



CMW BVA Valves Pty Ltd

PRODUCT APPRAISAL REPORT 1513 Issue 2

Karon Resilient Seated Swing Check Valves

AS 4794-2001 Non-return valves-Swing check and tilting disc

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Peer Reviewers

Name/Title	Organisation	Date
Product Appraisal Technical Advisory Group	WSAA	17 May 2017
WSAA Expert Panel	WSAA	17 May 2017
Peter Pittard, WSAA Consultant	WSAA	18 May 2017
Carl Radford, Product Appraisal Manager	WSAA	24 May 2017
Peter Pittard, WSAA Consultant	WSAA	21 August 2023
Carl Radford, Product Appraisal Manager	WSAA	21 August 2023

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.

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1 EXECUTIVE SUMMARY

CMW BVA Valves Pty Ltd, trading as Challenger Valves and Actuators (Challenger), is a privately-owned company established in 1984 and a major supplier of valves and actuators to industries including water, irrigation, power, mining and industrial. It also imports a range of pneumatic and electric actuation products.

The range of Karon resilient seated swing check valves is manufactured by Shanghai Karon Eco-valve Manufacturing Co Ltd, based in Shanghai China.

This appraisal is for a range of PN16 flanged ductile iron polymeric coated resilient seated swing check valves in sizes from DN 80 to DN 375 manufactured in compliance with AS 4794.1:2001 *Non-return valves – Swing check and tilting disc*.

Both free acting and lever arm and counterweight versions are available.

Flanges are to AS/NZS 4087 PN16 Figure B5.

This Issue 2 is a replacement for the previous version of the appraisal which had reached its 5-year expiry date on 26th May 2022.

Resilient seated swing check valves are utilised for the prevention of flow reversal in pipeline systems. The valves incorporate an EPDM encapsulated DI flap and are suitable for use in drinking water supply, non-drinking water supply and pressure sewer networks. The operation of the valve is fully automatic as the flow is unidirectional.

Both CMW BVA Valves Pty Ltd and Shanghai Karon Eco-valve Manufacturing Co Ltd hold an ISO 9001:2015 Quality Management System Licence.

The Karon swing check valves have ISO Type 5 StandardsMark Product Certification to AS 4794:2001 *Non-return valves – Swing check and tilting disc*.

This *Appraisal* has determined that Karon swing check valves, as detailed in this report, meet the requirements of WSA PS 264 *Non-return (Reflux) Valves for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage* 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 Karon resilient seated swing check valves, as detailed in this report, for use in water supply and sewerage applications provided they are installed in accordance with WSAA Codes and the manufacturers requirements, where specified.

2 THE APPLICANT

The applicant is CMW-BVA Valves Pty Ltd trading as Challenger Valves and Actuators.

2.1 The Supplier

CMW-BVA Valves Pty Ltd is a privately-owned company established in 1984 and a major supplier of valves and actuators to industries including water, irrigation, power, mining and industrial. It also imports a range of pneumatic and electric actuation products.

Challenger's head office is situated in Shepparton, Victoria, where its purpose-built facility is located. The facility incorporates fabrication, assembly, testing, technical support and purchasing, warehouse and distribution capabilities. It also owns and operates stocking warehouse facilities in Queensland, NSW, Victoria and WA.

2.2 The Manufacturer

Shanghai Karon Eco-valve Manufacturing Co Ltd was established at Shanghai (as Shanghai Karon Valves Machinery Co Ltd) in 1991, primarily to manufacture valves for the water and sewage industry. The Taiwanese company has more than 40 years' experience in the manufacture of a wide range of valves for the water, wastewater, petrochemical and power

industries. The company operates four manufacturing plants, three based in the Shanghai area and the original factory based in Taiwan.

The Karon check valves are coated, assembled and tested at the Karon facility and components are sourced locally in accordance with Karon specifications.

The company produces a wide range of industrial valves for the water industry up to and including 3 metres in diameter and exports globally with major markets in USA, South America, Europe and the Middle East.

For more information see: http://www.karon-valve.com/#/en_about

3 THE PRODUCT

This appraisal is for a range of PN16 flanged ductile iron polymeric coated resilient seated swing check valves in sizes from DN 80 to DN 375 manufactured in compliance with AS 4794:2001 *Non-return valves – Swing check and tilting disc*.

Both free acting and lever arm and counterweight versions are available.

