WATER SERVICES ASSOCIATION OF AUSTRALIA

Bermad Water Technologies

PRODUCT APPRAISAL REPORT 2201

Bermad Sigma Series 700 Automatic Hydraulic Control Valves
DN 50 to DN 600

AS 5081:2008 Hydraulically operated automatic control valves for waterworks purposes

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Document History

The following information indicates the changes made to this document.

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Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	14 June 2022
WSAA Expert Panel	WSAA	14 June 2022
Peter Pittard, WSAA Consultant	WSAA	14 June 2022
Carl Radford, Product Appraisal Manager	WSAA	14 June 2022

Overview of WSAA

The Water Services Association of Australia (WSAA) is the peak industry body representing the urban water industry. Our members provide water and sewerage services to over 20 million customers in Australia and New Zealand and many of Australia's largest industrial and commercial enterprises.

Based around our vision of 'customer driven, enriching life', WSAA facilitates collaboration, knowledge sharing, networking and cooperation within the urban water industry. We are proud of the collegiate attitude of our members which has led to industry-wide approaches to national water issues.

WSAA can demonstrate success in the standardisation of industry performance monitoring and benchmarking, as well as many research outcomes of national significance. The WSAA Executive retains strong links with policy makers and legislative bodies and their influencers, to monitor emerging issues of importance to the urban water industry.

WSAA was formed in 1995 as a non-profit organisation to foster the exchange of information between industry, government and the community, and to promote sustainable water resource management.

The urban water industry is committed to anchoring its services to customers' values, and to enrich communities where water services have broad economic, environmental and social values. In line with this our main activities focus on four areas:

1. influencing national and state policies on the provision of urban water services and sustainable water resource management
2. promoting debate on environmentally sustainable development and management of water resources and the community health requirements of public water supplies
3. improving industry performance and establishing benchmarks and industry leading practices for water service processes; and
4. fostering the exchange of information on education, training, research, water and wastewater management and treatment and other matters of common interest.

Copyright

CONTENTS

1 EXECUTIVE SUMMARY

Bermad Australia Pty Ltd trading as Bermad Water Technologies is an Australian company originally established in 1989 as the sole distributor of Bermad valves. The company has grown to become a leading supplier of a wide range of specialist valves that control, protect or measure.

Bermad CS Ltd is a private company established in 1965 in Evron, Israel and is a well-respected global leader in the manufacture and supply of valves for control solutions for water supply, irrigation and fire protection.

This Appraisal is for a range of Bermad Sigma Series 700 automatic hydraulic control valves in sizes DN 50 to DN 600 manufactured in accordance with AS 5081:2008 *Hydraulically operated automatic control valves for waterworks purposes*.

The range includes valves with functions to control pressure, flow, surge, levels and pumps in drinking water and non-drinking applications. See Section 3 for further details of the range and applications.

The valves are PN 35 rated with raised face flanged ends compatible with AS/NZS 4087 Fig B5 (PN16) or Fig B6 (PN35) for sizes ≥ DN 80 and AS 2129 Table D or Table H for DN 50 and DN 65 sizes. Versions with BSP threaded ends are also available in DN 40 / 1½" and DN 50 / 2" sizes although DN 40 size is not included in the product certification schedule.

Bermad CS Ltd has ISO 9001 Quality Management System certification.

The Bermad Sigma Series 700 control valves have ISO Type 5 StandardsMark Product Certification to AS 5081:2008 *Hydraulically operated automatic control valves for waterworks purposes*.

This Appraisal has determined that the Bermad Sigma Series 700 automatic hydraulic control valves as detailed in this report meet the requirements of WSA PS 268 *Automatic Control Valves for pressure Applications – Drinking Water and Non-Drinking Water Supply* and are considered as 'fit-for-purpose'.

1.1 Recommendations

It is recommended that WSAA members, subject to any specific requirements of the member accept or authorise the Bermad Sigma Series 700 automatic hydraulic control valves, as detailed in this report, for use in drinking water and non-drinking water supply, provided they are installed in accordance with applicable WSAA codes and manufacturers' requirements, where specified.

2 THE APPLICANT

The Applicant is Bermad Australia Pty Ltd trading as Bermad Water Technologies.

2.1 The Supplier

Bermad Australia Pty Ltd trading as Bermad Water Technologies is an Australian company originally established in 1989 as the sole distributor of Bermad valves. The company has grown to become a leading supplier of a wide range of specialist valves that control, protect or measure. Products include control valves, pressure regulators, solenoid valves, diaphragm valves, pressure reducing valves, flow meters and air release valves servicing the waterworks, mining, irrigation, fire protection and building markets. Many of the products are designed, engineered and assembled in Australia.

For more information see: http://www.bermad.com.au/.

2.2 The Manufacturer

Bermad CS Ltd is a private company established in 1965 in Evron, Israel to manufacture valves for the irrigation market. It has grown to become a well-respected global leader in

the manufacture and supply of valves for control solutions for water supply, irrigation and fire protection. The company has approximately 550 employees and is active in more than 130 countries around the world. The company specialises in manufacture and supply of automatic hydraulic control valves, air valves and metering.

Bermad has a strong commitment to Research and Development and is well known as an innovator in the control valve and instrumentation field.

3 THE PRODUCT

Bermad Sigma Series 700 automatic hydraulic control valves are manufactured to AS 5081:2008 *Hydraulically operated automatic control valves for waterworks purposes* in sizes DN 50, DN 65, DN 80, DN 100, DN 150, DN 200, DN 250, DN 300, DN 350, DN 400, DN 450, DN 500 and DN 600.

The ductile iron bodied valves are PN 35 rated with raised face flanged ends compatible with AS/NZS 4087 Fig B5 (PN16) or Fig B6 (PN35) for sizes ≥ DN 80 and AS 2129 Table D (PN16) or Table H (PN35) for DN 50 and DN 65 sizes. Versions with BSP threaded ends are also available in DN 40 / 1½" and DN 50 / 2" sizes, although DN 40 size is not included in the product certification schedule.

The valves are PN 35 rated with raised face flanged ends complying with AS/NZS 4087 Fig B5 (PN16) or Fig B6 (PN35) for sizes ≥ DN 80 and AS 2129 Table D or Table H for DN 50 and DN 65 sizes. Versions with BSP threaded ends are also available in DN 40 / 1½" and DN 50 / 2" sizes.

The range of control valves is based on a basic wide body diaphragm actuated oblique Y pattern globe design, except model number 73Q. The various functions are accommodated using externally plumbed hydraulic or solenoid pilot valves and other accessories.

The EN Series is a full port valve with high flow capacity and available in sizes DN 40 to DN 400. The ES Series is designed mainly for regulating applications achieving the best performance under variable pipeline flow velocities and is available in sizes from DN 65 to DN 600. Bermad should be consulted to determine the most appropriate design for the specific application.

FIGURE 1 EXAMPLES OF BERMAD AUTOMATIC CONTROL VALVES

Details of the Bermad Sigma Series 700 control valve range is provided in Table 1. See Appendix A for further information.

