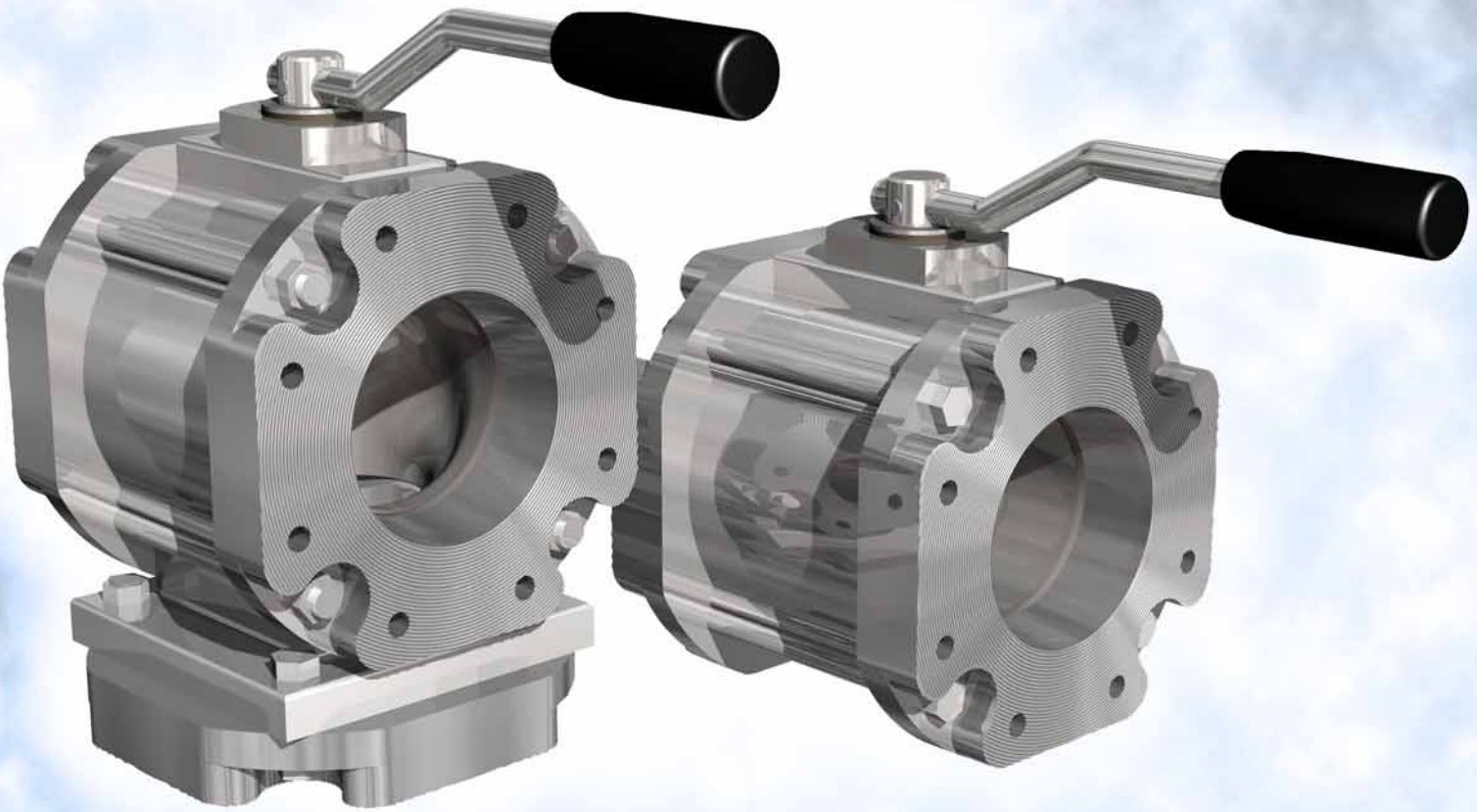
Mann Tek

Full - Flow



Ballvalve / 2-way valves

OPERATING MANUAL

Art. nr: 100201-0121 Version: 040220

Summary of revisions

Date of change	Description
2004-02-09	Added storage
2004-02-20	Copyright remark

CONTENTS

FOREWORD

This operating manual applies to the person or persons using the Ball valve/2-ways valve.

It is very important to read and understand this operation manual before use of this coupling. Become familiar with the unit's operation, applications and limitations. Be particularly aware of its specific hazards. Store this manual in a clean area and always at a readily available location. Additional copies at no charge can be obtained through written requests.