The ductile iron components are polymeric coated in accordance with AS/NZS 4158. Flanges are to AS/NZS 4087 PN16 Figure B5.

Resilient seated swing check valves are utilised for the prevention of flow reversal in pipeline systems. The valves incorporate an EPDM encapsulated DI flap and are suitable for use in drinking water supply, non-drinking water supply and pressure sewer networks. The operation of the valve is fully automatic as the flow is unidirectional.

The valve utilises positive pressure to hold the disc open to avoid fluctuations. The full-bore non-clogging design restricts debris accumulation and reduces head loss. An extended shaft design allows for installation of limit switches. The bonnet access allows for cleaning and maintenance without having to remove the valve from the pipeline.

The valves incorporate lifting lugs and support feet. An option to provide 'no flow' proximity sensors is also available.

More details are available in Appendix A or at www.challengervalves.com.au



FIGURE 1: KARON RESILIENT SEATED SWING CHECK VALVE

**TABLE 1
KARON FLANGED SWING CHECK VALVE RANGE**

Product Code	DN
RSSC080	80
RSSC100	100
RSSC150	150
RSSC200	200
RSSC250	250
RSSC300	300
RSSC375	375

4 SCOPE OF THE APPRAISAL

The scope of this appraisal is for a range of Karon flanged resilient seated swing check valves, with free acting or lever arm and counterweight options, in sizes DN 80 to DN 375, as detailed in Section 3 and included in the ISO Type 5 StandardsMark product certification schedule included in Appendix B.

5 APPRAISAL CRITERIA

5.1 Quality Assurance Requirements

The WSAA Product Appraisal Technical Advisory Group accepts resilient seated swing check valves manufactured in compliance with AS 4794:2001 *Non-return valves – Swing check and tilting disc* 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 Karon resilient seated swing check valves have been appraised for compliance with AS 4794:2001 *Non-return valves – Swing check and tilting disc*.

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 264 *Non-return (Reflux) Valves for Pressure Applications – Drinking Water, Non-Drinking Water Supply and Sewerage*

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

<https://www.wsaa.asn.au/shop/product/60961>

6 COMPLIANCE WITH APPRAISAL CRITERIA

6.1 Compliance with Quality Assurance Requirements

Challenger has submitted the following quality certificates:

- ISO 9001:2015 Certificate of Registration No. QEC10507 issued to CMW-BVA Valves Pty Ltd by SAI Global.
- ISO 9001:2015 Certificate of Registration No. 331220758 issued to Shanghai Karon Eco-valve Manufacturing Co Ltd by TI Certification (Shanghai) Co Ltd.
- AS 4794:2001 *Non-return valves – Swing check and tilting disc* ISO Type 5 StandardsMark Product Certification Licence No. SMK40161 issued to CMW-BVA Valves Pty Ltd 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 supplied for the major component suppliers.

6.2 Compliance with Performance Requirements

6.2.1 Component materials

Table 2 details AS 4794 basic component material requirements together with Karon's material specifications. Material test reports have been submitted for each component to demonstrate conformance to the nominated material specification.

The materials meet the requirements of AS 4794.

**TABLE 2
COMPONENT MATERIALS**

AS 4794			Challenger		
Component	Basic Material	Min Grade	Material	Standard	Grade
Body and Cover	Ductile iron	400-12	Ductile iron	AS 1831	450-10
Disc	Ductile iron	400-12	Ductile iron	AS 1831	450-10
Disc encapsulation	EPDM	-	EPDM	AS 1646	80 IRHD
Hinge	Ductile iron	400-12	Stainless steel	ASTM A351	CF8M
Hinge pin, plugs, fasteners	Stainless steel	316	Stainless steel	ASTM A 276	316
Gasket	EPDM	-	EPDM	AS 1646	80 IRHD
Lever arm	Ductile iron	400-12	Ductile iron	AS 1831	450-10
Lever weight	Grey Iron	T220	Grey iron	AS 1830	T220
Gland, bearing	Copper alloy	486	Copper alloy	AS/NZS 1567	C48600
O-ring	EPDM	65-75 IRHD	EPDM	AS 1646	80 IRHD

6.2.2 Flanges

Flanges comply with AS/NZS 4087 PN16 Fig B5. The base surfaces of the flanges are flat to provide standing stability.