TABLE 1 BERMAD SIGMA SERIES 700 CONTROL VALVE RANGE

Model No.	Function
710	Single solenoid control valve
718	Dual solenoid control valve
720	Fixed outlet pressure reducing valve

730	Pressure sustaining valve
735	Surge anticipating control valve
73Q	Pressure relief valve
740	Pump control valve
750-60	Level control valve (pilot type 60)
750-66	Level control valve (pilot type 66)
750-80	Altitude control valve
770	Rate of flow control valve

4 SCOPE OF THE APPRAISAL

The scope of this appraisal includes Bermad Sigma Series 700 automatic hydraulic control valves in sizes DN 50 to DN 600 as detailed in Section 3 and included in the ISO Type 5 StandardsMark product certification schedule.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts control valves manufactured in compliance with AS 5081:2008 *Hydraulically operated automatic control valves for waterworks purposes* and duly certified by means of an ISO Type 5 product certification scheme undertaken by a JAS-ANZ accredited Conformity Assessment Body (CAB) or by an international accreditation system recognised by JAS-ANZ.

The manufacturer is generally expected to have a production management and control system that has been duly accredited in accordance with AS/NZS ISO 9001 as a prerequisite to undergoing a product certification audit.

The ISO Type 5 Product Certification Scheme shall meet the criteria described in WSA TN-08.

5.2 Performance Requirements

The Bermad Sigma Series 700 control valves have been appraised for compliance with the material and performance requirements of AS 5081:2008 *Hydraulically operated automatic control valves for waterworks purposes*

Appraisal criteria are also determined by the WSAA Product Appraisal Technical Advisory Group and regularly reviewed to ensure that the criteria reflect the requirements of WSAA members.

The following Product Specification is also relevant to this application:

WSA PS 268 *Automatic Control Valves for pressure Applications – Drinking Water and Non-Drinking Water Supply*

A copy of the Product Specification is available at the following link:

https://www.wsaa.asn.au/shop/product/53481

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

Bermad has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. 86237 issued to Bermad CS LTD by The Standards Institution of Israel.

- AS 5081:2008 ISO Type 5 StandardsMark Product Certification Licence No. SMKP 22015 issued to Bermad Water Technologies by SAI-Global.

Copies of the Quality Assurance and Product Certification licences have been included in Appendix B and are also available from WSAA.

Copies of Quality Assurance certificates have also been submitted for the major component suppliers and are held on file by WSAA.

6.2 Compliance with Performance Requirements

6.2.1 Components material list

The Bermad Sigma Series 700 control valve material specifications for the components are detailed below and are deemed to meet or exceed the requirements of AS 5081. Material test reports have been submitted for the critical components to demonstrate compliance.

TABLE 2 BERMAD SIGMA SERIES 700 COMPONENT MATERIALS

AS 5081 Basic Material Requirements			Sigma Series 700 Control Valves	
Component	**Material**	**Grade**	**Material**	**Grade**
Body and cover	Ductile iron	400-15 or 500-7	Ductile iron	450-12
Seal disc	Ductile iron	400-15 or 500-7	Ductile iron	450-12
Resilient seal	Synthetic elastomer	EPDM or NBR	Synthetic elastomer	EPDM
Diaphragm supporting disc	Ductile iron	400-15 or 500-7	Ductile iron	450-12
Diaphragm	Synthetic elastomer	Nylon reinforced EPDM or NBR	Synthetic elastomer	Nylon reinforced NBR
Seat ring	Stainless steel	CF-8M	Stainless steel	316
Stem	Stainless steel	316	Stainless steel	316
Position indicator	Stainless steel	316	Stainless steel	316
Guide bushings	Copper alloy	C83600	Copper alloy	C83600
Springs	Stainless steel	316	Stainless steel	316
O-rings	Synthetic elastomer	EPDM or NBR	Synthetic elastomer	EPDM
Piping	Copper	Type B	Copper	Type B
Accessory valves body	Copper alloy	C83600	Stainless steel	316
V-port throttling ring	Copper alloy	C83600	Stainless steel	316
Anti-cavitation ring	Stainless steel	CF-8M	Stainless steel	316
Fasteners	Stainless steel	316	Stainless steel	316
Orifice plate	Stainless steel	316	Stainless steel	316

6.2.2 End connections

The flanges on the valves comply with AS/NZS 4087 Figure B5 (PN16) or Figure B6 (PN35) for sizes ≥ DN 80 and AS 2129 Table D (PN16) or Table H (PN35) for DN 50 and DN 65 sizes.

The BSP tapered male threaded inlets comply with AS ISO 7.1 Series R.

WSAA recommends flanged joints to be assembled in accordance with the Water Supply Code of Australia – WSA 03 (as amended) and that gasket materials comply with Industry Standard WSA-109.

WSA-109.

6.2.3 Polymeric thermal bonded coatings

Bermad control valve ductile iron components are coated with Akzo Nobel Resicoat R4, a thermosetting fusion bonded epoxy powder coating.

Resicoat R4 has ISO Type 5 StandardsMark Product Certification to AS/NZS 4158. A copy of the current certification is held on file by WSAA.

A copy of Bermad's coating application and typical production test reports have been submitted to demonstrate compliance to AS/NZS 4158.

A test report has also been submitted to demonstrate compliance with the process verification requirements of AS/NZS 4158.

The process is audited by SAI-Global in conjunction with periodic StandardsMark certification audits.

6.2.4 Type tests

AS 5081 specifies performance type tests to be undertaken on a DN 100 valve in order to demonstrate compliance with the standard.

Tests specified are:

Static

- Body strength test
- Seat leakage test, pre-endurance test and post-endurance test
- Opening test
- Closing test
- Endurance test

Dynamic

- Control precision
- Pilot valve adjustment for increasing pressure set-point
- Pilot valve adjustment for decreasing pressure set-point
- Response to gradual flow increase
- Response to gradual flow reduction
- Minimum controllable flow
- Response to rapid flow increase
- Response to rapid flow decrease

Test reports completed by Queensland Testing Laboratory (NATA Accreditation No. 14783) for the static tests and Flow Meters Calibration Laboratory - Bermad (Israel Laboratory Accreditation Authority Certificate No. 201) for the dynamic tests have been submitted to demonstrate compliance with the performance requirements of AS 5081.

6.2.5 Contact with drinking water

AS 5081 requires compliance with AS/NZS 4020 *Testing of products for use in contact with drinking water*. Bermad has submitted Test Report Number 255502 dated 18 July 2019 from the Australian Water Quality Centre for a DN 50 Sigma Series 700 control valve using a scaling factor of 0.01 to demonstrate compliance with AS/NZS 4020:2005.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

Comprehensive product training and educational videos are available on the Bermad website together with a comprehensive suite of operation manuals. Regular interactive educational training sessions are also held in all states; details are published on the Bermad website. A mobile training rig is also available in rural NSW.

Further information is available at the following link:

https://www.bermad.com.au/products/700-series-sigma-valve-engineering-data-basic-valve/

8 PRODUCT MARKING

Bermad control valves are marked in accordance with AS 5081:2008 as described below. The information is either cast on the body of the valve or contained on a label affixed to the body.