IMPORTANT!!
READ THE COMPLETE DOCUMENTATION

The base for this manual follows the E.G.-directive.

Pressure Equipment Directive:
97/23/EG of the 29th of May 1997

- Do not make modifications that are not authorized by the manufacturer.
- Read and respect all warnings and instructions provided to you.
- Use only original Mann Teknik spare parts for maintenance.

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3. GENERAL SAFETY RULES

3.1 GENERAL SAFETY RULES

ALL ASSEMBLY AND MAINTENANCE OPERATIONS MUST BE CARRIED OUT BY AUTHORIZED AND QUALIFIED PERSONNEL.

Always read and understand the operation sheet included with each unit and the individual operations detailed in this manual.

Always wear protective goggles, gloves and foot protection.

Although this Ball valve /2-way valve assembly is manufactured for dependable operation, it is impossible to anticipate that combination of circumstances that could result in an accident. The following instructions are recommended for proper maintenance of the Ball valve/2-way valve assembly. The operator is cautioned to always practice “Safety First” during each phase of use, including set-up and maintenance of this unit.

Always depressurise the system before beginning any maintenance work on the Ball valve/2-way valve assembly. Failure to do so could result in serious personal injury, property damage or joint leakage.

Consult the Service Instruction. Use of improper accessories may be hazardous.

Regular inspections are recommended to detect any worn or damage parts that could possibly cause a dangerous condition. Scheduled preventative maintenance should be done at regular intervals as determined by the application and frequency of use.

Hazard Identification
Definitions for identifying the various hazard levels shown on warning labels or to indicate proper safety procedures are provided below.

This symbol indicates important safety messages in this manual. When you see this symbol be alert to the possibility of personal injury and carefully read and fully understand the message that follows.

The use of the word “DANGER” signifies an immediate hazard with a likelihood of serious personal injury or death if instructions, including recommended precautions, are not followed.

The use of the word “WARNING” signifies the presence of hazards or unsafe practices that could result in serious personal injury or death if instructions, including precautions, are not followed

The use of the word “CAUTION” signifies possible hazards or unsafe practices that could result in personal injury, product or property damage if instructions, including precautions, are not followed.

The use of the word “NOTICE” signifies special instructions that are important but not related to hazards.

3.1 GENERAL SAFETY RULES

WARNING 

Proper seal and wetted metal parts material selection is critical for safe operation. To assure maximum life for the service intended, use only those materials, sealing and lubricant compatible with the fluids being handled. Please note material being supplied and make certain that it is suited for the intended service.
This is especially important in the food processing industry.

Failure to do so could result in serious personal injury, property damage, or leakage.

WARNING 

The Ball valve / 2 way valve assembly does not eliminate possible exposure to hazardous substances. Likewise, some product residue may appear on the disc faces. The conditions of handling and use are beyond our control, and we make no guarantee, and assume not liability for damages or injuries related to the use of this coupling assembly. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

- Always employ proper safety precautions and handling techniques.

Failure to do so could result in serious personal injury, property damage, or leakage.

WARNING 

Piping systems must always be depressurised and drained before attempting disassembly and removal of any Mann Teknik AB products.

Failure to do so could result in serious personal injury, property damage, joint leakage or joint separation.

WARNING 

Do not handle o-ring seals if their material appears charred, gummy or sticky. Use tweezers; wear neoprene or PVC gloves and protective goggles. Do not touch adjacent parts with unprotected hands.

3.2 OPERATOR SAFETY INSTRUCTIONS

Read and respect all warnings and instructions provided to you.

Failure to do so could result in serious personal injury, property damage, joint leakage or joint separation.
The Ball valve/2-way valve assembly does not eliminate possible exposure to hazardous substances. Likewise, some product residue may appear on the disc faces. The conditions of handling and use are beyond our control, and we make no guarantee, and assume no liability for damages or injuries related to the use of the Ball valve/2-way valve assembly. It is the responsibility of the user to comply with all applicable federal, state, and local laws and regulations.

3.2.1 ASSEMBLING

CAUTION 

Cleanliness is essential for trouble-free operation of the couplings. A new assemble requires the proper cleaning of the pitch from all squashed and hardened remains of the sealing compounds.