6.2.3 Coating

Karon check valves are coated with Akzo Nobel Resicoat R4, a thermosetting fusion bonded epoxy powder coating applied by the electrostatic spray technique.

Akzo Nobel Resicoat is ISO Type 5 product certified to AS/NZS 4158. A copy of the certificate is held on file by WSAA.

The coating is applied in-house by Karon. Challenger has advised that coating procedures remain unchanged since the preparation of the original appraisal.

Application procedures are audited by SAI-Global in conjunction with StandardsMark product certification audits.

6.2.4 Type tests

Type test results as required by AS 4794 were submitted for the original version of this appraisal which included an endurance test, hinge strength test and body strength test. No changes to the design have occurred since.

6.2.5 Contact with drinking water

Challenger has submitted a copy of a type test report undertaken on a DN 80 Karon swing check valve by Beijing Building Materials Testing Academy Co Ltd (CNAS Accreditation No. L1449) dated 8th November 2022 to demonstrate compliance with AS/NZS 4020:2018.

7 FITTING INSTRUCTIONS, TRAINING AND INSTALLATION

An installation Operation and Maintenance Manual is included in Appendix A.

8 PRODUCT MARKING

Karon swing check valves have the following information cast on the valve body, as required by AS 4794:

- Manufacturers Name: Karon
- Nominal size: e.g., DN100
- Year of manufacture: e.g., 2021
- Class: PN16
- Body material: DI
- Arrow to indicate direction of flow
- The number of the standard: AS 4794

The above information is also repeated on a sticker affixed to the body of the valve including model type (RSSC), manufacturing date, flange standard, serial number and product certification details.



FIGURE 2 EXAMPLE OF MARKING

9 PACKAGING AND TRANSPORTATION

The valves are packed into wooden crates and supported using bubble wrap.



FIGURE 3 EXAMPLE OF PACKAGING

10 PRODUCT WARRANTY

The products are covered by the normal commercial and legal requirements of the *Competition and Consumer Act 2010 (Cth)*, which covers manufacture to the relevant standard, and details of Challenger's warranty is included in their terms and conditions of sale.

11 WATER AGENCY EXPERIENCE WITH THE PRODUCT OR FIELD TESTING REPORT

Karon resilient seated swing check valves have been used by Australian water agencies for many years.

12 OUTCOMES OF EXPERT PANEL PRODUCT REVIEW

No issues are outstanding.

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.

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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).

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APPENDIX A – PRODUCT LITERATURE

RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



FEATURES AND BENEFITS

- Idea for use on potable water and sewerage applications.
- Designed to prevent backflow in a pipeline
- Positive pressure holds the disc open avoiding fluctuations.
- Designed and tested in accordance with AS4794.
- AS4794 StandardsMark Certified product by SAI Global Licence No:SMK40161
- WaterMark Approved product by SAI Global Licence No: WMK26065
- Body and bonnet are made of high grade ductile iron to AS1831.
- Fusion Bonded Epoxy coating to AS4158 internally and externally providing longer life and excellent corrosion resistance.
- Full bore non clogging design restricts debris accumulation and reduces head loss.
- Ductile iron disc encapsulated with EPDM rubber approved to AS4020 suitable for contact with potable water.
- The EPDM encapsulated disc prevents corrosion, ensures drip tight closure and a long life.
- Extended shaft design allows installation of limit switches.
- Bonnet allows for easy access for cleaning and maintenance without having to remove from pipeline.
- Lifting lugs and Support feet for easy handling.

Options

- Alternative flange connections available on request
- Free Acting
- Open / Closed mechanical switches
- No Flow Proximity Sensors

APPLICATIONS

Challenger Valves and Actuators are the **"Right Choice for Valves and Actuation"** when quality matters.

Servicing industries such as: Water & Waste Water, Desalination, Pumping, Industrial Processing, Irrigation and General Industries.



