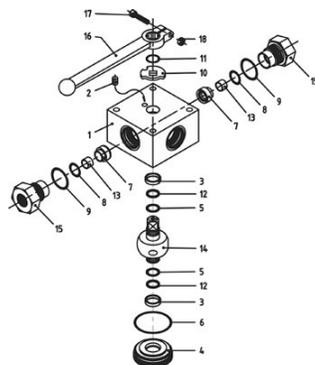


### High-Pressure Block Body Ball Valve - Type TBV



Pressure inlet possible from all ports!



#### List of Components

No.	Qty.	Description
1	1	Body
2	1	Stop Pin
3*	2	Bearing
4	1	Trunnion Retainer
5*	2	Trunnion O-Ring
6*	1	Retainer O-Ring
7*	4	Ball Seat
8*	4	Seat O-Ring
9*	4	Connector O-Ring
10	1	Cam Plate
11	1	Snap Ring
12*	2	Trunnion Back Up Ring
13	4	Seat Support
14	1	Trunnion Ball
15	4	Connector
16	1	Handle
17	1	Handle Bolt

\* Included in seal kit

#### Characteristics

Four-way high-pressure block body ball valves designed for use as 4-way selectors (T-bore, 90° operation) for hydraulic applications

##### Standard Construction

- Block body design for in-line assembly
- Multi-way valve with trunnion-style ball
- Supplied with lever

##### Standard Materials

- Body: Carbon Steel, zinc/iron-plated
- Ball: Carbon Steel, hard chrome-plated
- Stem: Carbon Steel
- Lever: Aluminium (STAUFF Sizes 02 and 04)  
Zinc (STAUFF Sizes 06 to 10)  
Aluminium (STAUFF Sizes 12 to 24R)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

##### Standard Connections Styles / Sizes

- Female BSP thread (DIN ISO 228) >G 1-1/2 BSP
- Female NPT thread (ANSI B1.20.1) >1-1/2 NPT
- Female UN/UNF thread (SAE J 514) >1-5/16-12 UN (1" SAE)
- 24° cone connection (DIN 2353); Light Series >35L
- 24° cone connection (DIN 2353); Heavy Series >38S

##### Pressure loaded seats at all ports!

##### Pressure Range

- Pressure range: up to 500 bar / 7250 PSI (depending on size and material combination of the ball valve)

##### Temperature Range

- Operating temperature range: -20 °C ... +100 °C / -4 °F ... + 212 °F

##### Options / Accessories

- Alternative lever designs/materials (see page F92)
- Locking devices (see pages F93-95)
- Actuator packages (see page F96)
- Limit switches (see page F96)
- Stainless Steel body
- Stainless Steel ball and stem
- Special ball seat and O-ring materials available for lower/higher temperatures and more aggressive media

##### Porting Pattern

- Symbol: T
- Overlap: positive
- Operating: 90°

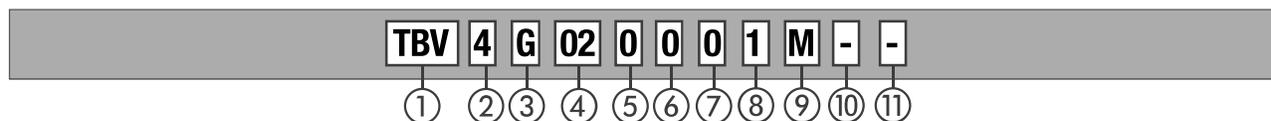


- Stop of end position:



Please see pages F98-F99 for alternative porting patterns.

#### Order Codes



##### ① Type

Multi-Way T-Bore Ball Valve **TBV**

##### ② Number of Ports

Four Ports (Four-Way Ball Valve) **4**

##### ③ Connection Style

Female BSP Thread (DIN ISO 228) **G**  
 Female NPT Thread (ANSI B1.20.1) **0**  
 Female UN/UNF Thread (SAE J 514) **1**  
 24° Cone Connection (Light / Heavy Series)  
**DN04 DN06 DN08 DN10 DN13 DN16 DN20 DN25**

Please consult STAUFF for alternative connection styles.

