NEK

Technical Specification

Title:

CONVENTIONAL VALVES
(for OSC Building Systems)

KRŠKO NUCLEAR POWER PLANT

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TABLE OF CONTENTS

Section	Title Description	Page
1	**SCOPE OF WORK**	**5**
1.1	SCOPE OF SUPPLY	5
2	**DEFINITIONS AND ABBREVIATIONS**	**5**
3	**CODES, STANDARDS AND REGULATORY REQUIREMENTS**	**6**
3.1	REFERENCES	6
1.	IEEE 344, EDITION 2004	6
2.	APPENDIX QR-A TO ASME QME-1-2007	6
4	**SUPPLEMENTAL DATA**	**7**
4.1	SPECIFICATIONS	7
4.2	INTERFACE DRAWINGS	7
4.3	ADDITIONAL DOCUMENTS	7
5	**DOCUMENT SUBMITTAL**	**7**
5.1	GENERAL	7
5.2	MANUFACTURING DOCUMENTS FOR VALVES	7
5.3	INFORMATION AND DOCUMENTS REQUIRED WITH THE PROPOSAL	8
5.4	FINAL DOCUMENATATION	8
5.5	ADDITIONAL REQUIREMENTS	8
6	**DESIGN REQUIREMENTS**	**9**
6.1	GENERAL DESIGN REQUIREMENTS	9
6.2	WORKING FLUIDS	9
6.3	DETAILED DESIGN REQUIREMENTS	10
6.3.1	*All Valves*	*10*
6.3.2	*Gate and Globe Type Valves*	*10*
6.3.3	*Check Valves*	*11*
6.3.4	*Safety and Relief Valves*	*11*
6.3.5	*Ball Valves*	*12*
6.3.6	*Diaphragm Valves*	*12*
6.3.7	*Options*	*12*
6.4	MAXIMUM PIPING LOADS	13
6.5	DESIGN LIMITS AND LOADING COMBINATIONS	13
7	**PERFORMANCE REQUIREMENTS**	**14**
7.1	MECHANICAL ENVIRONMENTAL QUALIFICATION	14
8	**MATERIAL REQUIREMENTS**	**14**
9	**FABRICATION AND ASSEMBLY REQUIREMENTS**	**15**
10	**INSPECTIONS AND TESTS**	**15**
10.1	GENERAL	15
10.2	HYDROSTATIC AND LEAKAGE TEST	16
10.2.1	*General*	*16*
10.2.2	*Relief and Safety Valves*	*16*
10.2.3	*Diaphragm valves*	*16*
10.2.4	*Valves supplied for liquid service*	*16*
11	**QUALIFICATION**	**16**
11.1	ENVIRONMENTAL QUALIFICATION	16
11.2	SEISMIC QUALIFICATION	17

12 CLEANLINESS 18

13 CORROSION PROTECTION/COATING 18

14 MARKING AND IDENTIFICATION 18

15 PACKAGING, SHIPMENT, TRANSPORT AND STORAGE 18

16 NONCONFORMING MATERIALS 19

17 RECORDS 19

17.1 RECORDS SYSTEM 19

18 RESPONSIBILITIES AND OTHER REQUIREMENTS 19

18.1 CONTRACTOR'S RESPONSIBILITIES 19
18.2 PURCHASER'S RESPONSIBILITIES 20
18.3 INSTRUCTIONS TO BIDDERS 20

19 RIGHT OF ACCESS 20

20 QUALITY ASSURANCE 21

20.1 CONTRACTOR'S QA PROGRAM 21
20.2 CONTRACTOR'S RESPONSIBILITY FOR SUBCONTRACTORS 21
20.3 CERTIFICATE OF CONFORMANCE/COMPLIANCE 21
20.4 MANUFACTURING AND INSPECTION PLANS 21

21 SPECIAL HANDLING 21

22 REQUIREMENTS STORAGE MAINTENANCE 21

23 SHELF LIFE 22

24 10CFR21 REPORTING (FOR US SUPPLIED EQUIPMENT ONLY) 22

25 COMMERCIAL GRADE DEDICATION 22

26 CONTRACTOR DOCUMENTATION REQUIREMENTS 22

27 NONCONFORMANCE REPORTS 22

28 REPAIR RECORDS 22

29 SOURCE INSPECTION/SURVEILLANCE NOTIFICATION 22

30 SHIPPING REQUIREMENTS 23

30.1 TAGGING 23

31 DELIVERY SCHEDULE 23

32 WITNESS AND HOLD POINTS 23

33 VENDOR TECHNICAL MANUAL AND REGGISTERED UPDATES 24

34 ATTACHMENTS 24

ATTACHMENT 34.1: EQUIPMENT SPECIFICATION EXCEPTIONS 24
ATTACHMENT 34.2: EQUIPMENT DATA 24
ATTACHMENT 34.3: LIST OF EFFECTIVE DATA SHEETS – GENERATED BY THIS SPECIFICATION 24
ATTACHMENT 34.4: SPECIFICATION DATA SHEETS 24
ATTACHMENT 34.5: APPLICABLE OBE AND SSE FLOOR RESPONSE SPECTRA FIGURES FROM 1056-NA-L-PZI-3/1-A1 "OSC SEISMIC ANALYSIS 24

RECORD OF REVISIONS

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0	December, 2018	Initial revision	All

1 SCOPE OF WORK

This Specification defines requirements for supply of conventional valves, which are Non-Nuclear Safety Class, however Augmented Quality Seismic Category I, for the Krško Nuclear Power Plant. The CONTRACTOR shall be responsible for compliance with all of the detailed requirements presented in this Specification. The CONTRACTOR shall be responsible for performing, in addition to the requirements to this Specification, such analyses, seismic reports, tests, inspections and other activities which the CONTRACTOR considers necessary for the service intended, or as may be required by common usage or good practice.

1.1 Scope of Supply

The equipment and services to be furnished by CONTRACTOR, with the materials and accessories pertaining thereto, shall include the following:

a. Valves of various types and sizes, as designated in the Valve Specification Sheets attached to this Specification

b. Seismic qualification reports for valves and accessories

c. Documentation of material reports, testing, and qualifications specified herein.

d. One set of spare parts for each valve type supplied

e. Any special tools necessary for installation and maintenance

f. Instruction Manual (6 hard copies and electronic copy)

g. Documentation package requested in this Specification

All equipment shall comply with the European Union legislation and must have been CE certified.

2 DEFINITIONS AND ABBREVIATIONS

AFFF	Aqueous Film Forming Foam
AQ	Augmented Quality
ANSI	American National Standard Institute
ASME	The American Society of Mechanical Engineers
ASTM	American Society for Testing Materials
Bidder	One who proposes his goods and/or services with price at the public auction
Contractor	shall mean the NPP Krško equipment or valve(s) supplier
Cv	Flow Coefficient
CFR	shall mean US Code of Federal Regulations
DCM	Document Control Module
EPRI	Electric Power Research Institute
ESP	NPP Krško's Engineering Services Procedures
MECL	Master Equipment Component List
NCR	NonConformance Report
NCN	NonConformance Notice
NDT	Non Destructive Testing
NEK	shall mean Nuklearna Elentrarna Krško (NPP Krško)
NRC	shall mean US Nuclear Regulatory Commission
OBE	Operating Basis Earthquake
OSC	Operating Support Center
Purchaser	shall mean Nuclear Power Plant Krško
QA&QC	Quality Assurance & Quality Control
RE	Responsible Engineer
SSE	Safe Shutdown Earthquake
WF	Working Fluid

3 CODES, STANDARDS AND REGULATORY REQUIREMENTS

All equipment shall comply with the European Union legislation and must have been CE certified. Design, choosing acceptable materials, manufacture, examination, testing, inspection, and documentation shall conform to the applicable sections of the following codes and standards:

