024			0,001	0,00
	A 19833								0,398
		555	355	24	48				167
SCREEN	ASTM A240 316L	0,021	1,15	0,37	0,004	0,029	16,95	2,08	10,19
							0,043		
	E 341049								
		603	289	46					
PLUG 1/4" NPT	ASTM A105N	0,180	0,84	0,18	0,009	0,011	0,08	0,001	0,06
			0,100					0,001	0,001
	79604								0,35
		503	328	28,0	65,0				155

NORMALIZED ACCORDING TO ASTM A105

Third autority dept.	Client quality dept.	Quality dept. Raffredi Flora

COMPONENTI PER IMPIANTI

Y strainer - Basket filters - Temporary strainers - Forged valves - Sight glasses

FILTRI Y - FILTRI A CESTELLO - FILTRI TEMPORANEI - SPIE VISIVE - VALVOLE

CERTIFICATE N° 5899

EN 10204 3.1

DATE 26/06/2008

MOD 8.2.4-01 Rev. 1

U. S. V. s.r.l
Uffici: Via Porpora, 152 - 20131 Milano
tel. 02-2666344 Fax 02-2666393
Off./Magaz.: Via Monterosa snc - Paruzzaro (NO) tel. 0322-538728
Sede Sociale: Via della Braida, 5 - 20122 Milano - C.F. e P. IVA IT 09122520159
Reg. Trib. Milano N. 278413 - Cap. Soc. 10329 E - C.C.I.A.A. 1268791
Pos. Mecc. MI 072971

ISO 9001: 2000 Cert. n° 2442/0

CE 1115

customer: TRANSMARK FCX ITALY S.R.L.

description: 2 FILTRI Y CLASSE 800 1"SW A105/316 DDT.288

order n°: 1031

pressure test: bar

HYDROSTATIC		PNEUMATIC
BODY	SEAT	
BACKSEAT		
205	NA	NA

THE REPORTED VALUE ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL SUPPLIER CERTIFICATES

COMPONENT		CHEMICAL ANALYSIS [%]							
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni
		Ti	Cu	Fe	Al	Co	N	V	Nb
		Sn	CE						

FORGING CODE	HEAT NR	MECHANICAL PROPERTIES				IMPACT TEST			
		Tensile Rm [N/mm2]	Yield Rp 0,2% [N/mm2]	Elong. E [%]	R. of area RA [%]	1 joule	2 joule	3 joule	HB
BODY 1" 800	ASTM A105N	0,180	1,080	0,170	0,010	0,022	0,140	0,020	0,070
		0,015	0,180		0,020			0,025	0,00
E006	75454	0,010	0,410						
		529,0	328,0	30,8	57,0				160
BONNET 1"	A105	0,200	0,940	0,220	0,012	0,010	0,160	0,004	0,020
			0,04		0,037			0,006	0,002
	652125		<0,43						
		320,0	525,0	26,4	55,5				155,0
SCREEN	ASTM A240 316L	0,021	1,15	0,37	0,004	0,029	16,95	2,08	10,19
							0,043		
	E 341049								
		603	289	46					
PLUG 1/4"	A105	0,195	0,98	0,26	0,023	0,006	0,07	0,030	0,09
			0,120		0,022			0,001	0,001
	AR2237		0,39						
		620	430	28,0	35,0				158

NORMALIZED ACCORDING TO ASTM A105

Third autority dept. | Client quality dept. | Quality dept. Raffredi Flora

U.S.V. S.R.L. COMPONENTI PER IMPIANTI

Y strainer - Basket filters - Temporary strainers - Forged valves - Sight glasses

FILTRI Y - FILTRI A CESTELLO - FILTRI TEMPORANEI - SPIE VISIVE - VALVOLE

Uffici: Via Porpora, 152 - 20131 Milano - tel. 02-2666344 Fax 02-2666393

Off./Magaz.: Via Monterosa snc - Paruzzaro (NO) tel. 0322-538728

www.usvsrl.it

CE 1115

ISO 9001: 2008 Cert. n° 2442/3

MOD 8.2.4-01 Rev. 2

CERTIFICATE N°	10067
EN 10204 3.1 ☐	
DATE	30/04/2012

customer	MRC Transmark Italy S.r.L		
description	1 FILTRO Y CLASSE 800 DN 1 1/2" SW A105/316 DDT 173		
order n°	43000662		
serial n°		TAG	

pressure test	bar	
HYDROSTATIC	PNEUMATIC	
BODY	SEAT	SEAT
BACKSEAT		
205	NA	NA

TEST RESULT SATISFACTORY

THE REPORTED VALUES ARE STRICTLY IN ACCORDANCE WITH THE ORIGINAL SUPPLIERS CERTIFICATES

VISUAL AND DIMENSIONAL TEST RESULT SATISFACTORY

WE DECLARE THAT THE MENTIONED PRODUCTS ARE IN ACCORDANCE WITH YOUR ORDER AND HAS BEEN DESIGNED AND MANUFACTURED IN ACCORDANCE WITH THE 97/23/EC PRESSURE EQUIPMENT DIRECTIVE (PED).

PRODUCT COMPONENTS, WHERE APPLICABLE, HAS BEEN MANUFACTURED AND HEAT TREATED, IN ACCORDANCE WITH SPECIFICATIONS.