Manufacturers Name: Bermad

Nominal Size: e.g., DN 100

Year of manufacture: e.g., MFD Nov 21

Pressure class: PN 16, PN 35

Standard number: AS 5081

Serial Number:

Standards Mark logo: √√√√

In addition, the label includes a QR code and serial number which allows access to complete details of the valve via the Bermad Connect app. Further details are available at the following link: https://www.bermad.com/bermad-connect-2/

9 PACKAGING AND TRANSPORTATION

Bermad control valves are either packed on an individual pallet or in a sealed crate to prevent damage to the product and coating during handling, transportation and storage. Covers are utilised to protect the face of the flanges.

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2010 (Cth)* and details of Bermad's warranty is included in their Standard Conditions of Sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD-TESTING REPORT

Bermad control valves have been utilised by most Australian Water Agencies for many years. It is considered unnecessary to request further field trials for the purpose of this Appraisal.

12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues have been raised.

13 FUTURE WORKS

No future works have been identified.

14 DISCLAIMER

This Product Appraisal Report (Report) is issued by the Water Services Association of Australia Limited on the understanding that:

This Report applies to the product(s) as submitted. Any changes to the product(s) either minor or major shall void this Report.

To maintain the recommendations of this Report any such changes shall be detailed and notified to the Product Appraisal Manager for consideration and review of the Report and appropriate action. Appraisals and their recommendations will be the subject of continuous review dependent upon the satisfactory performance of products.

WSAA reserves the right to undertake random audits of product manufacture and installation. Where products fail to maintain appraised performance requirements the appraisal and its recommendations may be modified and reissued. Appraisal reports will be reviewed and reissued at regular intervals not exceeding five (5) years.

The following information explains a number of very important limits on your ability to rely on the information in this Report. Please read it carefully and take it into account when considering the contents of this Report.

Any enquiries regarding this report should be directed to the Program Manager, Carl Radford, Phone: 03 8605 7601 email carl.radford@wsaa.asn.au.

14.1 Issue of Report

This Report has been published and/or prepared by the Water Services Association of Australia Limited and nominated Project Manager and peer group of technical specialists (the Publishers).

The Report has been prepared for use within Australia only by technical specialists that have expertise in the function of products such as those appraised in the Report (the Recipients).

By accepting this Report, the Recipient acknowledges and represents to the Publisher(s) and each person involved in the preparation of the Report that the Recipient has understood and accepted the terms of this Disclaimer.

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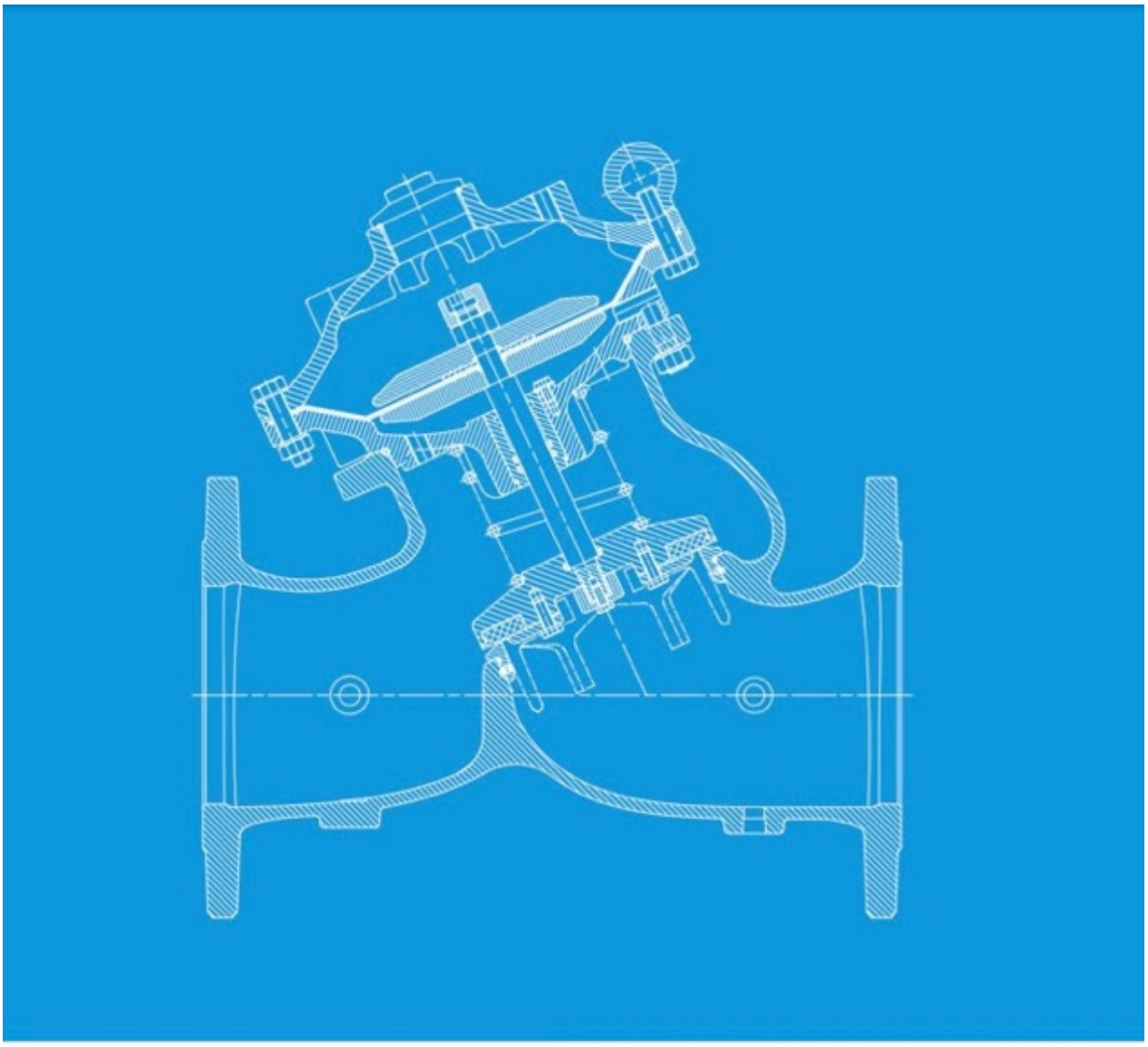
14.4 No Warranty

The Publisher(s) do[es] not, in any way, warrant that steps have been taken to verify or audit the accuracy or completeness of the information in this Report, or the accuracy, completeness or reasonableness of any recommendation in this Report.

APPENDIX A - PRODUCT LITERATURE

Selected sheets from the comprehensive Bermad library have been included below. Complete information is available at the following link:
https://www.bermad.com/products/waterworks/?term=500#loop-content



700 SIGMA SERIES

ENGINEERING DATA

CONTENT

700 SIGMA **EN/ES**

BERMAD 700 SIGMA EN/ES series are hydraulically operated, oblique pattern control valves with high cavitation resistance, excellent flow capacity and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit.

The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications, with minimal noise and vibrations.

The 700 SIGMA EN/ES series meet all flange connection standards.

700 SIGMA EN – Full port valve with extraordinarily high flow capacity enabling optimized used of resources and minimizing energy costs.