##### ④ Connection Size

STAUFF Size (according to dimension table) for connection styles G, 0 and 1:  
**02 04 06 08 10 12 16 20R 24R**  
 Tube Size (according to dimension table) for 24° Cone Connection (Light Series):  
**06L 08L 10L 12L 15L 18L 22L 28L 35L**  
 Tube Size (according to dimension table) for 24° Cone Connection (Heavy Series):  
**08S 10S 12S 14S 16S 20S 25S 30S 38S**

Please consult STAUFF for alternative connection sizes.

##### ⑤ Body Material / Surface Finishing

Carbon Steel, zinc/iron-plated **0**  
 Stainless Steel V4A (AISI 316Ti) **1**

Alternative materials / surface finishings are available upon request. Consult STAUFF for further information.

##### ⑥ Ball / Stem Material

Ball: Carbon Steel, hard chrome-plated **0**  
 Stem: Carbon Steel  
 Ball / Stem: Stainless Steel V4A (AISI 316Ti) **1**

Alternative materials / surface finishings are available upon request. Consult STAUFF for further information.

##### ⑦ Ball Seat Material

Delrin® (POM) **0**

Alternative materials are available upon request. Consult STAUFF for further information.

##### ⑧ O-Ring Material

NBR (Buna-N®) **0**  
 FPM (Viton®) **1**  
 EPDM **3**

Alternative materials are available upon request. Consult STAUFF for further information.

##### ⑨ Manufacturing Code

Manufacturing code for all connection styles **M**

##### ⑩ Lever Options

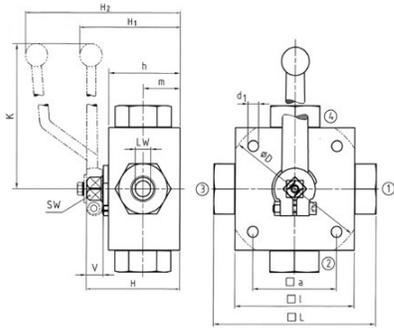
Supplied with standard lever (according to table) **-**  
 Supplied without lever **-0**

Alternative levers can be ordered separately. Please see page F80 for further information.

##### ⑪ Accessories / Options

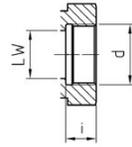
Supplied without accessories **-**  
 Supplied with Locking Device LD4 **-LD4**  
 Supplied with Double-Acting Pneumatic Actuator (Please add size \*\*) **-EDA\*\***  
 Supplied with Single-Acting Pneumatic Actuator (Please add size \*\*) **-ESA\*\***

Please see page F81 - F85 for further information and options.



### High-Pressure Block Body Ball Valve - Type TBV T-Bore Four-Way Selector - Female BSP Thread (DIN ISO 228)

#### Female BSP Thread (DIN ISO 228)

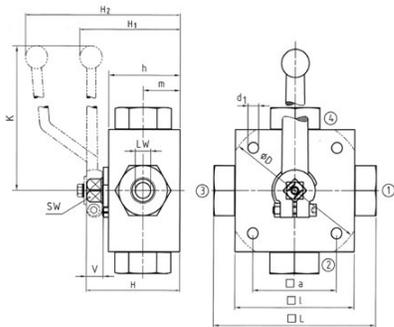


When ordering the standard option as indicated in the table below, the following materials will be supplied:

- Body, ball and stem: Carbon Steel
- Lever: Aluminium (STAUFF Sizes 02 and 04)  
Zinc (STAUFF Sizes 06 to 10)  
Aluminium (STAUFF Sizes 12 to 24)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