TEST PROCEDURE AND SPECIFICATION

- ☑ API 598
- ☐ EN 12266-1
- ☑ ASME B.16.34
- ☐ MSS SP 55
- ☐ MSS SP 61

COMPONENT		CHEMICAL ANALYSIS [%]							
PART NAME	MATERIAL	C	Mn	Si	S	P	Cr	Mo	Ni
		Ti	Cu	Fe	Al	Co	N	V	Nb
		Sn	W						CE
FORGING CODE	HEAT NR	MECHANICAL PROPERTIES				IMPACT TEST			
		Tensile	Yield	Elong.	R. of area	1 joule	2 joule	3 joule	HB
		Rm [N/mm2]	Rp 0,2% [N/mm2]	E [%]	RA [%]				
BODY 1"1/2 800	ASTM A105N	0,200	0,930	0,230	0,008	0,008	0,090	0,010	0,060
		0,017	0,150		0,023			0,015	0,00
E054	11/35436	0,009							0,390
		496,0	308,0	33,6	58,6				162
BONNET 1 1/2"	ASTM A105N	0,19	1,14	0,26	0,011	0,012	0,07	0,017	0,08
			0,21		0,031		0,012	0,00	0,00
	10100								0,416
		564	412	25	72,8				163
SCREEN	ASTM A240 316L	0,021	1,15	0,37	0,004	0,029	16,95	2,08	10,19
							0,043		
	E 341049								
		603	289	46					
PLUG 1/4" NPT	ASTM A105N	0,180	0,84	0,18	0,009	0,011	0,08	0,001	0,06
			0,100					0,001	0,001
	79604								0,35
		503	328	28,0	65,0				155

NORMALIZED ACCORDING TO ASTM A105

Third autority dept.	Client quality dept.	Quality dept. Raffredi Flora

RUBINETTERIE DI VALDUGGIA S.R.L.
Via Monte Fenera, 20
13016 VALDUGGIA (VC)
Tel. e Fax 0163/47998
C.F. e P. IVA 01775460023

CERTIFICATO DI ACCETTAZIONE E COLLAUDO

Fornitore	Cliente
Rubinetterie Di Valduggia srl.	ARC TRANSYORK

Descrizione pezzo	Quantità	Nr. ordine
Filtro in bronzo 1" NPT	2	43000933
Valvole globo ms 1/2" NPT	23	43000703
Valvole bronzo Clapet NPT 1/2"	4	43000703
filtro in bronzo 3/4" NPT	1	43000703
Valvole globo ms 1/4" NPT	60	43000756
Valvole globo ms 1"1/2 NPT	1	43000756
Filtro in bronzo 1/2" NPT	1	43000756
Filtro in bronzo 1"1/2 NPT	2	43000756
Filtro in bronzo 2" NPT	1	43000756
Valvole bronzo Clapet 1"1/2	3	43000756
Valvole bronzo Clapet 2"	1	43000756
Valvole bz. globo ms 3/4"	15	43000756

Prove di accettazione	Campione	Esito
Visiva - Dimensionale	100%	Si
Manovrabilità	100%	Si
Tenuta idraulica corpo	25 BAR	Si
Tenuta idraulica otturatore	25 BAR	Si

Collaudatore	Data collaudo	Bolla Nr.
Filippo Simonetti	26.06.2012	390 del 27.6.2012

CERTIFICATO DI COLLAUDO

(Type / Tipo 3.1 Reference / Riferimento UNI EN 10204:2005)

DATA:08/05/2012

Messrs / Ditta	Your order / Vs. ordine	Conf. No. / N° Conf.
RUBINETTERIE DI VALDUGGIA SRL		433
Material / Materiale	**Destination \ Destinazione**	
PANI BRONZO	RUBINETTERIE DI VALDUGGIA SRL-VIA MONTE PENERA 20 (13) VALI	
Peso sped.: 3157 Kg	**Note**	
Alloy / Lega	**Norma**	
CuSn5Zn5Pb5-B CB491K	UNI EN 1982	
Temper / Stato	**Altre Specifiche**	

(Cu= Cu + Ni)

The material has been tested for radioactivity presence with negative result.Test effected by y high resolution spectrometer.
Materiale sottoposto a controllo di rilevanza dei livelli di radioattività con esito Negativo. Misure effettuate con spettrometro γ ad alta risoluzione.

CHEMICAL ANALYSIS ANALISI CHIMICA		Cu	Sn	Pb	Fe	Ni	Al	Mn	Si	Zn	S	P	Sb	As
Required Prescritta	Min	83,0	4,2	4,20						4,50				
	Max	86,5	6,0	5,80	0,25	2.00	0.010	.	0,010	6,50	0,08	0,030	0,25	
Cast No. / N° Colata 12-353 Dimension / Dimensione		83.36	1.600	5.56	0.130	0.600	0.000	.	0.000	5.62	0.030	0.020	0.050	.