BSP Thread:
Parallel threads with flat seals; do need tightening again after twenty-four hours. Change of seal and new assembly do not require any expert knowledge

NPT Thread:
Hose fittings with tapered internal and external threads. Mainly PTFE tapes are used. A safe and promptly tight connection requires expert knowledge.

3.2.2 APPLICATION

Make sure that you are using the correct Ball valve/2-ways valve concerning materials, seals and lubricant suitable for the media and pressure in use.

3.3 SAFETY OF THE SYSTEM

The safeties of the Ball valve/2-way valve are high if you follow the instructions and maintenance information in this Operating Manual.

3.3.1 OPERATING RESPONSIBILITY

Authorized and qualified personnel must carry out all assembly and maintenance operations. The installation must be equipped with suitable controls that prevent an increase of pressure beyond the maximum allowed limit (this is the responsibility of the installer/user).

For solutions to above problems, please contact Mann Teknik AB

3.3.2 MAINTENANCE

Make sure that the Ball valve/2-ways valve are assembled correctly. Check that the connections are tightening.

3.3.3 RISK INFORMATION

This list contains instructions on how to avoid or minimize the possibility that risks might occur.

The solutions are classified as follows:

a) Solutions for the elimination of the risk.
b) Application of appropriate protective measures against risks that cannot be eliminated.
c) Information for the user regarding the presence of residual risks.

Cause: Excess pressure beyond the maximum operating pressure.

Effect: Explosion, breaking, cracking or permanent deformation of the article.

Danger: Projection of metal parts, leakage of liquid.

Solution: a) The article has been designed with appropriate safety margins. The installation must be equipped with suitable controls, which prevent an increase of pressure beyond the maximum allowed limit (this is the responsibility of the installer/user).

b) The installation is equipped with appropriate safety accessories to protect against excess pressure (this is the responsibility of the installer/user).

c) The maximum allowed operating pressure is 10 bar.

Cause: Forces or reactions to external forces for which the equipment is not designed.

Effect: Permanent deformation, structural damages, breaks.

Danger: Projection of metal parts, leakage of liquid.

Solution: a) The article must not be weighed down with loads, which are heavier or different from those stated on the design drawings and in Operating Instructions.

b) The article must be installed in a protected location with controlled access.

c) The conditions under which the article is designed to operate are noted in the Operating Instructions.

Cause: **Corrosion due to stray electric currents.**

Effect: Localized perforation of the equipment.

Danger: Leakage of liquid.

Solution:
a) The article must be equipped with a grounding system (this is the responsibility of the installer / user).

b) The article must be installed in a protected location with controlled access.

Cause: **Accidental departure of the vehicle while connected to the equipment.**

Effect: Breaking of the article.

Danger: Permanent deformation, structural damages, breaks.

Solution:
a) The equipment must have a system which ensures the logical work sequence (this is the responsibility of the installer / user).

b) The equipments movements must be delimited by unambiguous signs with the installation.

Cause: **Worn or inappropriate seals at the connection points.**

Effect: Lacking of sealing at the connection point.

Danger: Leakage of liquid.

Solution:
a) The article must be installed using new and appropriate seals (this is the responsibility of the installer / user).

b) Before assembly, the surfaces of the seals must be inspected (this is the responsibility of the installer / user).

c) The above instructions are noted in the Operating Instructions.

Cause: **Opening of the article while the system is under pressure but without appropriate operating conditions.**

Effect: Untimely opening of the article while under pressure.

Danger: Leakage of liquid, excessive pressure of non appropriate elements Situated on the truck.

Solution:
a) The opening of the Ball valve/2-ways valve must be completed under safe conditions

b) Loading operations must be carried out using logical safety Control systems (opening of foot valve on the truck, opening And connection of the vapour return)

c) The above instructions are noted in the Operation Instructions.

Cause: **Closing of the article while the system is under pressure but without appropriate operating conditions.**

Effect: Untimely closing of the article while under pressure.

Danger: Excessive pressure, water hammer on the line.

Solution:
a) The closing of the Ball valve/2-ways valve coupler must be completed under safe conditions when the product delivery is terminated.

b) Loading operations must be carried out using logical safety control systems (preset loading quantity, lever controls and Stop product delivery).

Cause: **Maintenance of the article while the system is operative.**

Effect: Untimely opening of the article.

Danger: Leakage of liquid, projection of metal parts.