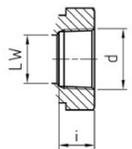
STAUFF Size	Thread Size d	Nominal Size DN	Dimensions (mm/in)													Nom. Pressure (bar/psi)	Weight (kg/lbs)	Order Codes (Standard Option)	
			LW	L	D	l	a	H	h	m	K	V	SW	i	d1				H1
02	G 1/8 BSP	4	5	100	70	55	58	40	22	160	14	12	10	6,5	101	500	1,60	TBV4G020001M	
			.20	3.94	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.39	.26	3.98	7250	3.52		
04	G 1/4 BSP	6	5	100	70	55	58	40	22	160	14	12	14	6,5	101	500	1,60	TBV4G040001M	
			.20	3.94	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.55	.26	3.98	7250	3.52		
06	G 3/8 BSP	10	8	115	80	65	68	50	27	200	14	14	14	6,5	72	500	2,80	TBV4G060001M	
			.31	4.53	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.55	.26	2.83	7250	6.16		
08	G 1/2 BSP	13	13	136	100	80	78	60	31	200	14	14	16,3	9	82	400	4,90	TBV4G080001M	
			.51	5.35	3.94	3.15	3.07	2.36	1.22	7.87	.55	.55	.64	.35	3.23	5800	10.78		
10	G 5/8 BSP	16	13	139	100	80	78	60	31	200	14	14	18	9	82	400	4,90	TBV4G100001M	
			.51	5.47	3.94	3.15	3.07	2.36	1.22	7.87	.55	.55	.71	.35	3.23	5800	10.78		
12	G 3/4 BSP	20	18	154	138	113	85	88	67	36,5	320	16,5	17	18	8,5	96	315	6,80	TBV4G120001M
			.71	6.06	5.43	4.45	3.35	3.46	2.64	1.44	12.60	.65	.67	.71	.33	3.78	4500	14.96	
16	G 1 BSP	25	23	172	138	119	85	103	82	47,5	320	16,5	17	20	8,5	112	315	8,50	TBV4G160001M
			.91	6.77	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.79	.33	4.41	4500	18.70	
20R	G 1-1/4 BSP	25/32	23	180	138	119	85	103	82	47,5	320	16,5	17	22	8,5	112	315	8,80	TBV4G20R0001M
			.91	7.09	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.87	.33	4.41	4500	19.36	
24R	G 1-1/2 BSP	25/40	23	180	138	119	85	103	82	47,5	320	16,5	17	24	8,5	112	250	8,80	TBV4G24R0001M
			.91	7.09	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.94	.33	4.41	3600	19.36	

Please note the pressure ratings of the tube connections.



### High-Pressure Block Body Ball Valve - Type TBV T-Bore Four-Way Selector - Female NPT Thread (ANSI B1.20.1)

#### Female NPT Thread (ANSI B1.20.1)



When ordering the standard option as indicated in the table below, the following materials will be supplied:

- Body, ball and stem: Carbon Steel
- Lever: Aluminium (STAUFF Sizes 02 and 04)  
Zinc (STAUFF Sizes 06 to 10)  
Aluminium (STAUFF Sizes 12 to 24)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

STAUFF Size	Thread Size d	Nominal Size DN	Dimensions (mm/in)													Nom. Pressure (bar/psi)	Weight (kg/lbs)	Order Codes (Standard Option)	
			LW	L	D	l	a	H	h	m	K	V	SW	i	d1				H1
02	1/8 NPT	4	5	100	70	55	58	40	22	160	14	12	10,5	6,5	101	500	1,60	TBV40020001M	
			.20	3.94	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.41	.26	3.98	7250	3.52		
04	1/4 NPT	6	5	100	70	55	58	40	22	160	14	12	13,7	6,5	101	500	1,60	TBV40040001M	
			.20	3.94	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.54	.26	3.98	7250	3.52		
06	3/8 NPT	10	8	115	80	65	68	50	27	200	14	14	13,5	6,5	72	500	2,80	TBV40060001M	
			.31	4.53	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.53	.26	2.83	7250	6.16		
08	1/2 NPT	13	13	136	100	80	78	60	31	200	14	14	17	9	82	400	4,90	TBV40080001M	
			.51	5.35	3.94	3.15	3.07	2.36	1.22	7.87	.55	.55	.67	.35	3.23	5800	10.78		
12	3/4 NPT	20	18	154	138	113	85	88	67	36,5	320	16,5	17	18,3	8,5	96	315	6,80	TBV40120001M
			.71	6.06	5.43	4.45	3.35	3.46	2.64	1.44	12.60	.65	.67	.72	.33	3.78	4500	14.96	
16	1 NPT	25	23	172	138	119	85	103	82	47,5	320	16,5	17	21,6	8,5	112	315	8,50	TBV40160001M
			.91	6.77	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.85	.33	4.41	4500	18.70	
20R	1-1/4 NPT	25/32	23	180	138	119	85	103	82	47,5	320	16,5	17	22,1	8,5	112	315	8,80	TBV4020R0001M
			.91	7.09	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.87	.33	4.41	4500	19.36	
24R	1-1/2 NPT	25/40	23	180	138	119	85	103	82	47,5	320	16,5	17	22,1	8,5	112	250	8,80	TBV4024R0001M
			.91	7.09	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.87	.33	4.41	3600	19.36	