TECHNICAL SPECIFICATION

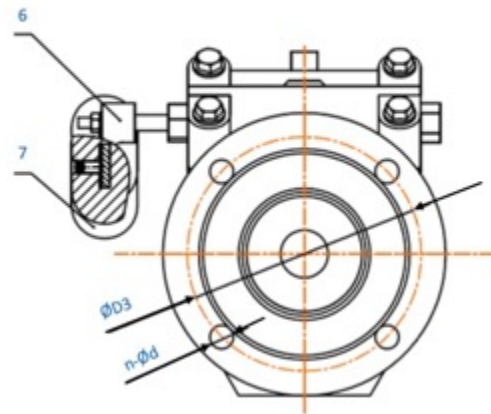
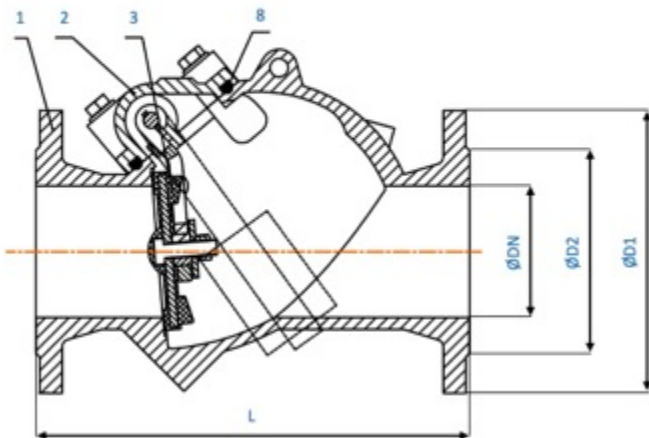
Construction: Resilient Seat Swing Check Valve
Size: 80mm - 375mm
Pressure Rating: PN16
Face to Face: According to AS4794
Flange Drilling: AS4087 B5 (Table D)
Coating: AS4158
Temperature Range: 0°~ 60°
Pressure Testing: Shell—24 BAR
 Seat—16 BAR

RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC

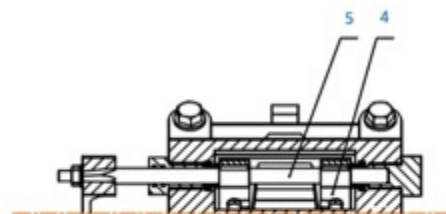


TECHNICAL : VALVE MATERIALS

ITEM	COMPONENT	MATERIAL	GRADE
1	Body	Ductile Iron	AS1831 450-10
2	Bonnet	Ductile Iron	AS1831 450-10
3	Disc	Ductile Iron EPDM Encapsulated	AS1831 450-10 AS1646.2
4	Hinge	Stainless Steel	ASTM A351-CF8M
5	Shaft	Stainless Steel	ASTM A276-316
6	Lever	Ductile Iron	AS1831 450-10
7	Weight	Grey Cast Iron	AS1830 T220
8	Gasket	EPDM	AS1646.2



DIMENSIONS						
DN	D1	D2	D3	n-φd	L	Weight (Kg)
80	185	122	146	4-18	260	20
100	215	154	178	4-18	330	28
150	280	211	235	8-18	410	56
200	335	268	292	8-18	540	92
250	405	328	356	8-22	640	164
300	455	378	406	12-22	700	242
375	550	463	495	12-26	820	410



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RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



OPTION: NO FLOW PROXIMITY SWITCH & CAM

FEATURES AND BENEFITS

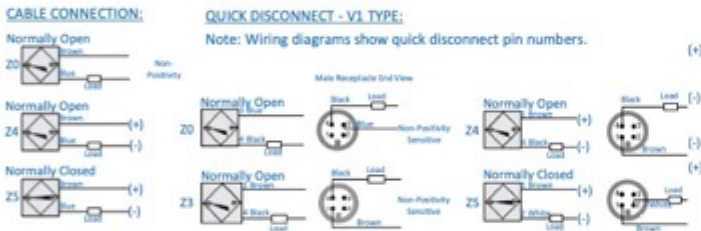
- 5 to 12mm sensing ranges
- 18mm threaded barrels
- LED target indication
- Normally open and normally closed models
- Cable and Micro (M12) quick disconnect models

FUNCTION

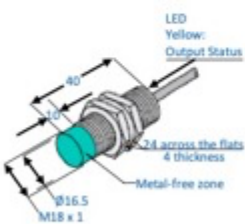
The NBN8-18GM40-ZO proximity sensors achieves position sensing via SS bolt passing within 8mm of the sensor. The SS bolt is attached to the lever arm cam for positive range indication.