3.1 References

a. **American National Standards Institute (ASME/ANSI)**

1. B16.1-1989, "Cast Iron Pipe Flanges and Flanged Fittings"
2. B16.5-1988, "Steel Pipe Flanges and Flanged Connections"
3. B16.10-1992, "Face-to-Face and End-to-End Dimensions of Ferrous Valves"
4. B16.11-1991, "Forged Steel Fittings, Socket-Welding and Threaded"
5. B16.34-2004, "Valves – Flanged, Threaded, and Welding"
6. B16.104-1976, "Control Valve Seat Leakage Classifications"
7. B31.1.0-2010, "Power Piping"
8. FCI 70-2-1991, "Control Valve Seat Leakage"; - Fluid Control Institute, Inc.

b. **Manufacturers Standardization Society (MSS)** Standard Practice:

1. SP-25-1998, "Standard Marking System for Valves, Fittings, Flanges and Unions"
2. SP-55-1996, "Quality Standard for Steel Castings for Valves, Flanges and Fittings and Other Piping Components – Visual Method"
3. SP-61-1992, "Pressure Testing of Steel Valves"
4. SP-82-1992, "Valve Pressure Testing Methods"
5. SP-86-1997, "Guidelines for Metric Data in Standards for Valves, Flanges, Fittings and Actuators"
6. SP-92-1992, "MSS Valve User Guide"
7. SP-96-1996, "Guidelines on Terminology for Valves and Fittings"

c. **American Society for Testing and Materials (ASTM)** Material Specifications:

1. A182-1991, "Standard Specification for Forged or Rolled Alloy-Steel Pipe Flanges, Forged Fittings, and Valves and Parts for High-Temperature Service"

d. National Fire Protection Association

1. NFPA 11- 1998 ''Standard for Low Expansion Foam''

e. Other codes and standards

1. IEEE 344, Edition 2004
2. Appendix QR-A to ASME QME-1-2007

Any conflicts between this Specification and the Applicable Documents or between the Applicable Documents shall be brought to attention of the NPP Krško prior to any action by the CONTRACTOR.

4 SUPPLEMENTAL DATA

4.1 Specifications

a. SP-S702 rev.10 "Technical Specification – Seismic Analysis, Testing, and Documentation".

b. QS-610, Rev. 1, "Generic Quality Assurance Program Requirements "

c. 1056-NA-L-PZI-3/1-A1 "OSC Seismic Analysis Report"

4.2 Interface Drawings

D-301-001 rev.2 "Welding Details for Connection to Non-Safety & Safety Class, Valves, Equipment and Piping"

SDPIP01 rev.C "Butt Weld End Preparation for Power Plant Piping and Components"

4.3 Additional Documents

Upon request, the BIDDER will receive any documents related to the scope of this specification, if not attached hereto.

5 DOCUMENT SUBMITTAL

5.1 General

All documents (including drawings, graphs, specifications, etc.) submitted shall be in the form of hard copies and electronic media. Acceptable document format sizes shall be A2 or smaller, A3 and A4 should be used whenever possible.

Preferred format for electronic correspondence is Adobe Acrobat Reader (pdf). Other acceptable formats shall be:

- Word Processing: Microsoft WORD (doc, docx);
- Spreadsheet: Microsoft EXCEL (xls, xlsx); and
- Computer Aided Drafting: AutoCAD (dwg).

5.2 Manufacturing Documents for Valves

The documentation regarding manufacturing shall comprise the following as a minimum:

a. Index
b. CONTRACTOR's Name;
c. Date of issue;
d. Document status;
e. Document number;
f. Revision number;
g. Construction Code or Standard;
h. Other organizations participating in the manufacturing;
i. NEK Purchase Order number; and
j. NEK Specification number
k. Bill of materials/ As built parts lists
l. All certificates required with material
m. Heat treatment certificates
n. Deviation reports/Repair reports
o. Other categories of documents

5.3 Information and Documents Required with the Proposal

The Supplier shall submit complete data for the equipment offered, including the following information:

a. Reproducible outline and sectional drawings for each valve, including: overall dimensions, valve type, ANSI B16.5 pressure class, manufacturer's figure number, connection size, approximate weight, center of gravity, and material specification of main valve and actuator parts (ASTM materials specification and grade) including location and description of hard-faced areas. Accessories may be covered on separate drawings, if a cross-reference is provided in such case.

b. Standard catalogue information covering valves and accessories offered.

c. Completion and return of the attached Equipment Data forms.

d. Information required under items 6.3.1 sub items h. and j., 6.3.4 sub item c., 6.3.5 sub item i., Item 10.1, and item 10.2.2 sub item b. herein.

e. Deviations or exceptions to this Specification as listed on the attached Equipment Specification Exceptions form. Unless specifically stated otherwise, the Supplier is assumed to propose furnishing services and materials in exact accordance with this Specification, and any modifications to this services and materials necessary to comply with this Specification.

f. QA Manual

5.4 Final Documentation

The Contractor shall submit two HC of the final technical documentation. An electronic copy shall be provided as well.

5.5 Additional Requirements

All documents including drawings shall be submitted in the form of hard copies. The CONTRACTOR's reproducible drawings of each type valve assembly shall include the following information:

a. Valve assembly outline and section view shoving internal construction, valve and contours, and weld ends with dimensions. The actuator, accessories, or both may be shown on separate drawings if a specific cross reference is established on the drawings.

b. ASTM designation or identification of all materials shown, including location and description of hard surfacing areas.

c. Overall dimensions including maintenance clearance and operator open dimensions. Drawings shall be sufficiently detailed that, overall dimensions of a valve including any actuator as well as any combination of accessories can be determined.

d. Weight of valve with manual operator, weight of valve with accessories and operators, weight of accessories and operators, and center of gravity of each of the above.

e. Pressure class, size, type and CONTRACTOR Figure number. If included in ANSI B16.5, the pressure class shall be in accordance with ANSI B16.5.

f. Control valve seat leakage class shall be specified according to ANSI B16.104/FCI 70-2.

g. Valve Cv in the wide-open position.

h. Any limitations regarding installation of the valve. The valve installation position shall be clearly provided otherwise, it shall be assumed that the valve can be installed in any position and function properly.

i. NEK Purchase Order Number and Valve Identification Number as defined by the Valve Specification Sheets.

j. NEK Valve Specification Sheet Number to which the valve drawing is applicable.

All CONTRACTOR's documents shall bear at least the following identification:

- Contractor's Name
- Date of issue
- Document number
- Revision number
- Construction Code or Standard
- Other organizations participating in the manufacturing
- NEK's Order Number

6 DESIGN REQUIREMENTS

6.1 General Design Requirements

Valves and accessories shall be suitable for conditions normally encountered in the conventional piping of power plants and shall be capable of continuous satisfactory operation under their respective design operating conditions, with a reasonable operating margin without undue strain, corrosion, deterioration, leakage, vibration, or other operation deficiencies.

All valve assemblies, as furnished, with any combination of options and accessories, shall be designed to suffer no structural damage when subjected to the maximum steady state, cyclic, and cumulative effects of all conditions specified herein during design life (see Section 6.4 and 6.5). The CONTRACTOR shall describe in detail, in the proposal, the procedures he will employ to prove equipment adequacy with respect to design and loading requirements.