700 SIGMA ES - Designed mainly for regulating applications achieving the best performance under veriable flow velocities in pipes.

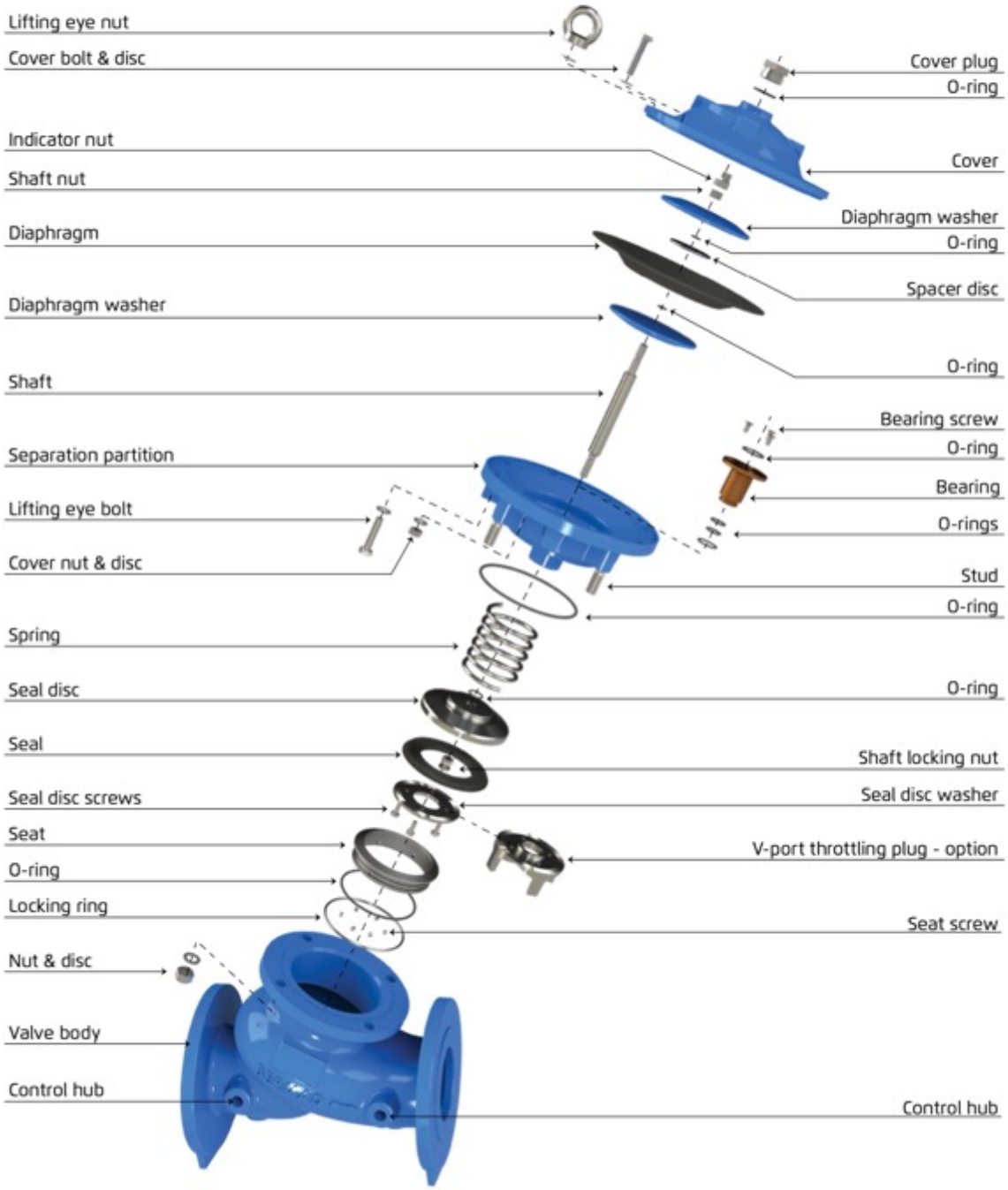
700 Sigma EN

700 Sigma ES

Features and Options

- Double-Chambered Actuator
  - Actuator assembly can be removed as one integral unit.
  - Simple on-site conversion from Single to Double chambered actuator or vice versa.
- Wide Body-Oblique "Y" pattern design
  Hydro-dynamically designed for efficient flow with minimal pressure loss and excellent resistance to cavitation.
  Valve port area clear of obstructions; no ribs or stem guides. Increases capacity by 25% over standard globe valves.
- Diaphragm Assembly
  - The flexible, flat fabric reinforced diaphragm is supported over the majority of its surface.
  - Diaphragm load is limited to only the stretching forces applied to the active area.
  - Diaphragm is fully protected by the separtation partition from stones, wood and debris.
- Valves are suitable to work with all types of command: Hydraulic, Electric and Pneumatic.
- Self operated valves that can work without an external source of power.
- Wide range of options:
  - One-way or two-way flow direction
  - V-Port
  - Cavitation cages (Single or Double)
  - Visual position indicator
  - Limit switches
  - Analog opening output
  - Large selection of control accessories

Exploded View

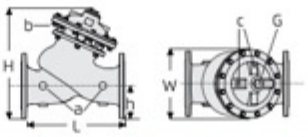


700 SIGMA **EN**

Technical Data

Valve Patterns: "Y" (Globe)
Pressure Rating: 25 bar; 400 psi
End Connections: Flanged (all standards)
Plug Types: Flat disc, V-port , Cavitation cages
Temperature Rating: 60°C; 140°F for Cold water applications.
Optional higher temperature: Available on request

Standard Materials:
Body & actuator: Ductile Iron
Bolts, nuts & studs: Stainless Steel
Internals: Stainless Steel, Bronze & Coated Steel
Diaphragm: Fabric-reinforced synthetic rubber
Seals: Synthetic rubber
Coating: Dark blue Fusion bonded epoxy
For other materials contact BERMAD.



Dimensions & Weights

Size	inch	1.5"	2"	2.5"	3"	4"	6"	8"	10"	12"	16"
	mm	40	50	65	80	100	150	200	250	300	400
L	inch	9.1	9.1	11.4	12.2	13.8	18.9	23.6	28.7	33.5	43.3
	mm	230	230	290	310	350	480	600	730	850	1100
W	inch	6.1	6.5	7.1	8.3	10.0	12.6	15.7	18.9	22.4	32.1
	mm	155	165	180	210	255	320	400	480	570	815
h*	inch	3.2	3.4	3.6	4.3	5.1	6.4	7.6	8.9	10.7	13.1
	mm	81	86	92	108	130	163	193	227	272	334
H*	inch	9.2	9.7	11.4	9.9	12.5	20.2	24.3	28.5	34.7	46.1
	mm	234	246	290	252	318	514	618	725	881	1171
Weight*	lbs	26	31	44	62	103	211	348	563	887	2143
	kg	12	14	20	28	47	96	158	256	403	974
Control Chamber Volume	Gallons	0.03	0.03	0.03	0.08	0.12	0.57	1.19	2.24	3.27	7.87
	Litres	0.125	0.125	0.125	0.3	0.45	2.15	4.5	8.5	12.4	29.8
Valve travel	inch	0.63	0.63	0.87	0.98	1.06	1.97	2.44	2.76	3.94	5.28
	mm	16	16	22	25	27	50	62	70	100	134
a	inch	⅜" NPT							½" NPT		1" BSP
b	inch	⅛" NPT					¼" NPT		⅜" NPT		¼" BSP
c	inch	¼" NPT							½" NPT		¼" BSP
G	inch	¾" G					2" G				3" G