MECHANICAL CHARACTERISTICS - CARATTERISTICHE MECCANICHE

						Hardness Durezza HB	
Required values / Prescritte							

Required of test inspector
Dichiarazione del Collaudatore

Verified
Verificato

Test Inspection Manager
Il Capo del Servizio Collaudo

VALSAR S.R.L.
Valvole Industriali
20090 CESANO BOSCONE (MI) - Via Raffaello Sanzio, 14 - Tel. 0039 02 45866478 r.a. - Fax 0039 02 4584575 - Cod. Fisc. 01551890062
P. IVA 11262240150 - R.E.A. n. 1420221 - Cap. Soc. € 67.320,00 i.v. - http: //www.valsar.it - e mail: staff@valsar.it

SPETT.LE
MRC TRANSMARK ITALY SRL

VIA STENDHAL 65
20144 MILANO MI

CUSTOMER: 71 MRC TRANSMARK ITALY SRL

ORDER: ORD. 43000728-757-767

DELIVERY NOTE: 1.054 17/07/12

TEST CERTIFICATE UNI EN 10204 - 3.1

CERTIFICATE No: 110

PAG: 1

ITEM IDENTIFICATION	DESCRIPTION	QUANTITY	RATING	SIZE	HYDRAULIC TEST BODY	HYDRAULIC TEST SEAT	AIR TEST SEAT	CERTIFICATE No
4 B02BISD4	THERMODYNAMIC STEAM TRAPS	18	PN 40	1/2"	60			246/12/S1207012
7 B02BISD4	THERMODYNAMIC STEAM TRAPS	12	PN 40	1/2"	60			246/12/S1207012
8 B02BISD4	THERMODYNAMIC STEAM TRAPS	8	PN 40	1/2"	60			246/12/S1207012
12 B02AGWI40	WAFER DISC CHECK VALVES	1	PN 40	DN 40	60	44		246/12/S1207011
13 A04AGWI15	WAFER DISC CHECK VALVES	5	PN 40	DN 15	60	44		246/11/S1107071
13 A05AGWI15	WAFER DISC CHECK VALVES	5	PN 40	DN 15	60	44		246/11/S1111037
14 A05AGWI20	WAFER DISC CHECK VALVES	2	PN 40	DN 20	60	44		246/11/S1111038

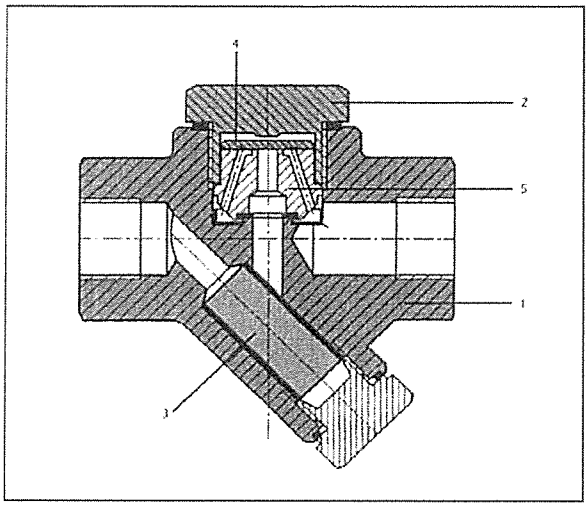
Inspector's signature

ITEM DESCRIPTION	MATERIALS	HEAT No	C %	Mn %	P %	S %	Si %	Cr %	Mo %	Ni %	V %	Cu %	Al %	Sn %	Zn %	%	%	%	CE %	R	S	A %	C %	HB	K1	K2	K3
4 BODY	C22.8	101478	,200	,550	,004	,003	,240	,030					,020											140,00			
4 COVER	AISI 304	4247	,055	1,315	,024	,017	,538	19,068	,207	9,908														112,00			
7 BODY	C22.8	101478	,200	,550	,004	,003	,240	,030					,020											140,00			
7 COVER	AISI 304	4247	,055	1,315	,024	,017	,538	19,068	,207	9,908														112,00			
8 BODY	C22.8	101478	,200	,550	,004	,003	,240	,030					,020											140,00			
8 COVER	AISI 304	4247	,055	1,315	,024	,017	,538	19,068	,207	9,908														112,00			
12 BODY	AISI 316	M69	,055	,748	,035	,009	1,069	18,200	2,224	9,160										617,00	254,00	39,00					
12 DISC	AISI 316	20110830	,027	,978	,031	,003	,406	16,310	2,190	11,170																	
13 BODY	AISI 316	C66	,560	1,087	,010	,015	,793	18,280	2,103	9,080										537,00	262,00	36,00					
13 DISC	AISI 316	0578924	,020	,870	,027	,001	,340	16,650	2,000	10,240										595,00	271,00	51,40		134,00			
13 BODY	AISI 316	M88	,055	,814	,028	,013	,083	18,270	2,158	9,480										513,00	268,00	40,00					
13 DISC	AISI 316	0578924	,020	,870	,027	,001	,340	16,650	2,000	10,240										595,00	271,00	51,40		138,00			
14 BODY	AISI 316	M88	,055	,814	,028	,013	,083	18,270	2,158	9,480										513,00	268,00	40,00					
14 DISC	AISI 316	0578924	,020	,870	,027	,001	,340	16,650	2,000	10,240										595,00	271,00	51,40		138,00			

page 6 of 7

Mod. FTC 020/2

I dati sopra riportati sono ricavati dal certificato del fornitore in nostre mani.
All these technical details have been deducted from the supplier's certificate



TDK 45

CONDIZIONI OPERATIVE / OPERATING CONDITIONS	
PRESSIONE NOMINALE / MAX. ALLOWABLE PRESSURE PMA (bar)	45
TEMP. MASSIMA DI PROGETTO / MAX. ALLOWABLE PRESSURE TMA (°C)	450
PRESSIONE MASSIMA DI ESERCIZIO / MAX. OPERATING PRESSURE PMO (bar)	40
MASSIMA PRESSIONE DIFFERENZIALE / MAX DIFFERENTIAL PRESSURE PMD (bar)	32
LIMITE MASSIMO DI TEMP. DI ESERCIZIO / MAX. OPERATING PRESSURE TMO (°C)	400