6.2 Working Fluids

The applicable Working Fluid (WF) for each valve is identified on the Valve Specification Sheets and defined as follows:

a. No. 2 Fuel Oil, **WF-6**

b. Filtered and Potable Water Chemistry, **WF-9**

1.	pH	10,2
2.	Total hardness	146 ppm $CaCO_3$
3.	Total alkalinity	32 ppm $CaCO_3$
4.	Chlorides	15 ppm
5.	Sulphates	95 ppm SO_4
6.	Nitrates	22 ppm NO_2
7.	Total dissolved solids	200 ppm

c. Chilled Water System, **WF-11** - Demineralized Water with the following:

1.	pH range at 25 °C	8,0 to 10,0
2.	Corrosion inhibitor	Sodiumtetraborate/Sodiumnitrate (70/30 ratio, 1500 to 2500 mg/l)
3.	Chlorides	1 ppm
4.	Fluorides	1 ppm

d. Fire Protection System **WF-12** (Foam Fire- Extinguishing System); AFFF - Low Expansion Foam (Kidde Fire Fighting – Fluoroprotein Foam Concentrate Aer-0-Foam XL-3 or 3M foam concentrate - FC-203 light water (TM) 3%FP or EQUAL) with the following:

1.	pH range at 25 °C	7,3 to 8
2.	Water	42 to 56% by Wt
3.	Protein Hydrolysate	35 to 40% by Wt
4.	Ethylene Glycol	4 to 7% by Wt
5.	Hexylene Glycol	4 to 7% by Wt
6.	Ferrous Sulfate	0,5 to 2% by Wt
7.	Zinc Cloride	0 to 1% by Wt

8. Fluoroalkyl Surfactants 0,1 to 0,5% by Wt

6.3 Detailed Design Requirements

Valves shall confirm to the requirements of the Valve Specification Sheets and as set forth herein

6.3.1 All Valves

a. All welds end transformations shall comply with Drawings D-301-001 and SDPIP01.
b. End-to-end dimensions shall confirm to ANSI B16.10

c. Valve designs shall minimize disc vibration, spin, and chatter under all conditions.

d. Valve parts shall be replaceable with the valve installed.

e. Corrosion-resisting materials with anti-wear anti-galling characteristics shall be used in the fabrication of the sliding and mating parts such as the stem-to-disc interface and disc-to-guide interface.

f. All valves shall be full ported unless otherwise specified.

g. The minimum wall thickness of the pressure-retaining parts shall be in accordance with ANSI B16.5.

h. Valves should be provided with a means to relieve confined fluid. An example of a confined space for which relief would be required is the chamber formed above or below the disc of a closed valve. The BIDDER shall describe his method of relieving trapped fluid for each type of valves he is bidding.

i. Packing shall be of high quality, selected to minimize friction, the necessity for gland makeup, and to provide maximum protection against leakage and corrosion to valve parts. The packing selected shall be suitable respectively for any condition of steam, air, acidic or pure water, oil, or gas specified herein. The packing(s) selected shall be certified to contain less than 200 ppm leachable chlorides. The BIDDER shall list on the Equipment Data form a schedule of the packing he will use in each valve.

j. Stuffing boxes shall be arranged so that the packing can be replaced or adjusted without disturbing any part of the valve or operator assembly, except the packing gland follower.

k. Torqueing requirements shall not overstress the pressure retaining bolting. An “Installation, Operation & Maintenance Instruction Manual” shall contain written procedure for tensioning these bolts and bolt torque values are required. Calculations or measurements must substantiate torque values. Torqueing requirements for bolting associated with the valve actuator assembly of active valves is also required.

l. Valves shall be provided as Y, angle and T pattern body style with forged body, bonnet and yoke

6.3.2 Gate and Globe Type Valves

a. Positive backseating stem and bonnet construction shall be furnished.

b. Globe valve seats and discs shall be designed to be relapped in place for sizes 4 inches and larger.

c. Hand wheel actuators shall be capable of adjusting the valve as block valve in the hydrostatic of the pipelines. The actuator shall be capable of seating the valve against the respective ANSI B16.5 hydrostatic shell test pressure taken as differential across the seat.

d. Manual valve actuators shall be sized for opening and closing with a force not exceeding 80 pounds (36,3 kg) applied at the rim of the hand wheel against the pressure corresponding to a 100°F as listed in ANSI B16.5. Pressure-Temperature Rating Tables for the respective valve pressure class. Valve actuators shall be equipped with any combination of geared actuator,

ball and rolled bearing yokes and impactor hand wheels to meet requirements. Geared actuator shall be furnished on valves 8 inches and larger.

e. A gland follower with bolting for compression adjustment and fastening shall be furnished. The design shall prevent binding between stem and follower during adjustment and shall, when slipped up the stem, provide adequate space for replacing the packing without removing the actuator.

6.3.3 Check Valves

a. Valves 4 inches and smaller shall be the lift check, swing check or nozzle check type for installation in horizontal runs of pipe. Spring loaded lift check type or nozzle check type valves shall be suitable for installation in vertical runs. Cracking pressure shall be listed. Valves larger than 4 inches (10,16 cm) shall be the swing or nozzle check types; above 8 inches (20,32 cm), swing or nozzle check types valves shall be used.

b. Nozzle check valves shall be of flanged body design to allow their easier maintainability. Valves larger than 8 inches should have hanging device for aye-bolting on them.

c. The swing check type valve shall be the type which allows servicing through the bonnet opening; the type with internal hinge, or the type with hinge pin penetrating the body and capped, is applicable.

d. Valve bearings installed in the hubs of the body shall be of the self-lubricated sleeve type. Any bearing outboard of the stuffing box gland may be either sleeve or antifriction type.

6.3.4 Safety and Relief Valves

a. Valves shall be adjusted for set and blowdown pressures at the CONTRACTOR's shop.

b. The BIDDER shall determine the required orifice size for each valve in conformance with the requirements defined on the Valve Specification Sheets. The Contractor shall provide sizing calculations prior to submitting drawings for approval.

c. All safety and relief valves shall be provided with gags suitable to keep the valve closed during field hydrostatic testing. The gags shall be capable of keeping the valve closed and leak tight at a pressure of 1,5 times the valve set pressure. The BIDDER shall provide a drawing of the gags and recommended gagging procedure in the Proposal. The BIDDER shall state the maximum hydrostatic pressure that the valve may safely be subjected to with the gag attached.

d. The BIDDER may propose a safety-relief type valve of proven suitability for liquid relief service.

e. Inlet and outlet connections to match up with the NPP Krško's piping are listed in the Valve Specification Sheets. The BIDDER may deviate from these desired inlet connections for purposes of strength, safety, or required relieving capacity.

f. The BIDDER shall state the maximum loadings allowable on the valve outlets. The BIDDER shall include (but not be limited to) in his determination of allowable loadings, loadings due to thermal expansion of the discharge piping and loadings due to relieving at full capacity.

g. Valves shall be provided with suitable lifting levers when specified on the Valve Specification Sheets or required by the applicable codes and standards.

h. Valves shall be provided with bonnets as specified on the Valve Specification Sheets.

i. Valves over 1 inch nominal inlet size shall be provided with bolted caps. Valves with 1 inch and under nominal inlet size shall be provided with screwed caps. Caps shall be provided so that it shall not be necessary to remove the cap to gag the valve.

j. Zero leakage across the seat of all valves when installed in the field and under operating conditions is desired. The BIDDER shall state the guaranteed maximum leakage of newly installed valves.

k. The backpressure of backbalancing bellows shall be 1,5 times the specified static backpressure. Design of the bellows containment shall avoid direct impingement of the escaping fluid upon the bellows during valve discharge.

6.3.5 Ball Valves

a. Valves shall be capable of sealing in the either flow direction.

b. Valves shall be operated from the fully closed to fully opened position by 90° rotation of the ball.

c. Valves shall be non-lubricated.

d. Stem packing shall be manually adjustable without removal of the actuator.

6.3.6 Diaphragm Valves

a. The stem and bonnet O-ring seals shall be fully entrapped in the base metal. The seals shall permit the bonnet to be a pressure boundary should the diaphragm rupture.

b. The bonnet shall have a vent plug for detection diaphragm rupture. The plug shall meet the applicable design requirements of ANSI B.16.11.