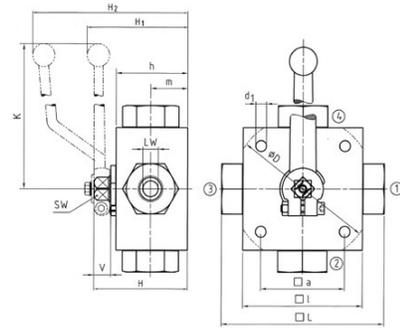
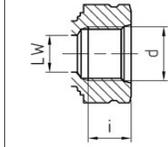
Please note the pressure ratings of the tube connections.

**High-Pressure Block Body Ball Valve - Type TBV**  
**T-Bore Four-Way Selector - Female UN/UNF Thread (SAE J 514)**

When ordering the standard option as indicated in the table below, the following materials will be supplied:

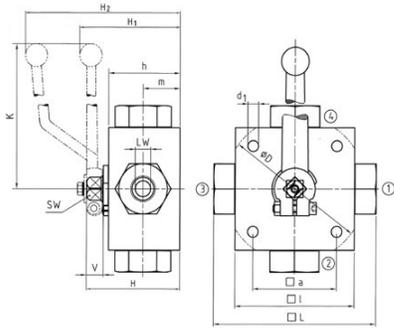
- Body, ball and stem: Carbon Steel
- Lever: Aluminium (STAUFF Size 04)  
Zinc (STAUFF Sizes 06 and 08)  
Aluminium (STAUFF Sizes 12 and 16)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

**Female UN/UNF Thread (SAE J 514)**

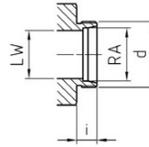


STAUFF Size	Thread Size d	Nominal Size DN	Dimensions (mm/in)														Nom. Pressure (bar/PSI)	Weight (kg/lbs)	Order Codes (Standard Option)
			LW	L	D	l	a	H	h	m	K	V	SW	i	d1	H1			
04	7/16-20 UNF (1/4" SAE)	6	5	100	70	55	58	40	22	160	14	12	14	6,5	101	500	1,60	TBV41040001M	
			0,20	3,94	2,76	2,17	2,28	1,57	0,87	6,30	0,55	0,47	0,55	0,26	3,98	7250	3,52		
06	9/16-18 UNF (3/8" SAE)	10	8	115	80	65	68	50	27	200	14	14	14	6,5	72	500	2,80	TBV41060001M	
			0,31	4,53	3,15	2,56	2,68	1,97	1,06	7,87	0,55	0,55	0,55	0,26	2,83	7250	6,16		
08	3/4-16 UNF (1/2" SAE)	13	13	144	100	80	78	60	31	200	14	14	16,3	9	82	400	5,20	TBV41080001M	
			0,51	5,67	3,94	3,15	3,07	2,36	1,22	7,87	0,55	0,55	0,64	0,35	3,23	5800	11,44		
12	1-1/16-12 UN (3/4" SAE)	20	18	164	138	113	85	88	67	36,5	320	16,5	17	18	8,5	96	315	6,80	TBV41120001M
			0,71	6,46	5,43	4,45	3,35	3,46	2,64	1,44	12,60	0,65	0,67	0,71	0,33	3,78	4500	14,96	
16	1-5/16-12 UN (1" SAE)	25	23	180	138	119	85	103	82	47,5	320	16,5	17	20	8,5	112	315	8,50	TBV41160001M
			0,91	7,09	5,43	4,69	3,35	4,06	3,23	1,87	12,60	0,65	0,67	0,79	0,33	4,41	4500	18,70	