PESI / WEIGHTS						
CONNESSIONI / CONNECTIONS	FLANGIATE / FLANGED			FILETTATE / SCREWED		
misura / sizes (mm)	15	20	25	1/2"	3/4"	1"
peso / weight (kg.)	3.4	4.1	4.5	1.8	1.7	1.6

CONNESSIONI / CONNECTIONS	
FILETTATE / SCREWED	NPT acc.to ANSI B1 20.1 BSP acc.to BS 21
A TASCA DA SALDARE / SOCKET WELD	ANSI B 16.11
FLANGIATE / FLANGED	DIN 2533

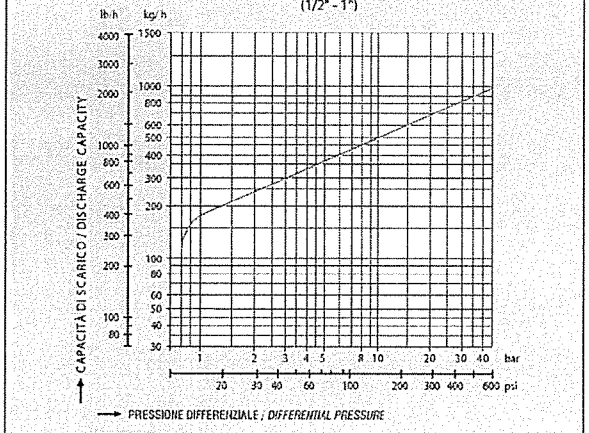
MISURE / SIZES	
mm	inches
15 - 25	1/2" - 1"

N.		MATERIALI / MATERIALS
1	CORPO / BODY	ASTM A105 / FORGED STEEL ASTM A1 05
2	COPERCHIO / COVER	ACCIAIO INOX AISI 304 / FORGED STEEL AISI 304
3	FILTRO / STRAINER	ACCIAIO INOX / STAINLESS STEEL
4	DISCO / DISC	ACCIAIO INOX / STAINLESS STEEL
5	SEDE / SEAT	ACCIAIO INOX / STAINLESS STEEL

Scaricatore di condensa termodinamico con filtro incorporato. Non è impiegabile con contropressioni maggiori dell'80% della pressione di ingresso. Scarico in accordo con l'entità della condensa. Tutte le parti di ricambio sono disponibili e facili da mantenere. Il filtro a Y sotto il corpo consente una facile pulizia quando necessario .
Per un lavoro appropriato è indispensabile che sia installato in posizione orizzontale.

Thermodynamic steam trap with embodied strainer. Maximum opposite pressure should not exceed 80% of front pressure. Discharge according to the amount of the condensate. All spare parts are available and it is easy to maintenence. Strainer is "Y" type which is under the body and easy to clean when necessary. The steam trap should be fitted on the line horizontaly for proper working.

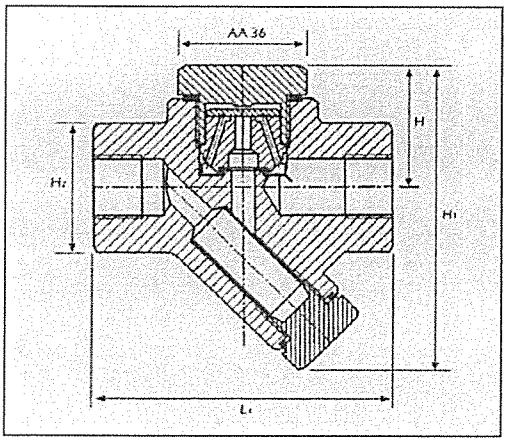
CAPACITÀ DI SCARICO
DISCHARGE CAPACITIES

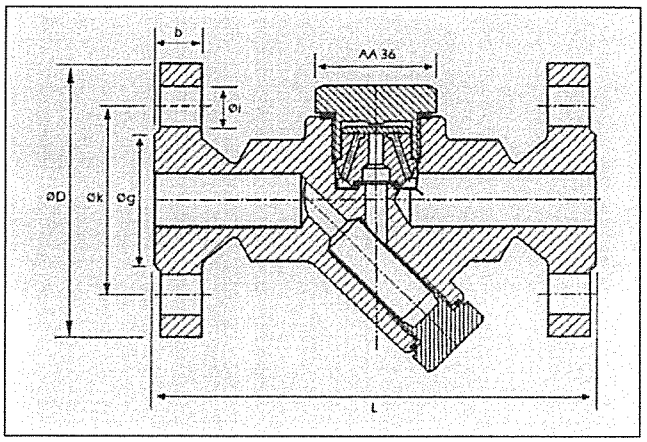


LEGENDA / *LEGEND*

Curva = Capacità di scarico delle misure da 1/2" fino a 1".
Chart = Discharge capacity of sizes from 1/2" up to 1".