6.3.7 Options

When the following items appear on the Valve Specification Sheets, they shall comply with the respective listed descriptions:

a. Flanged ends

Raised face flanged ends in accordance with ANSI B16.5 shall be furnished in lieu of butt welding ends.

b. Threaded ends

End connections shall be threaded in accordance with ANSI B16.11.

c. Hand wheels

The Valve Specification Sheet will indicate requirements for hand wheels and, unless otherwise indicated, they shall conform to the following requirements:

1. When specified, valve actuators shall be equipped with hand wheels for emergency or startup operation. In general, a top mounted hand wheel shall be furnished for the diaphragm actuators; however, side mounted hand wheels may be required in the following instances:
   (a) The actuator is too large to conventionally apply a top mounted hand wheel.
   (b) Pneumatic piston operator is utilized.
   (c) Anticipated demand for future diaphragm replacement while valve is in service.
2. The CONTRACTOR shall state the force necessary to operate the hand wheel offered to the particular actuator.
3. Engagement of the hand wheel shall disengage the automatic actuator function.

6.4 Maximum Piping Loads

a. Maximum piping loads to be respect in valves design are as follows:

Forces and Moments	Sustained	Occasional OBE	Occasional SSE
F - Axial Force (kN)	± 2.246 A_p	1.2 x Normal	1.8 x Normal
V - Shear Force (kN)	± 1.606 A_p	1.2 x Normal	1.8 x Normal
M - Resultant Moment (kNm)	± 0.489 Z_p	1.2 x Normal	1.8 x Normal
M_T - Torsional Moment (kNm)	± 0.489 Z_p	1.2 x Normal	1.8 x Normal

F = Axial force acting along the pipe centerline at pipe-nozzle interface (kN)
V = Shear force acting along any radial direction of pipe at pipe-nozzle interface (kN)
M = Resultant moment acting at pipe-nozzle interface, obtained by square root of sum of squares method (kNm) Mathematically $M = (M_1^2+M_2^2)^{1/2}$ where M_1 and M_2 are bending moments acting along two perpendicular axes.
M_T = Torsional Moment acting at the pipe centerline at the pipe flange interface (kNm)
A_p = Metal area of pipe (in^2)
Z_p = Section modulus of pipe (in^3)

b. The Contractor shall certify that the structural integrity of the valve will be maintained and that piping and load stress analysis is not required if the following conditions are satisfied: The minimum section modulus and area of the valve body crotch are equal to or greater than 110% of that of the connecting piping.

c.

d. The Code allowable stress limits of the valve body material are greater than or equal to that of the connected piping. If the valve body material allowable stress is less than that of the connected piping, the valve section modulus and area as calculated in sub item above shall be multiplied by the ratio S_{pipe}/S_{valve}.

6.5 Design Limits and Loading Combinations

1. Valve assemblies shall be designed to the pertinent limits defined in Table 1.

Condition	Loads	Stress Limitations
Sustain	Pressure Thermal Deadweight Nozzle Loads	1.0 x S_h
Occasional with OBE	Pressure Thermal Deadweight Nozzle Loads OBE	1.2 x S_h
Faulted with SSE	Pressure Thermal Deadweight Nozzle Loads SSE	1.8 x S_h

Table 1: design load combination and stress limitations

S_h = basic material allowable stress at maximum (hot) temperature

2. The maximum pressure resulting from normal and faulted conditions shall not exceed the factors listed in Table II.

TABLE II – P_{max} vs P

Condition	Active Valve	Inactive Valve
Sustain	1.0 x P	1.0 x P
Occasional with OBE	1.0 x P	1.1 x P
Faulted with SSE	1.0 x P	1.2 x P

The maximum pressure P_{max} resulting from given conditions shall not exceed the above listed factors.

P is the design pressure rating of the valves as defined by ANSI B31.1-2010 (per ref. 3.1; a.7).

3. The rules do not apply safety relieve valves. Safety relief valves shall be designed in accordance with the ANSI B31.1 (per ref. 3.1; a.7).
4. The nozzle loads imposed by the attached piping is described in Item 6.4.

5. Active valve assemblies
   a. The Bidder shall provide a report demonstrating the operability of active components under all design loading combinations. The report shall include description of the measures used. Structural interaction of the entire assembly shall be considered. If superposition of test results for other than the combined condition is used, the applicability of such procedure shall be demonstrated.
   b. The Bidder shall submit with the Proposal a brief description of the procedures he will use to meet requirements of Item 6.8 subitems a. and b.

7 PERFORMANCE REQUIREMENTS

The performance requirements of each valve shall be as noted in the Valve Specification Sheets in attachment 34.3 and/or 34.4.

All valves will be functionally tested and leak tested at the NPP Krško site to confirm their proper operation, setting, functionality, ANSI B16.104 leakage class requirement and to check them for no external leaks before valve in place installation.

7.1 Mechanical Environmental Qualification

All valve assemblies shall be qualified for the mechanical loading conditions specified in Table I. All valves to be supplied under this Specification are Seismic Category I and such shall meet all mechanical loading tests required by this Specification.

8 MATERIAL REQUIREMENTS

8.1 The general material requirements are designated in the Valve Specification Sheets.

8.2 Plating on any surface exposed to the working fluid is prohibited.

8.3 Valves shall have stellite-faced seats and discs and stainless steel trim unless specified otherwise. Seat rings may be of the same material as the valve body.

8.4 Parts or surfaces requiring hard facing shall be hard faced with Stellite 6, or EQUAL.

8.5 Where materials are not specified herein, materials of construction shall be of the CONTRACTOR's standard and be of proven suitability for the design condition.

8.6 Materials in contact with working fluid shall have as a minimum tracing contaminants and no additives of lead, mercury, sulphur, arsenic, or gallium.

8.7 The chloride and fluoride surface contamination of stainless steel material shall be no greater than the following limits (expressed in milligrams per square decimeter):

		Insulated surfaces	Uninstalled surfaces
a.	Chloride	0,0015	0,015
b.	Fluoride	0,0015	0,0015

8.8 A consumable product is defined as a nonmetallic, nonpermanent plant material, which comes in contact with the valves and their surroundings.

a. The consumable products covered by this specification include but are not limited to the following: adhesives, caps and plugs, desiccants, labels, leak testing fluids, lubricants, marking material, cutting oils, NDT penetrant materials (i.e. those materials used in the performance of penetrant examination, including penetrant agents), tapes, temperature indicating sticks, ultrasonic testing couplants, welding/cutting compounds, wrapping materials including temporary insulating materials, cleaning agents, solvents, grinding and cutting wheels, gloves, shoe covers, and snoop solutions.

b. Lead, mercury, and other low melting point materials, their alloys and/or their compounds shall not be added to these consumable products as essential chemical constituents. Sulphur, lead, low melting point metals, their alloys and their compounds shall be prohibited from use in manufacturing and testing of the valves.

c. Where a satisfactory substitute materials free of such contaminants cannot be found, the use of such substances for processing and fabricating metals at room temperature is permissible providing all surfaces, crevices, blind holes, etc., are thoroughly cleaned by the Contractor to remove all of the contaminant prior to any operation involving elevated temperatures.

9 FABRICATION AND ASSEMBLY REQUIREMENTS

Complete manufacturing of valves shall be in accordance with approved the CONTRACTOR's specifications. Fabrication procedures and qualifications shall conform to applicable codes, standards, and requirements stated herein. When not specified herein, the fabrication procedures and qualifications shall be the CONTRACTOR's standard and of proven suitability for the requirements.

10 INSPECTIONS AND TESTS

10.1 General

Testing, inspection, and acceptance criteria shall conform to the applicable code, standards and requirements as specified in Item 3.0. When no code, standard, or requirement is stated, the testing, inspection and acceptance criteria shall be the CONTRACTOR's standard and of proven suitability for the service. The BIDDER shall submit a list and brief description of all tests, codes, and acceptance criteria as part of the Proposal.

If valve or valve part fails to pass any test, any modifications to the valve, test equipment, or procedures shall be recorded before retesting and a description of a change shall be submitted with test reports to the NPP Krško for review and approval. All detailed testing, inspection procedures, and acceptance criteria shall be submitted to NPP Krško and approval prior to be used.