* Maximum Dimensions

Flow Factors

Size	inch	1.5"	2"	2.5"	3"	4"	6"	8"	10"	12"	16"
	mm	40	50	65	80	100	150	200	250	300	400
Flat Disc	Cv	66	72	113	150	231	624	1045	1709	2472	3812
	Kv	57	62	98	130	200	540	905	1480	2140	3300
	K	1.2	2.6	2.9	3.8	3.9	2.7	3.1	2.8	2.8	3.7
V-Port	Cv	53	55	84	118	162	523	886	1513	2241	3430
	Kv	46	48	73	102	140	453	767	1310	1940	2970
	K	1.9	4.3	5.3	6.2	8.0	3.9	4.3	3.6	3.4	4.6

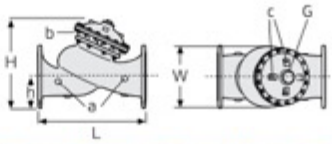
700 SIGMA **ES**

Technical Data

Valve Patterns: "Y" (Globe)
Pressure Rating: 25 bar; 400 psi
End Connections: Flanged (all standard)
Plug Types: Flat disc, V-port, Cavitation cages
Temperature Rating: 60°C; 140°F for Cold water applications.
Optional higher temperature: Available on request

Standard Materials:
Body & actuator: Ductile Iron

Bolts, nuts & studs: Stainless Steel
Internals: Stainless Steel, Tin Bronze & Coated Steel
Diaphragm: Fabric-reinforced synthetic rubber
Seals: Synthetic rubber
Coating: Dark blue Fusion bonded epoxy
For other materials contact BERMAD.



Dimensions & Weights

Size	inch	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	mm	65	80	100	150	200	250	300	350	400	450	500	600
L	inch	11.4	12.2	13.8	18.9	23.6	28.7	33.5	38.6	43.3	47.2	49.2	57.1
	mm	290	310	350	480	600	730	850	980	1100	1200	1250	1450
W	inch	7.5	8.3	10.0	12.6	15.0	17.7	21.3	23.0	26.0	32.1	32.1	36.2
	mm	190	210	255	320	380	450	540	585	660	815	815	920
h*	inch	3.9	4.3	5.1	6.4	7.6	8.9	10.4	11.8	13.1	14.2	15.7	19.3
	mm	98	108	130	163	193	227	265	299	334	361	398	490
H*	inch	9.5	9.9	12.5	16.2	19.9	23.6	28.4	35.8	37.1	47.0	48.0	48.8
	mm	242	252	318	411	506	600	721	909	943	1195	1220	1240
Weight*	lbs	40	48	84	172	275	436	673	1005	1133	2253	2387	2838
	kg	18	22	38	78	125	198	306	457	515	1024	1085	1290
Control Chamber Volume	Gallons	0.03	0.03	0.08	0.13	0.57	1.19	2.24	3.27	3.27	7.87	7.87	7.87
	Litres	0.125	0.125	0.3	0.5	2.15	4.5	8.5	12.4	12.4	29.8	29.8	29.8
Valve Travel	inch	0.63	0.87	0.98	0.98	1.57	1.97	2.44	3.07	3.94	5.28	5.28	5.28
	mm	16	22	25	25	40	50	62	78	100	134	134	134
a	inch	⅜" NPT					½" NPT				1" BSP		
b	inch	⅛" NPT			¼" NPT			⅜" NPT			¾" BSP		
c	inch	¼" NPT						½" NPT			¾" BSP		
G	inch	¾" G			2" G						3" G		

* Maximum Dimensions ** For 24", the dimensions is without the sizes of cradle

Flow Factors

Size	inch	2.5"	3"	4"	6"	8"	10"	12"	14"	16"	18"	20"	24"
	mm	65	80	100	150	200	250	300	350	400	450	500	600
Flat Disc	Cv	69	75	165	456	705	1045	1756	2472	2599	3812	3812	3812
	Kv	60	65	143	395	610	905	1520	2140	2250	3300	3300	3300
	K	7.8	15.2	7.7	5.1	6.7	7.5	5.5	5.1	7.9	5.9	9.0	18.7
V-Port	Cv	59	64	142	388	599	888	1492	2145	2341	3430	3430	3430
	Kv	51	55	123	336	519	769	1292	1857	2027	2970	2970	2970
	K	10.8	21.2	10.4	7.0	9.3	10.4	7.6	6.8	9.8	7.3	11.1	23.0

BERMAD | Waterworks

700 SIGMA Series

SOLENOID CONTROLLED VALVE

Model 710 EN/ES

Hydraulically operated, solenoid controlled valve that either opens fully or shuts off in response to an electric signal. It is available in several models including Normally Open (NO), Normally Closed (NC) or LATCH.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

HOME VIEW

Features and Benefits

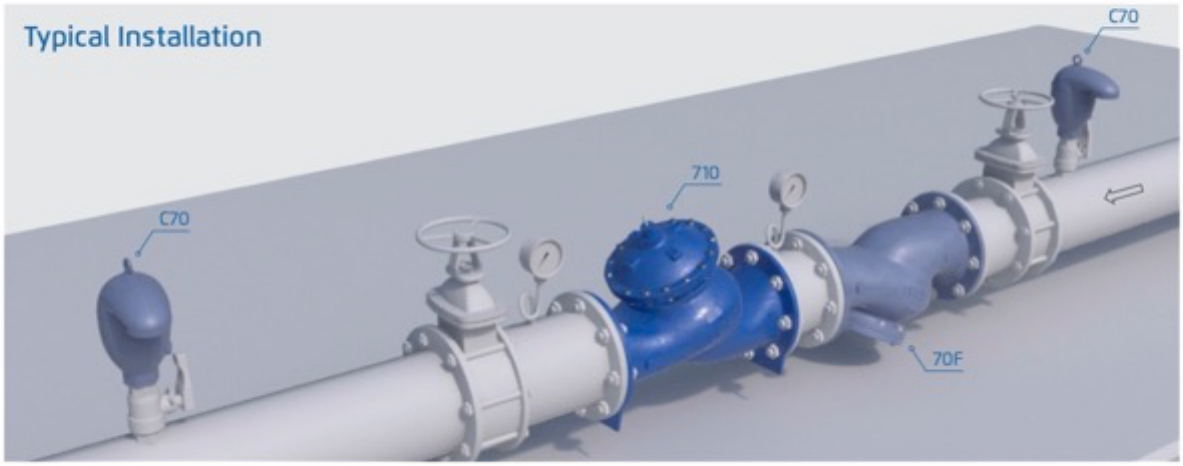
- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Full powered opening & closing – 710-B
- Opening & Closing speed control – 710-03
- Closing signal (limit switch) – 710-S
- Relief override – 710-3Q
- Flow over the seat (fail-safe close) – 710-0
- Closing surge prevention – 710-49
- Independent Check Feature – 710-2S

See relevant BERMAD publications.