DIMENSIONI / *DIMENSIONS*								
MISURA / *SIZE*	L - L1	H - H1 - H2	D	b	k	g	i	no. Holes
15	150 - 95	40 - 100 - 42	95	16	65	45	14	4
20	150 - 95	40 - 100 - 42	105	18	75	58	14	4
25	160 - 95	40 - 100 - 42	115	18	85	68	14	4





MRC Transmark

Section C

« Use and Maintenance Manual »

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IBAN : IT87S0638512603100000011236
SWIFT : IBSPIT2B
Capitale interamente versato : € 46.800.00
R.E.A. MI 1358600
Registro Imprese 102226360153 MILANO

1621000619

Use and Maintenance Manual Index

Tag nr	pos	valve	size	class	material		MRC ref.	page
					material	trim	article nr	
D-51	1.1	Globe	1/2"	200	B62	Bronze	99131930	5 to 8
D-51	2.1	Globe	1 1/2"	200	B62	Bronze	99131934	5 to 8
F-69	3.1	Y-strainer	1/2"	800	A105	F316	99131937	1
F-69	4,1	Y-strainer	1"	800	A105	F316	99131938	1
F-69	5,1	Y-strainer	1 1/2"	800	A105	F316	99131939	1
F-70	6,1	Y-strainer	1/2"	PN16	Bronze	F304	99131942	1
F-70	7,1	Y-strainer	1 1/2"	PN16	Bronze	F304	99131944	1
F-70	8,1	Y-strainer	2"	PN16	Bronze	F304	99131958	1
R-126	9,1	Swing check	1/2"	300	Bronze	Bronze	99131960	1
R-126	10,1	Swing check	2"	300	Bronze	Bronze	99131961	5 to 8
T-66	11,1	Steam trap	1/2"	PN 40	A105	F304	99131962	2 to 4
D-51	12,1	Globe	3/4"	200	B62	Bronze	99131982	5 to 8

INSTALLATION INSTRUCTIONS

Make sure that flow direction of fluid corresponds to the one indicated by the "arrow" on the body.
Install the strainer on the pipe with the part containing the filtering cartridge downwards, in this way the strainer works in optimum conditions and during the cartridge cleaning the fluid on line is not polluted.
The max. acceptable pressure is based on the class and temperature of fluid, follow the tables on the manufacturer's handbook.

MAINTENANCE INSTRUCTIONS

Eliminate pressure from the line on which the strainer is installed.
Loosen the bonnet or the nuts, using a standard hexagonal wrench, by rotating anticlockwise.
Remove the filtering cartridge, blow it with compressed air from the outside inwards without damaging it.
Wash it with non-corrosive/dangerous detergents, which are compatible with the fluid on line.
Lodge back the cartridge in its seat.
Replace the sealing gasket, by cleaning carefully the gasket seats.
Verify that gasket does not come out from the seat on the bonnet.
Screw the bonnet / nuts with an hexagonal wrench, with the following closing torques:

bonnet fixed with bolts	Torque (all classes)
ø 10	15÷20 Nm
ø 12	35÷40 Nm
ø 14	

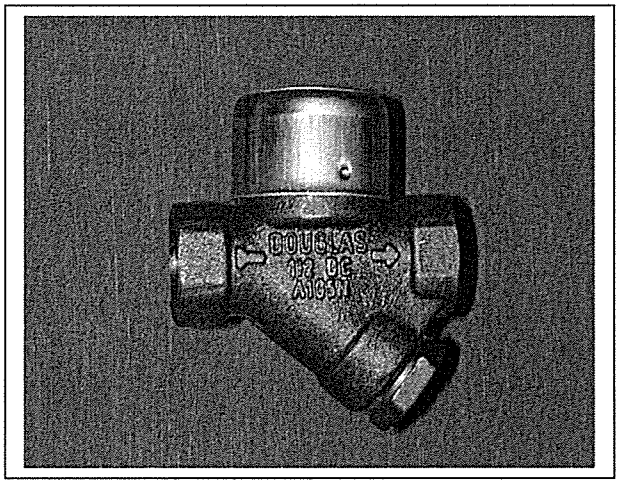
bonnet screwed on the body	Torque	
	Class 800	Class 1500 and 2500
"	55÷60 Nm	As values for class 800+10%
1/4"		
"		
1/2"		
3/4"	65÷70 Nm	
1"	85÷90 Nm	
1" 1/4	110÷120 Nm	
1" 1/2		

Introduce pressure in the strainer and in case of leakages adjust the closing.

MAINTENANCE MANUAL

THERMODYNAMIC STEAM TRAP

mod. DC 50



INDEX

Paragraphs

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1) DESCRIPTION AND OPERATING PRINCIPLE.

This type of trap uses steam dynamic energy to close the discharge orifice. A disc closes both the inlet and outlet orifice. Condensate can lift the disc and be discharge , but when steam is formed its dynamic energy will create a low pressure area (Bernoulli Law) under the disc which draws it towards the seat.