10.2 Hydrostatic and Leakage Test

10.2.1 General

Valves shall be hydrostatically tested and given a seat leakage test in accordance with MSS-SP-61 or ANSI B.16.104/FCI 70-2, as applicable. When testing across-the seat, the closure force shall not exceed 80 pounds force applied at the rim of the handwheel and test hold times shall be a minimum of 5 minutes. A back seat leakage test shall be performed in accordance with MSS-SP-61 with the packing removed. No leakage is allowed with a minimum test hold time of 5 minutes. The shell test shall be performed with the backseat removed from the contact and the packing installed so the entire stuffing box will be subject to the hydrostatic pressure. Power actuated valves shall be tested across-the-seat as required for manual valves and shall also be tested across-the-seat against maximum differential pressure during powered operation when the operator force is the normal force of the actuator after the torque and limit switch settings have been made.

10.2.2 Relief and Safety Valves

a. Valves shall be gagged and the hydrostatic test performed with gag in place.

b. Set pressure test

The CONTRACTOR shall conduct the shop pressure tests on each safety and relief valve to demonstrate the accuracy of the set pressure. Failure of the valve to perform within the allowed tolerances of the specified settings shall be cause for rejection. The BIDDER shell submit a description of his test as part of a Proposal.

c. Seat tightness test

The CONTRACTOR shall verify seat tightness by conducting a seat leakage test on each valve at the factory. The valve shall be closed with the normal force of the spring. Leakage shall not be observed in the normal flow direction with a differential pressure across the seat of 10% below the valve set pressure. The pressure shall be applied for a minimum of 5 minutes.

10.2.3 Diaphragm valves

Valve body shall be hydrostatically tested; stuffing box and bonnet test may be waived.

10.2.4 Valves supplied for liquid service

Valves supplied for liquid service shall be tested with air or water.

11 QUALIFICATION

11.1 Environmental Qualification

Equipment shall be suitable for service for the design life of the valves adverse effects under the following environment conditions:

<u>Valves Located Indoors</u>

a. Ambient temperature – Normal 36°F (2°C) to 125°F (52°C)

b. Ambient pressure – atmospheric

c. Relative humidity – 100% maximum

<u>Valves Located Outdoors</u>

Normal Ambient temperature:

a. Maximum 93°F (34°C)

b. Minimum 0°F (-18°C)

Design Extension Condition (DEC) Ambient temperature

a. Maximum 115°F (46°C) dry bulb

b. Minimum -31°F (-35.1°C)

The design life of the valves is 40 years with routine parts replacement as identified by the Contractor. The Contractor shall provide a list of non-metallic replacement parts including the shelf life and the recommended frequency of change-out to maintain the Environmental Qualification. This information shall be provided in the "Installation, Operation & Maintenance Instruction Manual".

a. Non-metallic materials, such as diaphragms and "0"-rings, shall be suitable for a minimum 5 years period when exposed to the inside containment environment or service conditions stated in the design specification.

b. Valve and accessories shall be designed to function for a minimum period of 5 years without maintenance.

c. Qualification of non-metallic material shall be documented in a test report supplied to the Purchaser by the Contractor.

11.2 Seismic Qualification

The valves specified herein are classified Seismic Category I. Seismic design shall comply with Specification SP-S702-044687-000 and OSC Seismic Analysis 1056-NA-L-PZI-3/1-A1. The seismic load spectra for Operating Basis Earthquake (OBE) and Safe Shutdown Earthquake (SSE) are given in Attachment 34.5 for each valve specifically (check Attachment 34.3). The percentage of critical damping shall be considered in accordance with RG 1.61, Rev 1. The CONTRACTOR shall prove through analysis (analytical approach) that structural integrity is maintained during the OBE and SSE and that functionality of valves is guaranteed after the OBE and SSE.

For active[1] valves, it is required that their first natural frequencies are greater than 33 Hz, which is considered rigid frequency. Valves having natural frequencies at or above rigid frequency do not resonate or amplify the seismic input motions. In cases such as rigid active valves, the equipment is allowed to be statically analyzed for integrity and operability for the ZPA (Zero Period Acceleration) values as specified in equipment design specifications. In the case of valve design, the piping accelerations must be maintained to these levels. If the natural frequencies of valves are found to be below 33 Hz, an analysis shall be performed to determine the amplified input accelerations necessary to perform the static load equivalent analysis (for example modal analysis to determine natural frequency and corresponding spectral acceleration). If the natural frequencies of the valve are found to be below 33 Hz, spectral acceleration that corresponds to the natural frequency of the valve shall be additionally increased by a factor of 1.5 to account for the effects of higher natural mode shapes. For active valves whose operation is not affected by seismic accelerations (such as check valves without extended body structure), the operability is assured by equipment's design features (i.e. clearances) and structural integrity.

Non-active valves shall be qualified for integrity alone. Structural integrity may be checked by analysis (analytical approach) satisfying the stress criteria applicable to the particular piece of equipment according to the design code.

Qualification methods delineated in IEEE 344, Edition 2004, and in Non-mandatory Appendix QR-A to ASME QME-1-2007 are acceptable methods for seismic qualification of motor operated valves.

The CONTRACTOR shall provide seismic qualification documentation to the PURCHASER for review and approval. The content of qualification documentation shall be in accordance with NEK's specification SP-S702.

[1] Designation of the classification of a valve (active or non-active) is provided in the Valve Specification Sheet.

12 CLEANLINESS

Cleaning of external surfaces shall be in accordance with the CONTRACTOR's written procedures.

During manufacturing, cleaning shall be performed on all valve assembly, valve's parts and its subassemblies in accordance with written procedures, which have been reviewed and approved by the Purchaser.

The responsibility for establishing, ensuring, and maintaining cleanliness shall rest with the Contractor. The hardware shall be delivered to the Purchaser in a clean condition, free of contaminants and loose parts suitable for the intended service.

The Contractor shall establish cleanliness programs and maintain cleanliness throughout manufacturing, fabrication, assembly, testing and inspection of each valve. The Contractor shall be responsible for ensuring that these same requirements for cleanliness are met by the subsuppliers. Sealing and packing shall be performed immediately after cleaning of component and/or areas to be protected.

13 CORROSION PROTECTION/COATING

All exterior carbon steel and low alloy non-machined surfaces shall be painted in accordance with the Contractor's normal practice.

Studs and stainless steel, non-ferrous, and galvanized surfaces need not to be coated.

14 MARKING AND IDENTIFICATION

Equipment supplied within the scope of this Specification shall be provided with a stainless steel nameplate, affixed in an accessible area with at least the following information:

- Manufacturer's name;
- Manufacturer's serial number;
- Equipment type;
- Year of manufacture;
- Tag numbers as indicated on the Specification Sheets;
- NEK Purchase Order number.

15 PACKAGING, SHIPMENT, TRANSPORT AND STORAGE

Packaging, shipping, site receiving, site storage, handling, and cleaning after installation shall be according to CONTRACTOR procedure. The packaging procedure shall take into account the method of transportation to be used, as well as the possible storage duration and storage environment.

Protection of internal cleanliness shall be achieved by sealing all openings with plugs, caps, or covers. Coated equipment shall be handled at all times with equipment such as stout, wide belt slings and wide padded skids designed to prevent damage to the coating. Bar cables, chains, hooks, meal bars, or narrow skids shall not be permitted to come in contact with the coating.

16 NONCONFORMING MATERIALS

Any deviations or design changes which are not fully in accordance with the technical or quality assurance requirements of the procurement documents and which the Contractor desires to accept, must be approved by the Purchaser. Any such deviation request must be made in writing prior to disposition by means of a Deviation/Change Request Form submitted to the Purchaser for approval prior to continuing work.

17 RECORDS

17.1 Records system

A record system shall be established and maintained by the Contractor to provide documentary evidence of the quality of items and activities affecting quality. The quality assurance (QA) records shall include results of reviews, inspections, tests, audits, monitoring of work performance and material analyses. Records shall, as minimum, identify inspector or data recorder, data inspection was performed, type of observation, procedures used, results, acceptability, and action taken with any deficiency noted. Collection, storage and maintenance of records shall be in accordance with the requirements of the Contractor's procedure.