Typical Installation



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BERMAD | Waterworks 700 SIGMA Series

ELECTRONIC CONTROL VALVE

Model 718-03 EN/ES

Electronic control valve that combines the advantages of an excellent modulating, line pressure driven, hydraulic control valve with those of electronic control. In response to signals from the electronic controller, the valve changes its opening position per preset values programmed into the controller. Both the valve's opening and closing speeds are controllable and on-site adjustable.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

Features and Benefits

- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Full powered opening and closing – 718-03-B
- Valve position transmitter – 718-03-Q
- Downstream over pressure guard – 718-03-48
- Relief override – 718-03-3Q
- Independent check feature – 718-03-2S
- Hydraulic check valve – 718-03-20
- Flow over the seat (fail-safe close) – 718-03-0

See relevant BERMAD publications.

Typical Installation

All images in this catalog are for illustration only

BERMAD | Waterworks

700 SIGMA Series

PRESSURE REDUCING VALVE

Model 720 EN/ES

Click here for control accessories

Hydraulically operated, pressure reducing control valve that reduces higher upstream pressure to lower constant downstream pressure, regardless of fluctuating demand or varying upstream pressure.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Features and Benefits

- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Fixed Proportion PRV – 720-PD
- Pressure management valve – 7PM
- 3-Way control – 720-X
- Anti-cavitation cage – 720-C2
- Safety valve – 720-TC
- Independent check feature – 720-2S
- Hydraulic check valve – 720-20
- Solenoid control – 720-55
- Electrically selected multi-level setting – 720-45
- High sensitivity pilot – 720-12
- Downstream over pressure guard – 720-48

See relevant BERMAD publications.

Typical Installation

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BERMAD | Waterworks

700 SIGMA Series

PRESSURE RELIEF/ SUSTAINING VALVE

Model 730 EN/ES

Pressure relief/sustaining hydraulically operated control valve that can fulfill either of two separate functions: When installed in-line, it sustains minimum pre-set, upstream (back) pressure regardless of fluctuating flow or varying downstream pressure. When installed as a "branched from the line" circulation valve it relieves excessive line pressure when above maximum pre-set.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

HOME VIEW

Features and Benefits

- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Pressure sustaining and reducing valve – 723
- Differential pressure sustaining – 736
- Quick pressure relief valve – 73Q
- 3-Way control – 730-X
- Solenoid control – 730-55
- Hydraulic check feature – 730-20
- Anti-cavitation cage – 730-C2
- High sensitivity pilot – 730-12
- Electrically selected multi-level setting – 730-45
- Level control and pressure sustaining valve – 753
- Pump control and pressure sustaining valve – 743
- See relevant BERMAD publication

Typical Installation

Link to Animation

BERMAD | Waterworks

700 SIGMA Series

SURGE ANTICIPATING VALVE

Model 735-M EN/ES

Hydraulically operated off-line surge anticipating valve that immediately opens in response to the pressure drop associated with abrupt pump stoppage. The pre-opened valve dissipates the returning high pressure wave, eliminating the surge. The valve smoothly closes drip tight as quickly as the relief feature allows, thereby preventing closing surge. The valve also relieves excessive system pressure.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

Features and Benefits

- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Solenoid control – 735-55-M
- Quick pressure relief valve – 73Q
- Hydraulic/Electric override – 735-55-09-M
- Independent Check Feature – 735-M-2S

See relevant BERMAD publication

Typical Installation

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BERMAD Irrigation

WW-700 Series

Pressure Relief

Quick Pressure Relief Valve

WW-73Q

- Immediately eliminates pressure peaks
- Visual indication of system over pressure
- Filtration system burst protection
- Thermal expansion over-pressure relief
- System maintenance savings

The Model 73Q Quick Pressure Relief Valve is a hydraulically operated, diaphragm actuated control valve that relieves excessive system pressure when this pressure rises above the pre-set value. It immediately, accurately, and with high repeatability responds to system pressure rise by fully opening. The Model 73Q provides smooth drip tight closing.

Features and Benefits

- **Hydraulic actuation**
  - Independent operation
  - Long term drip-tight sealing
  - Long term setting stability
  - Wide setting range
  - Tight setting window
  - Minimal hysteresis
- **Double chamber design**
  - Moderated valve closing (no surges)
  - Protected diaphragm
- **Obstacle free, full bore** – Uncompromising reliability
- **Balanced seal disk** – High relief flow capacity
- **Manual test valve** – No setting change required

BERMAD | Waterworks

700 SIGMA Series

BOOSTER PUMP CONTROL VALVE QUICK ACTIVE CHECK VALVE

Model 740 EN/ES

Double chambered, hydraulically operated, active check pump control valve that opens fully or shuts off in response to electric signals. The valve isolates the pump from the system during pump startup and shutdown, thereby preventing pipeline surges.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

HOME VIEW

Features and Benefits

- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Independent check feature- 740-2S
- Pressure sustaining – 743
- Pressure reducing – 742
- Flow control – 747-U
- Pump circulation control – 745
- Electronic control – 740-18
- Pressure sustaining and Pressure reducing – 743-2Q

See relevant BERMAD publication

Typical Installation

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BERMAD Waterworks

700 Series

Level Control Valve with Modulating Horizontal Float

Model 750-60

- Reservoir filling
  - Low volume reservoirs
  - Large surface area reservoirs

The Model 750-60 Level Control Valve with Modulating Horizontal Float is a hydraulically controlled, diaphragm actuated control valve that controls reservoir filling to maintain constant water level, regardless of fluctuating demand.

Features and Benefits

- **Line pressure driven –** Independent operation
- **Modulating hydraulic float control**
  - "Always Full" reservoir
- **Double chamber**
  - Full powered closing
  - Non-slam closing characteristic
  - Protected diaphragm
- **External installation**
  - Easy access to valve and float
  - Less wear and tear
- **Balanced seal disk –** High flow capacity
- **In-line serviceable –** Easy maintenance
- **Flexible design –** Easy addition of features

Major Additional Features

- Pressure sustaining – **753-60**
- Flow control – **757-60-U**
- Electric float backup – **750-60-65**

See relevant BERMAD publications.