WIRING DIAGRAMS - 2-Wire DC



DRAWING NO.2 - 8mm Sensing Range



TECHNICAL SPECIFICATION

- Supply Voltage:** (NB B/BN Models) - 5-60 VDC
(NCB/NCN Models) - 3.5-30 VDC
- Load Current (I_L):** 100mA max.
- Leakage Current (Off-State):** (NB B/BN Models) - ≤ 0.5mA
(NCB/NCN Models) - ≥ 0.8mA
- Output:**
(Suffix Z0, Z3, Z4) - Normally open (sinking or sourcing)
(Suffix Z1, Z5) - Normally closed (sinking or sourcing)
- Voltage Drop:** (NB B/BN Models) - ≤5 VDC
At I_L (Max) (NCB/NCN Models) - ≤3.5 VDC
- Hysteresis:** 1-10% (5% typical)
- Short Circuit & Overload Protection:** Yes
- Reverse Polarity Protected:** Yes
- LED Indication:** See dimension drawings
- Sensing Face Material:** PBT
- Standards:** EN 60947-5-2
- Environmental Protection:** IP67
- Ambient Temperature:** -25°C to +70°C
- Approvals:** CE, UL Listed, FM Approved

APPLICATIONS

Challenger Valves and Actuators are the **"Right Choice for Valves and Actuation"** when quality matters.

Servicing industries such as: Pulp and Paper, Mining, Water Treatment, and Sewerage.

Information shown may be subject to change in accordance with Challenger Valves and Actuators continuing development program. ©Challenger Valves and Actuators 2011

**RESILIENT SEAT SWING CHECK
LEVER WEIGHT DN80 - DN375
MODEL RSSC**



CHALLENGER
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Installation

Operation

Maintenance



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QADWIM1035_REV A, 02.10.13

RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



CHALLENGER
VALVES AND ACTUATORS

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RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



INTRODUCTION

1.1 General Application

Resilient seated swing check valves are the perfect solution for the prevention of flow reversal in pipeline systems.

RSSC swing check valve with EPDM encapsulated flap, are suitable for use in portable water or waste water.

The operation of the valve is fully automatic, flow can only be uni-directional.

- Operated by a lever arm and counter weight.

- Free Acting

Use limits: Not permitted for high unbalanced heads.



1.2 Technical Data

Design and manufacture standard:	AS 4794
Australian Standard License	SMK40161
Size Range:	DN80 ~ DN375
Allowable operating pressure:	1600 kPa
Maximum operating temperature:	0-60°C
End Connections:	Flanged to AS 4087 Figure B5 (Table C)
Face to face dimension stand:	AS 4794
Test standard:	AS 4794
Potable Water Testing:	AS 4020

RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



1.3 Features

Ideal for use on potable water and sewerage applications.
 Designed to prevent backflow in a pipeline
 Positive pressure holds the disc open avoiding fluctuations.
 Designed and tested in accordance with AS4794.
 AS4794 Certified product by SAI Global Licence No:SMK40161
 Body and bonnet are made of high grade ductile iron to AS1831.
 Fusion Bonded Epoxy coating to AS4158 internally and externally
 providing longer life and excellent corrosion resistance.
 Full bore non clogging design restricts debris accumulation and
 reduces head loss.
 Ductile iron disc encapsulated with EPDM rubber approved to AS4020 suitable for contact with potable water.
 The EPDM encapsulated disc prevents corrosion, ensures drip tight closure and a long life.
 Extended shaft design allows installation of limit switches.
 Bonnet allows for easy access for cleaning and maintenance without having to remove from pipeline.
 Lifting lugs and Support feet for easy handling.



1.4 Operation

The RSSC swing check valve is designed and manufactured for prevention of backflow in pipelines. The operation is fully automatic and is uni-directional.
 It is suitable for use with potable water, raw water and low solids sewage up to 60°C.
 Minimum liquid temperature must be above freezing.
 Lever & Weight as stand, If reacting is required the lever and weight can be removed.

NOTE: The valves are not designed for "end of line" services. In the event of a valve being mounted on the end of a pipeline, we strongly advise the use of a blanking flange or plug.

1.5 Design Constraints

Please consider the following points when selecting your valve:

- Consideration should be given at the design stage where valves will be located to give access for operation, adjustment, maintenance and repair.
- If a valve is installed less than 6 diameters downstream of an elbow or tee etc., it will experience very high-localised velocities that are far in excess of the average velocity. This high velocity will result in excessive turbulence within the valve and variations in performance may be experienced, therefore installation in this area should be avoided.
- Valves must be provided with adequate support. Adjoining pipework must be supported to avoid the imposition of pipeline strains on the body which may impair its performance.
- Heavy valves may need independent support or anchorage.