Additional records or supporting data shall also be maintained. All quality verification records, procedures, and qualifications shall identify the item or activity involved. These records shall be retrievable and available for examination.

Responsible persons for generating, completing, or reviewing records shall ensure the following requirements are met:

a. Assure Records are technically correct in accordance with applicable procedures

b. Assure Records are complete including all attachments. Records shall be reviewed to assure all required data, i.e., signatures, dates, etc., have been completed or marked not applicable (N/A) as required.

c. Assure corrections to data have properly been made. Corrections to data shall include the data and the identification of person authorized to make the correction.

d. Assure that records are legible – can be clearly read and suitable for microfilming. The original of all records should be transmitted to the Purchaser as a record.

18 RESPONSIBILITIES AND OTHER REQUIREMENTS

18.1 Contractor's responsibilities

The Contractor's responsibilities (scope of work description and scope of supply) are specified in section 1.0 of this specification. Additionally, this specification also provides requirements, which the Contractor also must follow in the fabrication/manufacturing work, mainly specified in section 9.0.

The Contractor shall furnish adequate information for Purchaser to evaluate the Contractor's proposed design. The information submitted by the Contractor in response to the requests throughout the specification shall be included in the purchase documents as a firm commitment of what the Contractor shall furnish. Inclusion of the information in the bid proposal shall in no way release the Contractor from its responsibilities for subsequent submittals as set forth in this specification.

The Contractor shall be responsible for compliance with all of the detailed requirements of this specification. Approval of any drawings, and/or specifications by the Purchaser shall in no way relieve the Contractor from these responsibilities. There shall be no deviation from this specification or its references without prior written approval of the Purchaser.

The Contractor shall perform all work in good, workmanlike, and quality manner in compliance with the drawings, plans, specifications, procedures, and codes applicable to the scope of supply.

The Contractor shall assure separate price list for each item, which is shown on the drawing that is recommended spare parts, to allow Purchaser acceptance in the warehouse.

The Contractor shall obtain resolution of any conflict from the Purchaser prior to proceeding with any work involving that conflict. Unless otherwise identified in this specification, the revision and addenda in affect to each document on the effective data of the purchase order are applicable.

Additionally, the Contractor shall be responsible for compliance with Contract's General Terms and Conditions.

18.2 Purchaser's responsibilities

a. Provide the Contractor with all available documentation upon request

b. Provide any special requirements applicable to the installation of valves.

c. Assure that ESP requirements are fulfilled and DCM, MECL are updated to assure plant configuration.

Whenever Purchaser's approval is required in this specification for submittals, procedures, methodologies, approaches or options, such approval shall be provided in writing or if provided orally shall be confirmed in writing. Purchaser will provide all required approvals in a timely fashion consistent with the project schedule.

The Purchaser shall review proposed additions to the approved products listing and determine if they meet the requirements of the NEK Chemical Control Program. Approved products will be allowed on site with proper labeling.

18.3 Instructions to Bidders

Information required with the Proposal:

The BIDDER shall submit with his Proposal complete data for the equipment being offered. The following information shall be included:

a. As part of the Proposal a cross section drawing of the valve being offered, which shall fully identify and cross-reference all the valve parts with the ASTM materials specification and grade.

b. Standard catalog information covering valves and accessories offered.

c. Information required under section 6.0, 7.0 and 8.0 of this specification.

d. Information required in attached Specifications as listed on the content page to include specific information on each valve unit where applicable.

e. Any supplemental information included with the Proposal, which is not directly associated with the subject Specification is to be labeled SAMPLE.

f. All deviations or exceptions to this Specification.

All drawings, data and technical documents submitted to the Purchaser shall be on English language. The drawings, data and technical documents shall be submitted in accordance with NEK requirements.

The Bidder shall provide response to scope of supply with the description of the equipment, with basic equipment data, material use and standards, basic drawings, scope prices and acceptance of delivery date.
The Bidder shall indicate additional documentation he proposes to supply.

19 RIGHT OF ACCESS

Purchaser's Representative shall be allowed to the all areas where the design, fabrication, and assembly of the valves, subcomponents and accessories will take place such as shops, working areas, and engineering offices of the Contractor and its subsuppliers at any time for the purpose of auditing.

Such audits will include examination of documentary evidence of activities affecting quality and will be carried out on a planned, periodic basis during the course of the work to verify compliance with all aspects of the program and to determine the effectiveness thereof.

20 QUALITY ASSURANCE

20.1 CONTRACTOR's QA Program

This specification and NEK QA specification QS-610 Rev.1 establish the CONTRACTOR's QA program requirements that shall apply to all activities affecting the quality of supplied equipment, materials, or services.

The CONTRACTOR shall have its own Quality Assurance program that complies with ISO 9001 or equivalent standard, and relevant requirements of QS 610 Rev.1 which shall assure that all equipment and services ordered by this specification conform to the requirements of this specification and the standard. Reporting of defects and noncompliance in accordance with CONTRACTOR's QA Program and relevant requirements of NEK QS 610 Rev.1, shall be implemented by the CONTRACTOR.

The CONTRACTOR shall submit with Proposal one controlled copy of its QA Manual proposed for the scope of work to be performed for the PURCHASER's review and acceptance.

The CONTRACTOR shall retain full responsibility to perform QA function in all activities and his responsibility for QA implementation cannot be transferred to others or reduced in any way.

20.2 CONTRACTOR's Responsibility for Subcontractors

The CONTRACTOR shall ensure that its subcontractors meet applicable requirements of this Specification.

The Specification requirements shall apply to subsupplier's for works and services not performed by the CONTRACTOR.

The CONTRACTOR shall be fully responsible for all actions of his subcontractors in relation to the PURCHASER.

20.3 Certificate of Conformance/Compliance

The CONTRACTOR and its subcontractors shall provide a Certificate of Compliance stating that all provided equipment and services meet requirements of codes, standards and this Specification.

20.4 Manufacturing and Inspection Plans

The CONTRACTOR shall provide the Manufacturing and Inspection Plans with record (R), witness (W) and hold (H) points to the PURCHASER for review and approval prior to start of manufacturing.

The Manufacturing and Inspection Plans shall cover at least all relevant inspection requirements and shall outline the manufacturing and production sequence and specific inspections that are required to be performed.

The CONTRACTOR shall update the Manufacturing and Inspection Plan and submit copies thereof to the PURCHASER when changes are approved by the PURCHASER.

21 SPECIAL HANDLING

The Contractor shall specify special handling requirements and provide Purchaser with appropriate procedure, which shall explain and emphasize them in detail. The Contractor shall also specify additional requirements necessary to maintain equipment warranties.

22 REQUIREMENTS STORAGE MAINTENANCE

The Contractor shall also specify additional requirements necessary to maintain equipment warranties.

The Contractor shall provide specific instruction in maintenance, instruction and operating manual for maintaining the valves during storage if necessary.

23 SHELF LIFE

The Contractor shall not ship any item that has less then one-year remaining shelf life at time of shipment. Also, the Contractor shall provide shelf life data by one of the following methods: Expiration date or Cure date and material composition.

If the above requirements are not met, the material will be shipped back to the Contractor at his response.

24 10CFR21 REPORTING (For US supplied equipment only)

Not applicable.

25 COMMERCIAL GRADE DEDICATION

Not applicable.

26 CONTRACTOR DOCUMENTATION REQUIREMENTS

Requirements for Contractor documentation could be found under sections 5.0, 20.0 and 33.0

27 NONCONFORMANCE REPORTS

Nonconformances with specification requirements, approved drawings, and applicable codes and standard invoked by this specification will not be accepted until approved by the Purchaser.

Nonconformances to be reported for approval by the Purchaser are those nonconformances, which cannot be brought within specification requirements by rework or replacement. When such condition exists, the Contractor shall initiate a Nonconformance Notice (NCN) using the Contractor's standard proposed disposition. See item 16.0 for additional information.