BERMAD

BERMAD | Waterworks 700 SIGMA Series

LEVEL CONTROL VALVE

with Bi-Level Vertical Float

Model 750-66 EN/ES

Hydraulically operated control valve that controls reservoir filling and reservoir level. Reservoir filling is in response to a hydraulically controlled non-modulating bi-level vertical float that opens at a pre-set reservoir low level and shuts off drip-tight at a pre-set high level.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

Features and Benefits

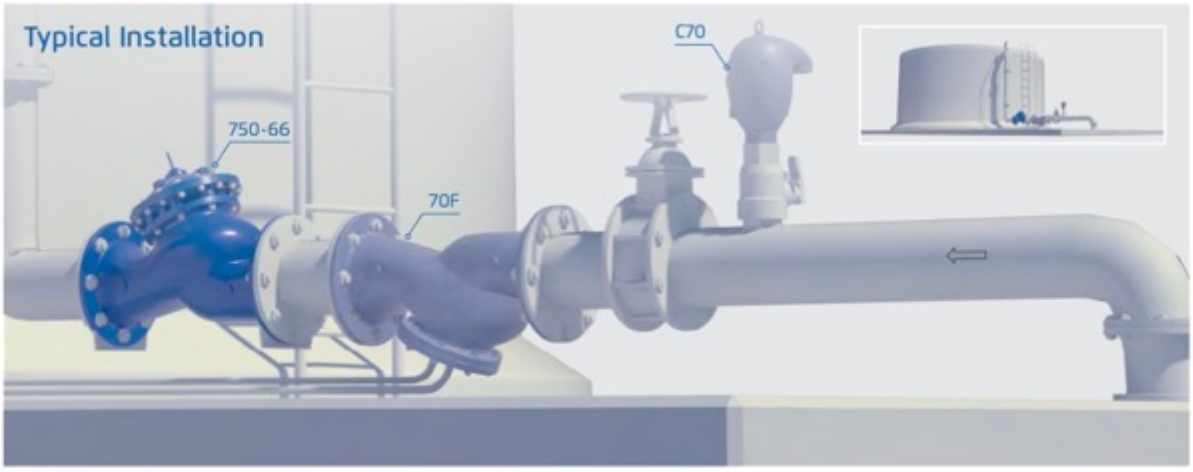
- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Pressure sustaining – 753-66
- Flow control – 757-66-U
- Electric float backup – 750-66-65
- Independent Check Feature – 750-66-2S

See relevant BERMAD publication

Typical Installation



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BERMAD | Waterworks 700 SIGMA Series

LEVEL CONTROL VALVE

with Altitude Pilot

Model 750-80 EN/ES

Hydraulically operated control valve that controls reservoir filling and reservoir level. The valve shuts off at a pre-set reservoir high level and fully opens in response to an approximately one meter (3 ft) level drop, as sensed by the 3-Way altitude pilot mounted on the main valve.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

Features and Benefits

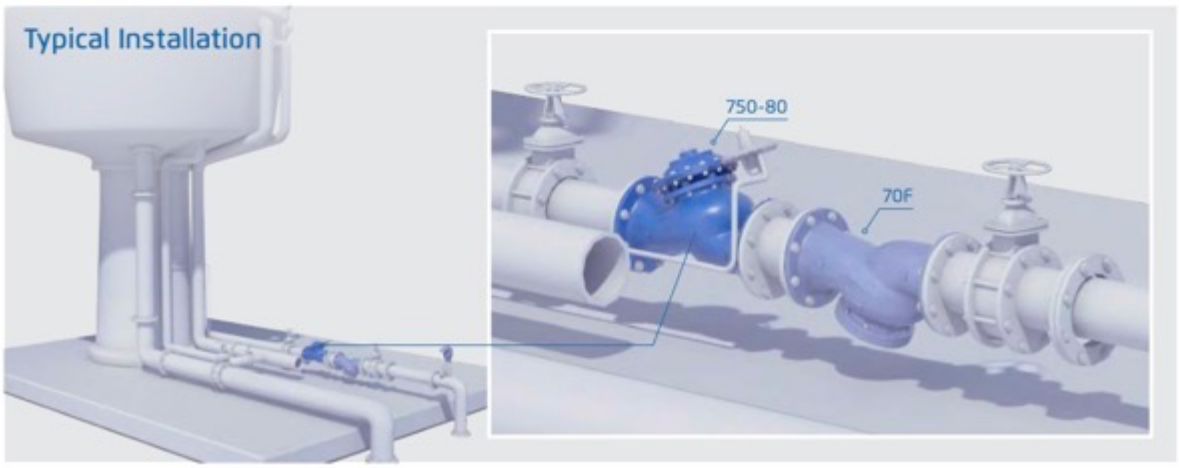
- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Modulating altitude control – 750-82
- Pressure sustaining – 753-80-X
- Flow control – 757-80-XU
- Bi-directional flow – 750-87-X
- Full powered opening & closing – 750-80-BX
- Closing surge prevention – 750-80-49-X
- Bi-level altitude control – 750-86
- Level sustaining with high sensitivity pilot – 75A-83
- Independent Check Feature – 750-80-2S

See relevant BERMAD publication

Typical Installation



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BERMAD | Waterworks

700 SIGMA Series

FLOW CONTROL VALVE

Model 770-U EN/ES

Hydraulically operated flow control valve that maintains pre-set maximum flow, regardless of fluctuating demand or varying system pressure.

BERMAD 700 SIGMA EN/ES series valves are hydraulic, oblique pattern, globe valves with a raised seat assembly and double chamber unitized actuator, that can be disassembled from the body as a separate integral unit. The valves hydrodynamic body is designed for unobstructed flow path and provides excellent and highly effective modulation capacity for high differential pressure applications. The valves are available in the standard configuration or with an Independent Check Feature code "2S". The 700 SIGMA EN/ES Valves operate under difficult operation conditions with minimal cavitation and noise. They meet size and dimensions requirements of various standards.

Click here for control accessories

Features and Benefits

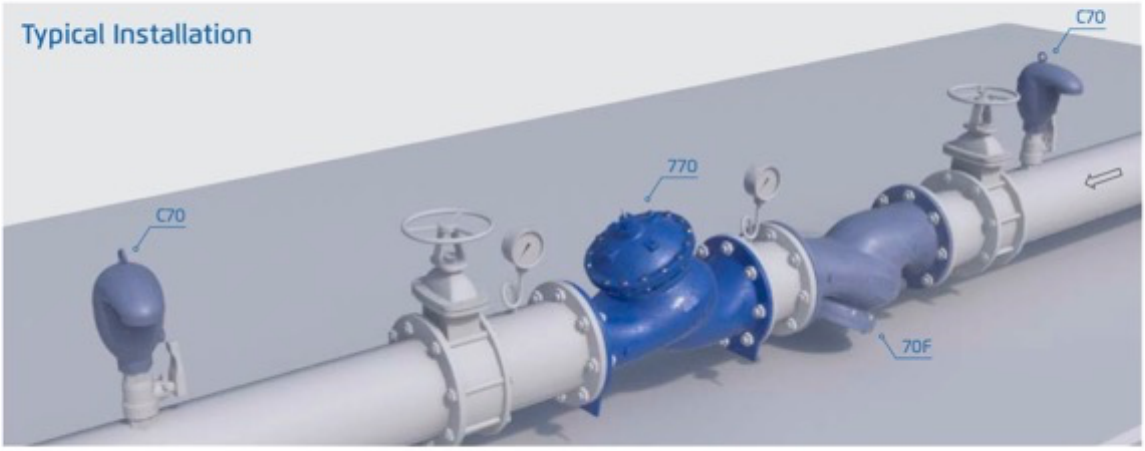
- Designed to - stand up to the toughest conditions
  - Excellent anti-cavitation properties
  - Wide flow range
  - High stability and accuracy
  - Drip tight sealing
- Double chamber design
  - Moderated valve reaction
  - Protected diaphragm
  - Optional operation in very low pressure
  - Moderated closing curve
- Flexible design - Easy addition of features
- Obstacle free flow pass
- V-Port Throttling Plug (Optional) - Very stable at low flow
- Compatible with various standards
- High quality materials
- In-line serviceable - Easy maintenance

Major Additional Features

- Solenoid control – 770-55-U
- Solenoid control & check feature – 770-25-U
- High sensitivity pilot – 770-12-U
- Pressure Reducing – 772-U
- Level & flow control valve – 757-U
- Pump & flow control valve – 747-U
- Pump circulation & flow control valve – 749-U
- Electronic control valve – 718-03
- Independent Check Feature – 770-U-2S

See relevant BERMAD publications.