Solution:
a) Maintenance operations must be carried out with the installation shut off and after having completely drained the pipes in an appropriate manner.

b) Maintenance operations must be carried out with the installation shut off and after having drained the pipes in an appropriate manner.

c) The above instructions are noted in the Operation Instructions.

Cause: **Excessive flow of liquid.**

Effect: Increase of pressure inside the article.

Danger: Increased wear of internal components with the possibility of leakage.

Solution:

a) The article has been designed with appropriate safety margins. The installation must be equipped with appropriate safety devices which prevent an increase of the flow rate and thus of the pressure this is the responsibility of the installer / user).

b) The installation is equipped with appropriate safety accessories to protect against an increase of the flow rate (this is the responsibility of the installer / user).

4. FUNCTION

4.1 FUNCTIONAL DESCRIPTION

The Ball valve / 2-way valve is mainly used for the petroleum industry, like petroleum Tank trucks, Aviation Refeuller etc.

The Ball valve / 2-way valve is made of three parts (Sandwich construction) two flanges and the valve body in the middle, kept together with four bolts, an advantage by installation and service.

Replacement or repair service is easily done by loosen and remove the bolts and dismounting the valve Body.

Specification

Area of application:	Petroleum Industry
Sizes:	2”, 3”, 4” straight and 2-way valves
Working pressure:	PN 10.
Material:	Valve Body and Ball are made in Aluminium. Valve seals: PTFE (Teflon) O-rings: FPM (Viton) (All other wetted parts in Aluminium and Stainless steel).

Storage:

Keep the Ball valve / 2-way valve out off dirt (ex: covered with a plastic bag).

Assembling:

Before assembling, keep the valves without reach off dirt and small particles which destroys the sealing face on the ball valves.
Be shore the pipe work is clean inside before installing the valve.

Following are some applications that should generally be avoided.

- Fluids that can solidify at ambient temperature.
- Fluids such as bonding agents or resins that can build up layers of solidified material on key internal components.
- Fluids that contain large, sharp or abrasive elements.

5. MAINTENANCE

5.1 MAINTENANCE SCHEDULE

5.2 MAINTENANCE AND SERVICE

5.3 TROUBLE SHOOTING

5.1 MAINTENANCE SCHEDULE

Maintenance schedule

Daily Inspection		
	Three-month inspection	
	Three-month inspection	
	Three-month inspection	
	Three-month inspection	**Yearly inspection**

5.2 MAINTENANCE AND SERVICE

Maintenance and service instruction  

Always depressurise the system and rinse off the parts before beginning any maintenance work. Use protective goggles. Do not handle O-ring seals if the material appears charred, gummy or sticky. Use tweezers and wear neoprene or PVC gloves. Do not touch adjacent parts with unprotected hands. Rinse off the parts once again before starting the “daily inspection”

Daily inspection

1. Inspect the Ball valve surface for cleanliness and corrosion.
2. Inspect the spindle and the spindle bushing that they are without leakage and fixed assembled.
3. Inspect the Ball valve unit for faultlessness and external signs of leakage

Three-month inspection

1. Exterior cleaning of the Ball valve/2-ways valve with a neutral cleanser.
2. Careful “daily inspection” of cleaned units.

Once a year

1. Replace worn or damaged components. Repair procedures are straightforward an no special tools are required.

Check the state of the connection surface and verify that it is clean before proceeding with the connection.

Couple the repaired unit to a serviceable hose or tank unit as appropriate and check for correct operation of the valve actuating and bayonet locking mechanism. Couple and uncouple the unit(s) several times.

Use only original Mann Teknik spare parts for maintenance.

5.3 TROUBLE SHOOTING

Aluminium Ball valves / 2-way Ball valves

Fault	Possible cause	Remedy
Leakage by spindle	The spindle & spindle buss The O-ring has been damage	Tighten the spindle bushing If the O-ring is damage, change it
Leakage between body and flange	The O-ring on the flange is damage or in the wrong position The flange is scratched The flange is broken due to mistake during mounting	If the O-ring is damage, change it or otherwise put it in it's right position Smooth or change the flange Change flange
Leakage by the Ball / seals	The Teflon® (PTFE) seal in the support ring is hurt The Ball is broken The support ring is tighten with to low torque	Change Teflon® (PTFE) seal Change the Ball Tighten with the right torque
Hard to turn	The support ring is tighten with to high torque	Tighten with the right torque