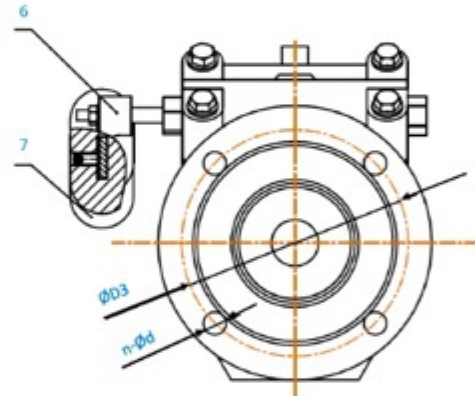
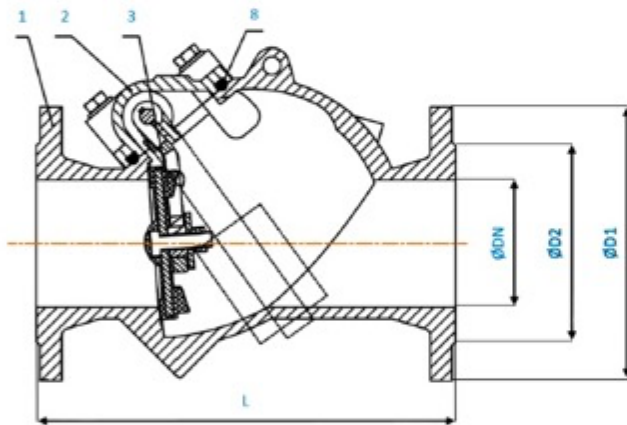
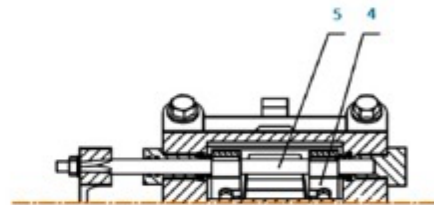
RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



CHALLENGER
VALVES AND ACTUATORS

2.1 Parts List

ITEM	COMPONENT	MATERIAL	GRADE
1	Body	Ductile Iron	AS1831 450-10
2	Bonnet	Ductile Iron	AS1831 450-10
3	Disc	EPDM Encapsulated	AS1646.2
4	Hinge	Stainless Steel	ASTM A351-CF8M
5	Shaft	Stainless Steel	ASTM A276-316
6	Lever	Ductile Iron	AS1831 450-10
7	Weight	Grey Cast Iron	AS1830 T220
8	Gasket	EPDM	AS1646.2



2.2 Dimensions

Reference	Nominal Size	Outside diameter of flange	Diameter of raised face	Pitch circle diameter	Number of holes & diameter of holes	Face to face	Weight of RSSC
Product Code	DN	D1	D2	D3	n- ϕ d	L	(Kg)
RSSC080	80	185	122	146	4-18	260	20
RSSC100	100	215	154	178	4-18	330	28
RSSC150	150	280	211	235	8-18	410	56
RSSC200	200	335	268	292	8-18	540	92
RSSC250	250	405	328	356	8-22	640	164
RSSC300	300	455	378	406	12-22	700	242
RSSC375	375	550	463	495	12-26	820	410

RESILIENT SEAT SWING CHECK LEVER WEIGHT DN80 - DN375 MODEL RSSC



INSTALLATION, OPERATION AND MAINTENANCE

3.1 Preparation before installation of swing check

Valves shall be protected during transportation. Collision and falling are strictly prohibited during transportation and installation. It is strictly prohibited to lift from the lever arm directly.

As the RSSC resilient seated swing check valve have rubber components, they are not to be stored exposed outdoors or exposed in sunshine for long periods of time.

If the valve is installed in a pit, enough space shall be kept to accommodate the working personnel.

The pipelines shall be designed with supporting fixtures such as support frames. It is strictly prohibited for the valve to support the pipeline weight or external weight.

Prior to connecting the valve with the pipeline, the flange shall be welded to the pipe. It is strictly prohibited to clamp the valve during the flange welding.

Foreign materials shall be cleared from the pipelines. It is strictly prohibited to leave weld slag, stones or other foreign materials in the pipeline which could damage the valve.