2) ASSEMBLING

a) The line connection can be realized by screwed or welded connections (socket or butt weld). The norms relevant to the connections type and dimensions are listed in the attached reference drawings. Welding have to be performed by qualified personnel and following qualified procedures .

b) Check that the steam trap is connected to the line, following the flow direction, that is marked on the body by an arrow. Check the dimensions of the steam trap allow to disassemble the cover and to draw the screen off during the maintenance. Consider the possibility to disconnect the steam trap from the line during the maintenance performing. It will be possible to perform the maintenance using a by pass without using the area of the line where the steam trap is connected.

c) ***The steam trap can work with steam , condensate and, eventually, the air that to be discharged. Any other fluid has to be excluded.***

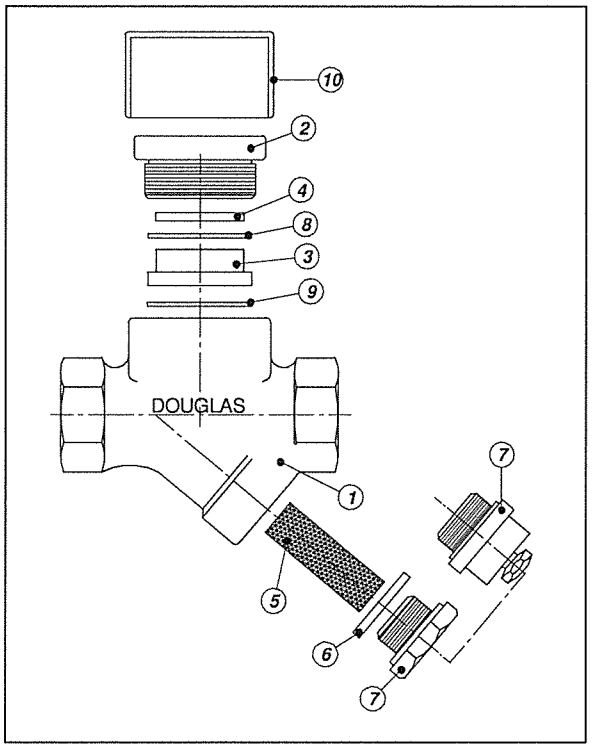
d) Check that the line is supported and can stand any possible expansion and vibration in order to avoid to charge the steam trap too much.

3) START-UP

After the steam trap assembling gradually draw the line to the operating conditions. The start up has to be performed avoiding any water hammer, in order to keep both the steam trap and the line functionality. After any new line start up is advisable the screen cleaning. During the start up phase check there are no leaks in the connections between the body and the covers and also between the steam trap connections and the line.

4) MAINTENANCE

Maintenance is performed by disassembling the cover from the body to carry out the internal parts and, if necessary, replace them.
During the maintenance, check both the inside and the outside of the steam trap in order to verify, after a proper cleaning, the component integrity , with particular attention to any corrosion spots that have to be removed.



Before starting it is necessary to check the steam trap inside pressure has been completely dissipated and the body temperature has reached the environmental values.
By installing a new seat-disc assembly you can bring the steam trap to the "as new from factory" condition. This operation is carried out in a few minutes without removing steam trap from the pipeline.

-Unscrew cover (2.
-Remove seat (3) disc (4) and cover gasket (9) and seat gasket (8).
-Replace the gasket (8) and install a new seat (3) disc (4).
-Replace the cover gasket (9) and screw on cover (2) using a high temperature grease.
-To service the strainer unscrew the plug (7) on Blow -Off Valve (7).
-Remove the relevant plug (7) and clean or replace the screen (5).
-Replace the gasket (6) and screw on plug (7) on Blow -Off Valve (7).
-Slowly give pressure to the line, checking for the body/cover seal (see *par. 3*).
-Write the date of this maintenance operation

5) NAMEPLATE INFORMATIONS

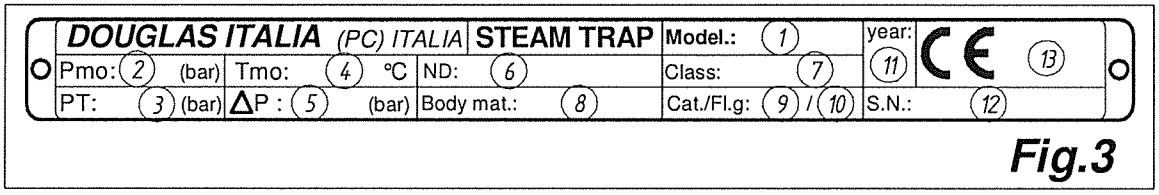


Fig.3

Picture 3 shows the nameplate fixed on the body indicating the equipment information.
The meaning of the various marking types is explained here below. The value of the data is shown in the relevant reference drawings .

1	Model.	DOUGLAS ITALIA steam trap model identification .
2	Pmo (bar)	Maximum allowable pressure inside the steam trap body.
3	PT (bar)	Allowable hydraulic test pressure
4	Tmo (°C)	Maximum allowable working temperature
5	ΔP (bar)	Maximum allowable upstream-downstream pressure drop to allow the steam trap performance
6	N.D.	Nominal diameter and type of connection.
7	Class	Steam trap body rating in accordance with ASME B16.34 norm. It is the maximum allowable pressure inside the body with reference to the material (described at point 8) and to the reference temperature. **Check that the working conditions are in accordance both with the limiting conditions mentioned on B16.34 rating tables.**
8	Body mat..	Steam trap body material identification .
9	Cat	Fluid PED category
10	Fl.gr.	PED fluid grup
11	Year	Manufacturing year .
12	S.N.	DOUGLAS ITALIA Serial number
13		Notified body number

6) PROBLEMS/SOLUTIONS.

TROUBLE	CONSEQUENCE	AMENDMENT
Leak on the body/bonnet connection	The fluid leaves the trap from the body/cover connections	• Check the tightening torque and assemble, if necessary, a new gasket making reference to the instructions given at par. 4
The steam traps does not open, or it opens insufficiently	• The equipment where the trap is installed – the user - does not reach the fixed temperature • The sight glass receives poor or no flow.	• Check the inlet and the outlet pressure do not overcome the maximum allowable pressure. • The discharge valve is obstructed by dirt. Clean the valve and ,if necessary, assemble a strainer upstream the steam trap.
The steam trap does not close	• The steam is driven to the flow indicator. • The condensate back tanks contains steam • Back pressure	• The discharge valve ruined Replace as per par. 4 • The discharge valve (pos4) is obstructed by dirt and it does not close.