6. TECHNICAL SPECIFICATION

6.1 Explanation of designations

Ver 0008

First sign (letter): Indicates the type of coupling
Erste Zeichen (buchstabe) : Zeigen der Type des Kupplung

A = API-adapter
B = Ball Valve
C = Dust Cap
D = Swivel
E = Tank unit with pressure equalizing valve
P = Dust Plug
H = Sampling vent & drain unit
T = Tank unit
S = Hose unit

Second sign (numeral): Indicates the socket diameter and/or the nominal diameter
Zweite Zeichen (ziffern): Angebt innendurchmesser und/ oder nominell durchmesser

1 = 56mm or 3/4", 1", 1 1/4"
2 = 70mm or 1 1/2", 2"
3 = 105mm or 2 1/2"
4 = 119mm or 3"
5 = 164mm or 4"

Third and fourth sign (numeral): Indicates connection, (thread, flange etc.)
Dritte und Vierte Zeichen(ziffern) Zeigen Anschluss,(Gewinde, Flanche usv.)

01 = 3/4" BSP (Female)
02 = 3/4" NPT (Female)
03 = 1" BSP (Female)
04 = 1" NPT (Female)
05 = 1 1/4" BSP (Female)
06 = 1 1/4" NPT (Female)
07 = 1 1/2" BSP (Female)
08 = 1 1/2" NPT (Female)
09 = 1 3/4" BSP (Female)
10 = 2" BSP (Female)
11 = 2" NPT (Female)
12 = 2 1/2" BSP (Female)
13 = 2 1/2" NPT (Female)
14 = 3" BSP (Female)
15 = 3" NPT (Female)
16 = 4" BSP (Female)
17 = 4" NPT (Female)
18 = Flange undrilled Ø156
19 = Flange undrilled Ø165
20 = Flange undrilled Ø210
21 = Flange undrilled Ø230
22 = Flange undrilled Ø254
23 = Flange DN 25 PN 10/16
24 = Flange DN 25 PN 25/40
25 = Flange DN 32 PN 10/16
26 = Flange DN 32 PN 25/40
27 = Flange DN 40 PN 10/16
28 = Flange DN 40 PN 25/40
29 = Flange DN 50 PN 6
30 = Flange DN 50 PN 10/16
31 = Flange DN 50 PN 25/40
32 = Flange DN 65 PN 6
33 = Flange DN 65 PN 10/1
34 = Flange DN 65 PN 25/40
35 = Flange DN 80 PN 6
36 = Flange DN 80 PN 10/16
37 = Flange DN 80 PN 25/40
38 = Flange DN 100 PN 6
39 = Flange DN 100 PN 10/16
40 = Flange DN 100 PN 25/40
41 = Flange DN 125 PN 6
42 = Flange DN 125 PN 10/16
43 = Flange DN 125 PN 25/40
44 = Flange DN 150 PN 6
45 = Flange DN 150 PN 10/16
46 = Flange DN 150 PN 25/40
47 = Flange 1/2" ASA 150 PSI
48 = Flange 1/2" ASA 300 PSI
49 = Flange 3/4" ASA 150 PSI
50 = Flange 3/4" ASA 300 PSI
51 = Flange 1" ASA 150 PSI
52 = Flange 1" ASA 300 PSI
53 = Flange 1 1/4" ASA 150 PSI
54 = Flange 1 1/4" ASA 300 PSI
55 = Flange 1 1/2" ASA 150 PSI
56 = Flange 1 1/2" ASA 300 PSI
57 = Flange 2" ASA 150 PSI
58 = Flange 2" ASA 300 PSI
59 = Flange 2 1/2" ASA 150 PSI
60 = Flange 2 1/2" ASA 300 PSI
61 = Flange 3" ASA 150 PSI
62 = Flange 3" ASA 300 PSI
63 = Flange 4" ASA 150 PSI
64 = Flange 4" ASA 300 PSI
65 = Flange TW 1 (3" - DN 80)
66 = Flange TW 3 (4" - DN 100)
67 = Flange 3" T.T.M.A.
68 = Flange 4" T.T.M.A.
69 = 3/4" BSP (Male)
70 = 3/4" NPT (Male)
71 = 1" BSP (Male)
72 = 1" NPT (Male)
73 = 1 1/4" BSP (Male)
74 = 1 1/4" NPT (Male)
75 = 1 1/2" BSP (Male)
76 = 1 1/2" NPT (Male)
77 = 1 3/4" BSP (Male)
78 = 2" BSP (Male)
79 = 2" NPT (Male)
80 = 2 1/2" BSP (Male)
81 = 2 1/2" NPT (Male)
82 = 3" BSP (Male)
83 = 3" NPT (Male)
84 = 4" BSP (Male)
85 = 4" NPT (Male)
86 = Flange 6" ASA 300
87 = Flange TW 1 (2" DN50)
88 = Weld.flang 2" Ø50-Ø70 (flat)
89 = Weld.flang 2" Ø57 (int. chamfer)
90 = Weld.flang 2" Ø60 (outer chamfer)
91 = Weld.flang 3" Ø75-Ø90 (flat)
92 = Weld.flang 3" Ø76 (int. chamfer)
93 = Weld.flang 3" Ø89 (outer chamfer)
94 = Weld.flang 4" Ø100-Ø120 (flat)
95 = Weld.flang 4" Ø102 (int. chamfer)
96 = Weld.flang 4" Ø108 (int. chamfer)
97 = Weld.flang 4" Ø11(out. chamfer)