Prior to installation of the valve, prepare handling tools, spanners and other necessary tools, gaskets, bolts (or studs), nuts and washers. Bolts and nuts shall meet the pipeline design requirements. It is strictly prohibited to use fasteners without sufficient strength.

3.2 Installation of swing check

When installing the swing check valves, ensure that the seat and the flange faces are clean.

When valves are provided with lifting lugs, plates or eye nuts, these must be used to lift the valve.

To ensure adequate sealing it is important to select the correct type of gasket for the medium concerned, gaskets with the correct flange size must be used.

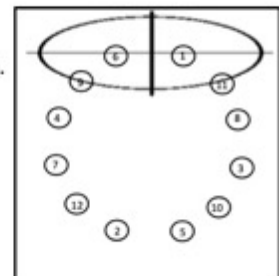
Place valve between pipe flanges and insert the bolts.

Tighten bolts loosely.

Tighten bolts in a diagonal sequence to ensure flanges are pulled up parallel. As per bolting sequence below (Figure 1).

Finally tighten bolts to correct torque levels as recommended in WSA 109.

Figure 1. Bolting Sequence



3.3 Maintenance of swing check

The valve is to be maintained periodically.

No lubrication is required as the medium lubricates all required parts.

Make sure all bonnet and flange bolts are tight.

Change of Bonnet Gaskets

- Make sure no pressure is in the pipeline
- Remove bonnet fasteners
- Remove bonnet
- Remove and replace bonnet gasket
- Replace bonnet
- Refit fasteners and tighten.

APPENDIX B - QUALITY CERTIFICATIONS

Copies of the following Quality Certificates are available from WSAA.

**TABLE B1
CMW-BVA VALVES PTY LTD – MANAGEMENT SYSTEMS**

3 Glenn St Shepparton Vic	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	QEC 10507
Certifying Agency	SAI-Global
First Date of Certification	24 April 1997
Current Date of Certification	31 March 2021
Expiry Date of Certification	17 April 2024

**TABLE B2
SHANGHAI KARON ECO-VALVE MANUFACTURING CO LTD
– MANAGEMENT SYSTEMS**

88 Lianxing Road Anting Town Jiading District Shanghai China.	
Quality Systems Standard	ISO 9001:2015
Certification Licence No.	331220758
Certifying Agency	TI Certification (Shanghai) Co Ltd
First Date of Certification	20 June 2022
Current Date of Certification	20 June 2022
Expiry Date of Certification	19 June 2025

**TABLE B3
CMW-BVA VALVES PTY LTD – PRODUCT CERTIFICATION**

3 Glenn St Shepparton Vic	
Product Standard/Spec.	AS 4794-2001
Certificate No.	SMK40161
Issuing Certification Body	SAI Global
First Date of Certification	6 June 2013
Current Date of Certification	16 June 2023
Expiry Date of Certification	5 June 2028



CERTIFICATE OF REGISTRATION

This is to certify that:

CMW-BVA Valves Pty. Ltd.

Trading as
Challenger Valves and Actuators Pty. Ltd.

3 Glenn Street Shepparton VIC 3630 AUSTRALIA

operates a

QUALITY MANAGEMENT SYSTEM

which complies with the requirements of

ISO 9001:2015

for the following scope

The sale, assembly and distribution of process control valves and fittings.

Certificate No: QEC10507

Issued: 31 March 2021

Originally Certified: 24 April 1997

Expires: 17 April 2024

Current Certification: 31 March 2021

Frank Camasta
Global Head of Technical Services
SAI Global Assurance



ISO 9001



WWW.JAS-ANZ.ORG/REGISTER

Registered by:
SAI Global Certification Services Pty Ltd (ACN 108 716 669) 680 George Street Sydney NSW 2000 Australia with SAI Global Pty Limited 680 George Street Sydney NSW 2000 Australia ("SAI Global") and subject to the SAI Global Terms and Conditions for Certification. While all due care and skill was exercised in carrying out this assessment, SAI Global accepts responsibility only for proven negligence. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. To verify that this certificate is current please refer to SAI Global On-Line Certification register at <http://register.saiglobal.com>



TiGroup | 钛和认证

QUALITY MANAGEMENT SYSTEM CERTIFICATE

Certificate No. 331220758

This is to certify that

Shanghai Karon Eco-valve Manufacturing Co.,Ltd.