Additionally, the Contractor shall:

a. Segregate the nonconforming item to prevent any further processing which may result in a change of the nonconformance as identified,

b. Properly disposition and transmit the NCN to the Purchaser's Responsible Engineer by the most expeditious means. The NCN may be telecopied, followed by direct transmittal of the original.

c. Provide technical justification if recommended disposition is "Accept-As-Is" or "Repair".

The resolution/approval of Deficiency Notices, Nonconformance Notices, Field Change Notices, etc., must be approved in advance by the Purchaser. Further engineering and/or manufacturing after detection of nonconformances, prior to Purchaser's approval shall be at the Contractor's risk.

The NCR shall provide the method by which the Contractor shall obtain a documented response and approval from Purchaser when nonconformances are identified. The use of the NCR will pertain to work at the Contractor's and/or subCONTRACTOR's shops.

28 REPAIR RECORDS

Not applicable. All equipment shall be new, non-repaired, and free of any defect.

29 SOURCE INSPECTION/SURVEILLANCE NOTIFICATION

Not applicable.

30 SHIPPING REQUIREMENTS

30.1 Tagging

A stainless steel nameplate shall be affixed to each valve in an accessible area and shall include the following information:

a. NEK identification number

b. NEK unique number (See KRŠKO Purchase/General Order Notes)

c. NEK Purchase Order number

d. Valve NEK Specification Sheet number

The shipping container shall be clearly tagged with the NEK identification number and the NEK unique number(s).

30.2 The NEK authorized source inspector has right to hold up the shipment if purchase order requirements are not met.

30.3 Contractor shall also inform NEK (the Purchaser) about packaging and shipping method(s) to protect equipment packages from extreme temperature effects, high humidity, and shocks and jarring during shipment.

31 DELIVERY SCHEDULE

Delivery schedule shall support the general installation schedule.

32 WITNESS AND HOLD POINTS

The CONTRACTOR shall provide the Manufacturing and Inspection Plan of overall activities in accordance with the scope of contractual activities to the PURCHASER for review and approval.

The PURCHASER shall have the right to determine his own witness and hold points in the CONTRACTOR's Manufacturing and Inspection Plan. For these witness and hold points the PURCHASER may establish notification points for which the CONTRACTOR shall give prior notification to the PURCHASER. In addition, the PURCHASER may establish hold points and temporary notification points if necessary to ensure resolution of quality problems or temporary quality problems.

Predetermined hold points and notification points require receipt of notification at least ten (10) working days in advance of the scheduled time of performance.

Predetermined witness and hold points require receipt of notification at least ten (10) working days in advance of the scheduled time of performance.

The following hold points for which a prior notification is required are:

a. Factory assembly hydrostatic tests

b. Shipping release.

The CONTRACTOR shall not proceed beyond the predetermined hold points without written approval from the PURCHASER.

33 VENDOR TECHNICAL MANUAL AND REGGISTERED UPDATES

The Contractor shall furnish six (6) original vendor technical manuals with all necessary information for operation and maintenance, updated specific data and valve (s) drawings for each valve type, as necessary.

A special attention shall be paid to technical documentation and instructions for the following:

a. Transportation and handling of valves

b. Preparation and installation of valves

c. Troubleshooting guide in case of leakage

d. Maintenance and storage instructions

e. Replacement parts;

f. Special tools and instrumentation

g. Drawings of components and related equipment

The Contractor shall also provide drawings for all valves and connected equipment with a list of components, appertaining “part numbers” and their materials as part of the Instruction Manual together with the list of recommended spare parts.

34 ATTACHMENTS

Attachment 34.1: Equipment Specification Exceptions

Attachment 34.2: Equipment Data

Attachment 34.3: List of Effective Data Sheets – generated by this Specification

Attachment 34.4: Specification Data Sheets

Attachment 34.5: Applicable OBE and SSE floor response spectra figures from 1056-NA-L-PZI-3/1-A1 “OSC Seismic Analysis

ATTACHMENT 34.1

KRŠKO NUCLEAR POWER PLANT

SP – G3032

EQUIPMENT SPECIFICATION
EXCEPTIONS

The BIDDER/VENDOR certifies that the Proposal is in complete and absolute agreement whit this Specification, except as specifically stated below. (Use additional sheets if required).

_____
(BIDDER's/VENDOR's Name)

_____
(Manufacturer's Name)

_____
(Quotation Number)

Attest:

_____
(Signature)

_____
(Title)

ATTACHMNET 34.2

KRŠKO NUCLEAR POWER PLANT

SP - G3032

EQUIPMENT DATA

_____
(Bidder's/Vendor's Name)

_____
(Manufacturer's Name)

_____
(Quotation Number)

_____
(Valve Specification Sheet Number)

NUKLEARNA ELEKTRARNA KRŠKO
One copy of this form shall be returned with each Proposal with all blanks filled in.

1. Valve description

a. Model number(s) / size range _____ / _____

b. Bidder's / Vendor's data required to complete Valve Specification Sheets _____

Bonnet Seal Type _____

Plug Material _____

Seat Material _____

Cv Full open @ max flow _____

Max Flow @ ΔP _____

Mfg. Figure No. _____

Assembly Dwg. No. _____

Outline Dwg. No. _____

Pneumatic Spring and Diaphragm _____

Full Stroke at (psi) _____

Size (sq.in.) _____

Full Stroke (in.) _____

Operating Supply (psi) _____

Stroke time to open (sec.) _____

_____

(Bidder's Name)

_____
(Valve Specification Sheet Number)

2. Packing / Shaft Seal

a. Manufacturers _____ / _____

b. Temperature limitations _____

c. Material _____

d. Other _____

_____

_____

_____

3. Hard Facing

a. Trade name / number _____ / _____

b. Hardness at 600°F _____

4. Paint

a. Manufacturer and description _____ / _____

b. Temperature rating _____

c. Chemical description _____

d. Parts coated _____

5. Deliver date at site _____

KRŠKO NUCLEAR POWER PLANT

List of Effective Data Sheets – generated by Specification No.: **SP - G3032** rev.0

	Spec Sheet No.	Originated by	EEAR No.	MOD. No.	Date
	C32-11	Rajmund Mlakar		1056-NA-L	15.05.2019
	C36-10	Rajmund Mlakar		1056-NA-L	15.05.2019
	C42-7	Rajmund Mlakar		1056-NA-L	15.05.2019
	G32-14	Rajmund Mlakar		1056-NA-L	15.05.2019
	G32-15	Rajmund Mlakar		1056-NA-L	15.05.2019
	G42-2	Rajmund Mlakar		1056-NA-L	15.05.2019
	RV36-7	Rajmund Mlakar		1056-NA-L	15.05.2019
	RV42-3	Olgica Perović		1056-NA-L	21.06.2019
	S32-10	Rajmund Mlakar		1056-NA-L	15.05.2019
	S32-11	Rajmund Mlakar		1056-NA-L	15.05.2019
	S32-12	Rajmund Mlakar		1056-NA-L	15.05.2019
	S32-13	Rajmund Mlakar		1056-NA-L	15.05.2019
	S32-8	Rajmund Mlakar		1056-NA-L	15.05.2019
	S32-9	Rajmund Mlakar		1056-NA-L	15.05.2019
	S36-5	Rajmund Mlakar		1056-NA-L	15.05.2019
	S36-6	Rajmund Mlakar		1056-NA-L	15.05.2019
	S36-7	Rajmund Mlakar		1056-NA-L	15.05.2019
	S36-8	Rajmund Mlakar		1056-NA-L	15.05.2019
	X42D-10	Rajmund Mlakar		1056-NA-L	15.05.2019
	X42D-11	Rajmund Mlakar		1056-NA-L	15.05.2019
	C42-8	Olgica Perović		1056-NA-L	21.06.2019
	C42-9	Olgica Perović		1056-NA-L	21.06.2019
	S42-2	Olgica Perović		1056-NA-L	21.06.2019
	S42-3	Olgica Perović		1056-NA-L	21.06.2019
	S42-4	Olgica Perović		1056-NA-L	21.06.2019
	S42-5	Olgica Perović		1056-NA-L	21.06.2019
	S42-6	Olgica Perović		1056-NA-L	21.06.2019
	S42-7	Olgica Perović		1056-NA-L	21.06.2019
	T42-8	Olgica Perović		1056-NA-L	21.06.2019
	T42-9	Olgica Perović		1056-NA-L	21.06.2019

Important Note:
A person who will use this specification for purchasing either new or replacement Augmented Quality valve is responsible for fulfilling the table as stated by adding a copy(es) of newly created/generated Specification Sheet(s) to this table. Revisions of this SP-G3032 specification shall make those Specification Sheets a permanent part of it.