NOTE!
When swivels are chosen, the second and the third sign indicates one outlet, the fourth and the fifth sign the second outlet.

Fifth sign (letter): Indicates version
Fünfte Zeichen (buchstabe): Zeigen die Version

A = Version No.1 (Machined from bar)	E =	P = with pressure relief valve
B = Version No.2 (Casted)	F = 6" Flange (Hydrant)	R = Hose unit with integrated breakaway
C = Version No.3 (Kokill casted)	G =	
D =	H =	

Sixth sign (numeral): Indicates material in the coupling body
Sechste Zeichen (ziffern): Zeigen werkstoffe in der Kupplungskörpe

1 = Aluminium	6 = Titan
2 = Brass	7 = Hastelloy
3 = Steel	8 = Ultimet
4 = Stainless steel	9 = PEEK
5 = Inconel	10 =

Seventn sign (numeral): Indicates material in the innerparts or other components
Siebte Zeichen (ziffern): Zeigen Werkstoffe in der innen Teile oder andere Komponenten

1 = Aluminium	6 = Titan
2 = Brass	7 = Hastelloy
3 = Steel	8 = Ultimet
4 = Stainless steel	9 = PEEK
5 = Inconel	10 =

Eight and Ninth sign (numeral): Indicates the O-ring material in the coupling
Achte und Neunthe Zeichen (ziffern) Angebt der O-ring werkstoffe in der Kupplung

01 = Viton® (FPM)	16 = Hypalon (CSM)
02 = Nitrile® (NBR)	17 = Chemraz 505
03 = EPDM	18 = Special Viton (DF 200)
04 = Kalrez (FFPM) 4079	19 = Zetpol / Therban (HNBR)
06 = Teflon (PTFE)	20 = Zalak
07 = Neoprene (CR)	21 = Viton - GF (Special Viton quality)
08 = Silicone (Q)	22 = Composite
09 = Vulkollan (PUR)	23 = Felt
10 = Butyl (IIR)	24 = Leather
11 = Nitrile (Gasol NBR 70 K-6)	25 = Klingerit
12 = Perfluorelastomer (FFPM)	26 = Cork
13 = Natural rubber (NR)	50 = Kalrez (PFPM) 1050LF
14 = Fluorsilicone rubber (MFQ)	
15 = PTFE-encaps viton (PTFE/FPM)	

Tenth sign (letter): Used for extra
Zehnth Zeichen (buchstabe) Für extra benützt

A = Flat seal, Teflon®(PTFE)	E:	R = Reduced bore diameter (Argus,Hydrant)
B = Flat seal, Vulkollan®(PUR)	F:	S = Single Argus valve (Hydrant)
C = 2-way Ball Valve	G:	
D =	H:	

Selection of registered trade names from Messrs BASF, Bayer AG, B.F. Goodrich, Chemische Werke Hüls, Daikin, Dow Company, DSM, Du Pont, DuPont Dow Elastomers, Esso Chemie, Hercules, Hoechst AG, Montedison, Monteflous, Nippon Zeon, Polysar LTD., Rhone Poulenc, 3 M Company, Wacker Chemie, Precision Polymer Engineering Ltd.

7. STORAGE

Storage in a dry, dustfree, dark place, in ambient temperature.