Uniform Social Credit Code: 91310000607206531E

Registered Address: No. 815,Deyuan Road,Nanxiang Town, Jiading District, Shanghai, P.R.China

Operating Address: No. 88,Lianxing Road, Anting Town, Jiading District, Shanghai, P.R.China

has been found to conform to the Management System standard

GB/T19001-2016 idt ISO9001:2015

for the following scope:

The design and manufacture of potable valves, sewage valves, petrochemical valves, industrial valves and fire hydrant.

(IAF Code of Scope: 18)

Original Registration Date: 2022-06-20

Expiry Date: 2025-06-19

This certificate is valid until 2024-06-19. Please complete the surveillance or re-certification audit before this date and update it after the review.

This certificate remains the property of TiGroup and is bound by the conditions of contract. The certified organization shall be subject to surveillance audit periodically with acceptable results for maintaining the validity of this certificate. This certificate can be validated from TiGroup website www.titgroup.com, as well as the official website of CNCA www.cnca.gov.cn



ACCREDITED
Management Systems
Certification Body
MSCB-248



Signed by

Issue Date: 2023-06-16

Ti Certification (Shanghai) Co.,Ltd.

CNCA No.: CNCA-R-2017-331

Room705-709 No.767 Changshou Road

Putuo District Shanghai China

contact.cbe@titgroup.com



STANDARDSMARK LICENCE

SAI Global hereby grants:

CMW-BVA Valves Pty Ltd

ABN 81 006 321 704

3 Glenn Street, Shepparton, VIC 3632, Australia

StandardsMark Licence

Manufactured to:

AS 4794-2001 - Non-return valves - Swing check and tilting disc

"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: SMK40161

Issued : 16 June 2023

Expires : 5 June 2028

Originally Certified : 6 June 2013

Current Certification : 16 June 2023

Calin Moldovean
President, Business Assurance
SAI Global Assurance



* For details of manufacture, refer to the licensee

The STANDARDSMARK is a registered certification trademark of SAI Global Pty Limited (A.C.N. 050 644 642) and is issued under licence by SAI Global Certification Services Pty Limited (ACN 108 716 669) ("SAI Global") 650 Lorimer Street, Port Melbourne VIC 3207, GPO Box 5420 Sydney NSW 2001. This certificate remains the property of SAI Global and must be returned to SAI Global upon its request. Refer to www.saiglobal.com, for the list of product models.



SCHEDULE TO STANDARDSMARK LICENCE

SAI Global hereby grants:

CMW-BVA Valves Pty Ltd

3 Glenn Street, Shepparton, VIC 3632, Australia

StandardsMark Licence

Manufactured to:

AS 4794-2001 - Non-return valves - Swing check and tilting disc

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

Model Identification	Model Name	Brand Name	Product Description	Product Type	Nominal Size (DN)	Pressure Classification	Maximum Operating Temperature (°C)	End Connection Designation	Material Designation	Coating/Lining Designation	Date Endorsed
RSSC080	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	80mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	16 Jun 2023
RSSC100	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	100mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017
RSSC150	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	150mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017
RSSC200	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	200mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017
RSSC250	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	250mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017
RSSC300	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	300mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017
RSSC375	RSSC	Karon	Resilient Seat Non Return Valve - Swing Check	Non Return Valve	375mm	PN16	40	AS4087 B5	Ductile Iron	FBE AS4158	20 Jun 2017

End of Record

Licence No: SMK40161

Issued Date: 16 June 2023

This schedule supersedes all previously issued schedules



* For details of manufacture, refer to the licensee

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APPENDIX C - SUPPLIER CONTACTS

CMW-BVA Valves Pty Ltd trading as Challenger Valves and Actuators

Victoria (Head Office)

3 Glenn Street
Shepparton VIC 2430

Phone: 03 5822 1533

Email: sales@challengervalves.com.au

Website: <http://www.challengervalves.com.au/>

Sales Offices

Melbourne Vic
Phone: 1800 120751

Sydney NSW
Phone: 1800 120751

Newcastle NSW
Phone: 02 4956 8518

Brisbane Qld
Phone: 07 3345 7395

Perth WA
Phone: 08 9353 2863



Melbourne Office

Level 8, Suite 8.02
401 Docklands Drive
Docklands VIC 3008

Sydney Office

Level 9 420 George Street
Sydney NSW 2000
GPO Box 915
Sydney NSW 2001

P +61 (0) 3 8605 7666
email: info@wsaa.asn.au

www.wsaa.asn.au