Please note the pressure ratings of the tube connections.



Hex nuts and cutting rings are not included in delivery.

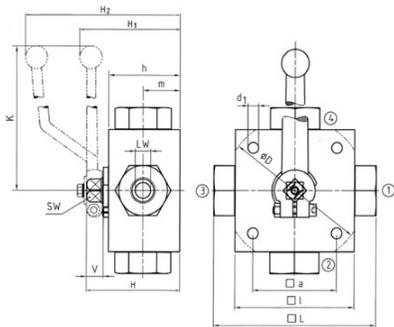
**24° Cone Connection  
(DIN 2353 / ISO 8434-1)**


When ordering the standard option as indicated in the table below, the following materials will be supplied:

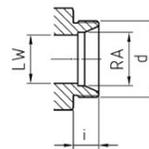
- Body, ball and stem: Carbon Steel
- Lever: Aluminium (STAUFF Sizes 02 and 04)  
Zinc (STAUFF Sizes 05 to 10)  
Aluminium (STAUFF Sizes 12 to 20R)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

STAUFF Size	Tube/Thread Size d	Nominal Size DN	Dimensions (mm/in)																Nom. Pressure (bar/psi)	Weight (kg/lbs)	Order Codes (Standard Option)
			RA	LW	L	D	l	a	H	h	m	K	V	SW	i	d1	H1	H2			
02	06L / M12 x 1,5	4	6	5	105	70	55	58	40	22	160	14	12	10	6,5	101	500	1,60	TBV4DN0406L0001M		
			.24	.20	4.13	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.39	.26	3.98	7250	3.52			
04	08L / M14 x 1,5	6	8	5	105	70	55	58	40	22	160	14	12	10	6,5	101	500	1,80	TBV4DN0608L0001M		
			.31	.20	4.13	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.39	.26	3.98	7250	3.96			
05	10L / M16 x 1,5	8	10	8	114	80	65	68	50	27	200	14	14	11	6,5	72	500	2,60	TBV4DN0810L0001M		
			.39	.31	4.49	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.43	.26	2.83	7250	5.72			
06	12L / M18 x 1,5	10	12	8	114	80	65	68	50	27	200	14	14	11	6,5	72	500	2,60	TBV4DN1012L0001M		
			.47	.31	4.49	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.43	.26	2.83	7250	5.72			
08	15L / M22 x 1,5	13	15	13	137	100	80	78	60	31	200	14	14	12	9	82	400	4,70	TBV4DN1315L0001M		
			.59	.51	5.39	3.94	3.15	3.07	2.36	1.22	7.87	.55	.55	.47	.35	3.23	5800	10.34			
10	18L / M26 x 1,5	16	18	18	137	113	85	88	67	36,5	320	16,5	17	12	8,5	82	400	4,70	TBV4DN1618L0001M		
			.71	.71	5.39	4.45	3.35	3.46	2.64	1.44	12.60	.65	.67	.47	.33	3.23	5800	10.34			
12	22L / M30 x 2	20	22	23	152	138	119	85	103	82	47,5	320	16,5	17	14	8,5	96	315	6,60	TBV4DN2022L0001M	
			.87	.91	5.98	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.55	.33	3.78	4500	14.52		
16	28L / M36 x 2	25	28	23	166	138	119	85	103	82	47,5	320	16,5	17	14	8,5	112	315	8,00	TBV4DN2528L0001M	
			1.10	.91	6.54	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.55	.33	4.41	4500	17.60		
20R	35L / M45 x 2	25/32	35	23	170	138	119	85	103	82	47,5	320	16,5	17	16	8,5	112	315	8,12	TBV4DN2535L0001M	
			1.38	.91	6.69	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.63	.33	4.41	4500	17.86		

Please note the pressure ratings of the tube connections.