Typical Installation



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APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certification Certificates are available from WSAA.

TABLE B1 BERMAD CS LTD– MANAGEMENT SYSTEMS

Kibbutz Evron Israel	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	56178
Certifying Agency	The Standards Institution of Israel
First Date of Certification	16 July 1995
Current Date of Certification	1 July 2021
Expiry Date of Certification	1 July 2024

TABLE B2 BERMAD WATER TECHNOLOGIES – PRODUCT CERTIFICATION

7 Inglewood Drive Thomastown VIC	
Product Standard/Spec.	AS 5081:2008
Certificate No.	SMKP22015
Issuing Certification Body	SAI-Global
First Date of Certification	21 November 2011
Current Date of Certification	11 November 2021
Expiry Date of Certification	30 September 2023

CERTIFICATE

This is to certify that the Quality Management System of

Bermad Cs Ltd

Kibbutz Evron, Israel

Has been assessed and complies with the requirements of :

ISO 9001:2015

This Certificate is Applicable to

Design, production and testing of control valves, metering valves, Water meters, valves for fire protection and air valves.

THE STANDARDS INSTITUTION OF ISRAEL

IQNet

MGMT. SYS. RvA C 096

IAF

Initial Approval:	16/07/1995		
Certification Decision:	01/07/2021		
Valid Until:	01/07/2024	**Certificate No.:**	86237

SII-QCD assumes no liability to any party other than the client, and then only in accordance with the agreed upon Certification Agreement.
This certificate's validity is subject to the organization maintaining their system in accordance with SII-QCD requirements for system certification. The continued validity may be verified via scanning the code with a smartphone, or via website www.sii.org.il. This certificate remains the property of SII-QCD.

Dr. Gilad Golub
CEO

R.N 570048611

Avital Weinberg
Director, Quality & Certification Division

The standards institution of Israel
42 Chaim Levanon St,
Tel-Aviv 6997701

Page 1 of 1

Our Vision: To Enhance Both Global Competitiveness of our Services, with our Uncompromised Quality and Integrity

STANDARDSMARK LICENCE

SAI Global hereby grants:

Bermad Water Technologies

ABN 62 093 801 220

7 Inglewood Drive, Thomastown, VIC 3074, Australia

StandardsMark Licence

Manufactured to:

AS 5081-2008 - Hydraulically operated automatic control valves for waterworks purposes

"the StandardsMark Licensee" the right to use the STANDARDSMARK as shown below only in respect of the goods described and detailed in the Schedule which are produced by the Licensee or on behalf of the Licensee* and which comply with the appropriate Standard referred to above as from time to time amended. The Licence is granted subject to the rules governing the use of the STANDARDSMARK and the Terms and Conditions for certification and licence. The Licensee covenants to comply with all the Rules and Terms and Conditions.

Licence No: SMKP22015

Issued : 12 November 2021
Expires : 30 September 2023

Originally Certified : 21 November 2011
Current Certification : 11 November 2021

Frank Camasta
Global Head of Technical Services
SAI Global Assurance

Certified Product
Australian Standard

JAS-ANZ
WWW.JAS-ANZ.ORG/REGISTER

** For details of manufacture, refer to the licensee*

SCHEDULE TO
STANDARDSMARK LICENCE

SAI Global hereby grants:

Bermad Water Technologies

7 Inglewood Drive, Thomastown, VIC 3074, Australia

StandardsMark Licence

Manufactured to:

AS 5081-2008 - Hydraulically operated automatic control valves for waterworks purposes

Model identification of the goods on which the STANDARDSMARK may be used:

Model Name	Brand Name	Product Description	Product Type	Nominal Size (DN)	Pressure Classification (PN)	End Connection Designation	Material Designation	Comments	Date Endorsed
710	BERMAD	A valve that is operated by a solenoid pilot.	Single Solenoid Control Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
718	BERMAD	A valve that is operated by two two-way solenoid pilots.	Dual Solenoid Control Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
720	BERMAD	A valve that reduces high pressure at the valve inlet to a lower pressure at the valve outlet by means of a pressure-reducing pilot.	Fixed Outlet Pressure Reducing Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
730	BERMAD	A valve that sustains a minimum set pressure at the valve inlet by means of a pressure sustaining pilot.	Pressure Sustaining Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
735	BERMAD	A special type of pressure-relief valve, used to protect pumping stations and pipelines under a sudden pump stopping condition (e.g., due to power failure).	Surge Anticipating Control Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
730	BERMAD	A valve that sustains a minimum set pressure at the valve inlet by means of a pressure relief pilot.	Pressure Relief Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011

Licence No: SMKP22015 **Issued Date:** 12 November 2021

This schedule supersedes all previously issued schedules

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SCHEDULE TO
STANDARDSMARK LICENCE

Model Name	Brand Name	Product Description	Product Type	Nominal Size (DN)	Pressure Classification (PN)	End Connection Designation	Material Designation	Comments	Date Endorsed
740	BERMAD	The valve controls the operation of booster pumps and allows flow in only one direction.	Pump Control Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
750-60	BERMAD	A valve that controls level into a tank by means of a float-controlled pilot, in order to maintain the water level within a set range.	Level Control Valve (Pilot Type 60)	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
750-66	BERMAD	A valve that controls level into a tank by means of a float-controlled pilot, in order to maintain the water level within a set range.	LevelControl Valve (Pilot Type 66)	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
750-80	BERMAD	A valve that controls level into a reservoir by means of an altitude pilot, in order to maintain the water level within a set range.	Altitude Control Valve	DN50 to DN600	PN 16 PN 21 PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile Iron AS 1831	Diaphragm actuated, pilot operated Automatic Control Valve .	21 Nov 2011
770	BERMAD	A valve that maintains the flow set-point, irrespective of any variation of inlet or outlet pressure, by means of a rate-of-flow pilot.	Rate-of-flow Control Valve	DN50 to DN600	PN 16PN 21PN 35	Flanged AS4087 or AS2129 , Grooved AS3688 Section 9 or Threaded AS3688 Section 7	Ductile IronAS 1831	Diaphragm actuated,pilot operated Automatic Control Valve .	11 Nov 2021

End of Record

Licence No: SMKP22015 **Issued Date:** 12 November 2021

This schedule supersedes all previously issued schedules

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* For details of manufacture, refer to the licensee

APPENDIX C - SUPPLIER CONTACTS

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