MRC | Transmark qp

TECHNICAL DESCRIPTION, INSTRUCTIONS
FOR INSTALLATION,OPERATION & MAINTENANCE

SECTION 1 – GENERAL

This manual applies to all standard valve products supplied by MRC Transmark Italy S.r.l.
The missing respect of following instruction will make decline every guarantee and every responsibility of the manufacturer on damage caused to people and things.
All through the working, the relevant safety rules of the plant area must be respected.
All installation & maintenance operations must be performed only by qualified personnel, with a full competence in valves and pressure equipment sphere.

INSTALLATION AND MAINTENANCE.

The valve products supplied by MRC Transmark Italy S.r.l. may be installed and operated in service conditions suitable to their design and construction and only in accordance with applicable codes, standards and generally accepted good construction and operating practise.
The valve must be handled with suitable care and the flow direction on the valve must be respected.
Before positioning the valve in the line, ensure that the pipe flanges are in coaxial and parallel alignment. When it is confirmed the valve can be positioned; valve and pipe flanges are brought together by even and partial tightening of the bolts in pairs, diametrically opposite and at rigth angles all arouind the flanges until they are perfectly mated around the whole circumference. Then, following the same procedure, the bolts can be fully tighetened.
If a buttweld valve is installed it must be supported in order to align correctly both ends to the pipe. The welding of the valve to the pipe can be carried out, taking care of all the welding requirements to avoid any stress of the material.It should be a normal practice that the system is throughly flushed trough with valves fully opened, before the operation of the plant; to avoid that sand, rust scale and welder spatter should damage the seating surface.
Besides, it is recommended to check the tightness of flange, bonnet and gland bolts after a short period of initial operation of the plant.
It is suggested to issued a periodical plan of preventive maintenance of minor parts:
- checking of flanged connections;
- checking for tighteness of the valve boltings (particularly important if the valve has been subject to severe changes in temperature);
- replacement of body/bonnet gasket and packing;
- lubrication of yoke sleeve, lantern, stem thread and eyebolts.

To ensure the safety of a personnel, the procedure for changing stem packing (sec.2) must be followed.
This procedure is not applicable to bellow sealed gate and globe valves.
Replacement of major components, including stem and wedge/disc should not be done under fields conditions, but should be done only in a properly equipped workshop.

SECTION 2 – STEM PACKING

Stem packing is used on all stardard gate valves and globe valves, bolted bonnet type not bellow sealed.
We suggest periodic inspection of the stem packing.In the event that the stem packing is leaking, it may only be necessary to tighten the gland flange bolting.

PROCEDURE FOR CHANGING STEM PACKING
Valve in normal service.
The valve must be in fully open position with stem retracted against the back seat.
Only when the stem is fully backseated, the flange bolting can be loosened slightly to release any pressure in the packing/stuffing box chamber.this procedure also serve s as a test to confirm that the stem is fully backseated and sealing against the back seat.
WARNING : if the stem does not backseat correctly and does not seal completly against the back seat, the stem packing can not be replaced while the valve is under service conditions.

The gland flange bolting may further loosened to allow the gland bushing to move up the stem permitting the removal of the stem packing.

SECTION 3 – BOLTED BONNET /BELLOW SEALED GLOBE & GATE VALVES

DISASSEMBLING
Before any operation it has to be assured that there is no pressure in the valve and it is partially open.
Remove the body-bonnet boltings to allow removal of the bonnet assembly from the body. The bonnet-yoke assembly including the stem and the disc may be removed from the body(for gate valves making sure that the wedge and the body guides are marked to allow the replacing of the wedge in the original position)
The disc may now be removed from the stem.
The stem may now be removed down through the bonnet unscrewing in a proper direction.

MAINTENANCE OF DISC, SEAT RING AND STEM
To check that the original sealing characteristic of the valves are maintained, we suggest a "Bluing Test".This test will indicate any uneven wear, leak paths or damage to the sealing surface.
The disc and seat ring sealing surface may be redressed using suitable fine grained grit paper, emery cloth or equivalent. During redressing, be sure that the work is done evenly on the complete surface; this is necessary to maintain the original plane of the sealing surface.
The valve stem should be inspected, cleaned and redressed if necessary to remove any build up of process product in the area of the stem packing and stuffing box. Care must be taken to retain the original stem finish, particularly in the stem packing area.
Clean all internal and external parts of foreign materials or process products that could interfere with the normal operation of the valve.

REASSEMBLING
Replace the stem by inserting it up through the bonnet and stuffing box to engage the threads of the yoke bushing.
Replace the disc on the end of the stem.
Place the new bonnet gasket in the correct position on the bonnet flange. Use a new gasket each time the valve is disassembled, using manufacturer supplied replacement or equal. The bonnet-stem-yoke assembly may now be replaced on the valve body.