Hex nuts and cutting rings are not included in delivery.

**24° Cone Connection  
(DIN 2353 / ISO 8434-1)**

**High-Pressure Block Body Ball Valve - Type TBV  
T-Bore Four-Way Selector - 24° Cone Connection  
Heavy Series (DIN 2353 / ISO 8434-1)**

When ordering the standard option as indicated in the table below, the following materials will be supplied:

- Body, ball and stem: Carbon Steel
- Lever: Aluminium (STAUFF Sizes 02 and 04)  
Zinc (STAUFF Sizes 05 to 10)  
Aluminium (STAUFF Sizes 12 to 20R)
- Ball seat: Delrin® (POM)
- O-rings: FPM (Viton®)

STAUFF Size	Tube/Thread Size d	Nominal Size DN	Dimensions (mm/in)																Nom. Pressure (bar/psi)	Weight (kg/lbs)	Order Codes (Standard Option)
			RA	LW	L	D	l	a	H	h	m	K	V	SW	i	d1	H1	H2			
02	08S / M16 x 1,5	4	8	5	105	70	55	58	40	22	160	14	12	12	6,5	101	500	1,60	TBV4DN0408S0001M		
			.31	.20	4.13	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.47	.26	3.98	7250	3.52			
04	10S / M18 x 1,5	6	10	5	105	70	55	58	40	22	160	14	12	12	6,5	101	500	1,80	TBV4DN0610S0001M		
			.39	.20	4.13	2.76	2.17	2.28	1.57	.87	6.30	.55	.47	.47	.26	3.98	7250	3.96			
05	12S / M20 x 1,5	8	12	8	116	80	65	68	50	27	200	14	14	12	6,5	72	500	2,60	TBV4DN0812S0001M		
			.47	.31	4.57	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.47	.26	2.83	7250	5.72			
06	14S / M22 x 1,5	10	14	8	120	80	65	68	50	27	200	14	14	14	6,5	72	500	2,60	TBV4DN1014S0001M		
			.55	.31	4.72	3.15	2.56	2.68	1.97	1.06	7.87	.55	.55	.55	.26	2.83	7250	5.72			
08	16S / M24 x 1,5	13	16	13	141	100	80	78	60	31	200	14	14	14	9	82	400	4,70	TBV4DN1316S0001M		
			.63	.51	5.55	3.94	3.15	3.07	2.36	1.22	7.87	.55	.55	.55	.35	3.23	5800	10.34			
10	20S / M30 x 2	16	20	18	145	113	85	88	67	36,5	320	16,5	17	16	8,5	82	400	4,70	TBV4DN1620S0001M		
			.79	.71	5.71	4.45	3.35	3.46	2.64	1.44	12.60	.65	.67	.63	.33	3.23	5800	10.34			
12	25S / M36 x 2	20	25	23	160	138	119	85	103	82	47,5	320	16,5	17	18	8,5	96	315	6,60	TBV4DN2025S0001M	
			.98	.91	6.30	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.71	.33	3.78	4500	14.52		
16	30S / M42 x 2	25	30	23	176	138	119	85	103	82	47,5	320	16,5	17	20	8,5	112	315	8,00	TBV4DN2530S0001M	
			1.18	.91	6.93	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.79	.33	4.41	4500	17.60		
20R	38S / M52 x 2	25/32	38	23	180	138	119	85	103	82	47,5	320	16,5	17	22	8,5	112	315	8,12	TBV4DN2538S0001M	
			1.50	.91	7.09	5.43	4.69	3.35	4.06	3.23	1.87	12.60	.65	.67	.87	.33	4.41	4500	17.86		

Please note the pressure ratings of the tube connections.