TIGHTENING OF THE BOLTING
The body-bonnet bolting should be cross tightened, in pairs, diametrically opposite and at right angles all around the flanges until they are perfectly mated around the whole circumference to ensure even tightness and equal

compression of the body-bonnet gasket. Bolts are to be tightened to bolting torques in the standard tables with specific reference to bolting material.
The gland flange bolting should be cross tightened to compress the stem packing evenly but only enough to prevent stem leakage. Over tightening will results in stem seizure.
After a complete reassembling, we suggest a suitable hydrostatic test to confirm proper reassembly and sealing of the valve.

SECTION 4 – BOLTED BONNET CHECK VALVES

DISASSEMBLING
Remove the body-bonnet bolting to allow removing of the cover.
Remove the plug and pull out the hinge pin.
Proceed with disassembling of the hinge and the disc.

MAINTENANCE
To check that the original sealing characteristic of the valve are maintained, we suggest a "Bluing Test". This test will indicate any uneven wear, leak paths or damage to the sealing surfaces.
The disc and the seat ring sealing surface may be redressed using suitable fine grained grit paper, emery cloth or equivalent. During redressing, be sure that the work is done evenly on the complete surface. This is necessary to maintain the original plane of sealing surfaces.

REASSEMBLING
Replace the disc and the spring in the body, setting them with the hinge pin and then tightening the plug.
Insert a new body-bonnet gasket (manufacturer supplied or equal) and replace the cover.
The body-bonnet bolting should be cross tightened to ensure even tightness and equal compression on the body-bonnet gasket. Bolts are to be tightened to bolting torques indicated on standard table with specific reference to the bolting material.

SECTION 5 – BUTTERFLY VALVES

- Valve must be stocked, even if installed, with disc in semi open position to avoid damages to disc edge and liner.
- Valves must be protected from acids, alkali and other corrosive media.
- If valves have to be installed long before scheduled start up, it is advisable to lubricate rubber seat with proper lubricant.
- Handlever must be assembled parallel to the disc.
- Handwheel axis must be perpendicular to piping centerline, while position indicator must be parallel to the disc.
- Near the valve spot welding only is allowed as complete welding heat will damage the seat.
- Be sure that inside piping there is no welding slag or other items able to damage the seat
- In case of muddy liquids it is advisable to install valves with shaft in horizontal position to allow an easy flow of the mud in the lower area of the pipe.
- Is advisable to install valves DN > 300 with shaft in horizontal position to split disc weight on two supports.
- When installing the valve allow a sufficient clearance between the flanges to insert the valve without cutting or damaging elastomer edge.
- Do not use gaskets between flange and valve.
- After centering, before tightening bolts, open and close the valve to verify the easy disc turning.
- The disc must be in fully open position while tightening the bolts in cross way until flanges touch valve body
- Heavy valves must be supported by a suitable basement.
- Before dismantling totally or partially the valve, be sure there is no pressure upstream and downstream.
- When installed on hazardous services, before final start up, be sure there is no leakage along shaft and mating surfaces

Lug type valves as pipe end valve

- Lug valves can be installed as line end valve. In this case maximum pressure is 30% of the rated one for normal use.
- Do not use for gas service.
- It is advisable, when downstream line is disconnected, to protect the valve with a blind flange.

SECTION 6 – BALL VALVES

The ball valves are delivered already assembled and ready for use.
The principle of ball valve lies in the use of a spherical plug which is totaly between two seats made of PTFE.
The ball is engaged by the stem to which is attached an handle.
When assembling the seats are precompressed in such away that valve is tignt without pressure.
The seats are self-compensanting during wear.

In case of maintenance procede as follows:
Put the ball on open position.
Remove the screwes.
Remove the ball that must be changed when damaged.
Remove the nut, the wrench, the lock nut, spring washers and the pressung bush.
Remove the stem, with the bellow seals and the stem seal.
Change the seat on the body, the seat on the end, change, if necessary the stem and the stem seals.
Insert the stem to the body, than the ball in closed position, fix the end to the body with the screws.
Valve should be opened and closed 3-4 times in order to check that operation is free from defect.

SECTION 7 – Y STRAINER

Install the strainer with flow according to the arrow on the body

To clean the strainer unscrew the plug on the cover, while for cleaning the cartridge disassemble the cover unscrewing the bolts. Be carefully: carry out cleaning only without pressure and after checking the line upstream and downstream.

SECTION 8 – DIAPHRAGM VALVE

The diaphragm valve is of the conveyed flow type with a loss of pressure below that of standard seat valves; according to the various operating conditions, the valve body can cast iron, vulcanite and cast iron, glazed cast iron, light alloy, etc., the diaphgram, in any case, consist of the material suitable for the specific service required from the valve. The head, complete with all control parts, consists of standard metals since the diaphragm protects it against any attack from fluids which the valves is supposed to control and check.
The diaphragm is controlled in the opening and closing positions, as a result the valve can operate even under vacuum, it is recommended on the other hand, never toexceed certain value of inner pressure also in connection with the valve size.
Therefore for an efficient operation of the valve, we advise you to replace the diaphragm if need be necessary.

To Replace of the diaphragm :

1. To take-off the bolts, the washers, the nuts
2. After this operation, to unscrew trough the control wheel, the plug.
3. So that come out completely from the cover
4. At the end of this operation, we have a block made up of plug and diaphragm
5. To unscrew the clamping screw for bushing that join the two half of the plug and take-out the diaphragm.

To re-assemble :
Proceed in the reverse order.
For a very good operation of the diaphragm on the body's seat, to screwtight the bolts and the nuts at cross.