KRŠKO NUCLEAR POWER PLANT

Originator: _____ Specification No.: **SP - G3032 Rev.0**

Date: ___ / ___ / _____ Reviewed:_____ Spec. Sheet No.:_____

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER			**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	NO
	VALVE IDENTIFICATION No.		29	TEMP. MAX. - °C (°F)		
	BODY		30	PRESSURE MAX. - bar (psig)		
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM		32	Cv		
3	END CONNECTIONS – SCH.		33	ANSI - PRESSURE RATING		
4	BONNET SEAL TYPE		34			
5	STEM PACKING MATERIAL			**MOTOR OPERATOR**		
6	BODY & BONNET MATERIAL		35	POWER: VOLTS/PHASE/CYCLE		50
7	STEM MATERIAL		36	STROKE TIME OPEN MAX. - sec.		
8	CODE CLASS	NS	37	STROKE TIME CLOSE MAX. - sec.		
	TRIM		38	MAX. ΔP VALVE to OPEN against bar(psig)		
9	PLUG FORM		39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
10	MATERIAL: PLUG / DISC		40	AIR OPERATED (only)		
11	SEAT MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
12	DIAPHRAGM MATERIAL		42	FILTER & REGULATOR		
13	BONNET MATERIAL		43			
14	PORT MATERIAL		44			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT		
17	OPERATOR		48	PRESS.: bar (psig) NORM /RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF		55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE		**Important Notes:**			
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **C32-11**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**29599**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9, WF-12 / NO
	VALVE IDENTIFICATION No.	**4-C32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**4”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	CHECK	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	FLANGED	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	NONE				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	NONE	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	NO	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR	YES				
27	POSITION STOP	YES				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032,Rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **C36-10**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55768 55767**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**1-C36**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**1”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	CHECK	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		600
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	NONE				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	NONE	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	NO	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR	YES				
27	POSITION STOP	YES				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032,Rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 0.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **C42-7**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**13754, 13751, 13756**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9 YES
	VALVE IDENTIFICATION No.	**2-C42**	29	TEMP. MIN / MAX. - °C (°F)		max. 100 (212)
	BODY	**2”**	30	PRESSURE MAX. - bar (psig)		10 (145)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	CHECK	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	NONE				
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**		
7	STEM MATERIAL	NONE	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	SS	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP	YES	49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL	YES	50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE	YES	51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	NO	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR	YES				
27	POSITION STOP	YES				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032, rev.0 and additional earthquake requirements specified in Attachments 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Olgica Perović Specification No.: **SP - G3032 rev.0**

Date: 21 / 6 / 2019 Reviewed: Samo Hrvatin Spec. Sheet No.: **C42-8**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59302** **59303**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**2 1/2-C42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	2 1/2 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Check	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 135 MAX.	
3	END CONNECTIONS – SCH	BW-40	32	$C_{v\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)			
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL		42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
			44				
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR		48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF		55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT		56				
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Installation in horizontal and vertical position
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Olgica Perović Specification No.: **SP - G3032 rev.0**

Date: 21 / 6 / 2019 Reviewed: Samo Hrvatin Spec. Sheet No.: **C42-9**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59262** **59263**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**3-C42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	3 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Check	31	L/D AT FULL OPEN @ MAX. FLOW			
3	END CONNECTIONS – SCH	BW	32	$C_{v\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	*	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	NONE	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	NONE		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
			44				
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR		48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT	NO	56				
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR	YES					
27	POSITION STOP	YES					

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Installation in horizontal and vertical position
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4
Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**
Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **G32-14**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55745, 55744, 55746, 55741**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**3-G32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	GATE	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	BW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located outside OSC building on YARD.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **G32-15**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**29558, 29557**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9, WF-12 / NO
	VALVE IDENTIFICATION No.	**4-G32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**4”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	GATE	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	FLANGED	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **G42-2**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**13770**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9 NO
	VALVE IDENTIFICATION No.	**3-G42**	29	TEMP. MIN / MAX. - °C (°F)		max. 176 (350)
	BODY	**3”**	30	PRESSURE MAX. - bar (psig)		13,4 (195)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	GATE	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	BW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	**				
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	SS	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	YES	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032, rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **RV36-7**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55765 55766**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**1 1/2-RV36**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**1 1/2”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	PRESS. RELIEF	32	Cv max (valve full open @ max.flow)		
3	END CONNECTIONS – SCH.	FLANGED	33	ANSI - PRESSURE RATING		600
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL	**	45	CAPACITY - m³/h (gpm)		8 (35)
16	SPRING MATERIAL	**	46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		1,3 / 8,6
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		40 / 49
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		ATM.
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		8,6 (124,7)
	GAG	Y	53	OVERPRESSURE - %		10
	BALANCED BELLOWS			ORIFICE AREA:		**
	LEVER PLAIN / PACKED	Y	54	CALCULATED mm² (sg.in.)		**
22	LEAK-OFF		55	SELECTED mm² (sq.in.)		**
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032A, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 0.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-8**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55740**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**3-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	BW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located outside OSC building on YARD.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-9**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**29600,29601 29603**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9, WF-12 / NO
	VALVE IDENTIFICATION No.	**2-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**2”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	THD	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032A rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4
Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**
Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-10**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**29602**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9, WF-12 / NO
	VALVE IDENTIFICATION No.	**2 1/2-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**2 1/2”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	THD	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-11**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**29564, 29565, 29559**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9, WF-12 / NO
	VALVE IDENTIFICATION No.	**3-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	FLANGED	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-12**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55743, 55742**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**3/4-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3/4”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032A, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032A rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located outside OSC building on YARD.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S32-13**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55778**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**3/4-S32**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3/4”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 3.
- Valve is located on the roof with outside environmental conditions.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S36-5**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55762, 55761, 55747, 55748, 55753, 55774, 55771, 55775, 55769, 55770**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**3/4-S36**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**3/4”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		600
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56	See additional QA requirements on Att. 2.		
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 0.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S36-6**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55773, 55772**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**1-S36**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**1”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		600
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 0.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S36-7**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55749, 55750, 55751, 55752, 55764, 55763**		**SERVICE CONDITIONS**	
			28	FLUID / RADIOACTIVITY	WF-6*** / NO
	VALVE IDENTIFICATION No.	**1 1/2-S36**	29	TEMP. MIN / MAX. - °C (°F)	max. 49 (120)
	BODY	**1 1/2”**	30	PRESSURE MAX. - bar (psig)	10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW	
2	FORM	BALL	32	Cv max (valve full open @ max.flow)	**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING	600
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS	
5	STEM PACKING MATERIAL	*			
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**	
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE	
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.	
	TRIM		37	STROKE TIME CLOSE MAX. - sec.	
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)	
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)	
11	SEAT MATERIAL	**	40	AIR OPERATED (only)	
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)	
13	BONNET MATERIAL	**	42	FILTER & REGULATOR	
14	PORT MATERIAL		43		
	RELIEF VALVE (only)			**RELIEF VALVE (only)**	
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)	
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT	
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)	
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE	
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE	
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)	
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)	
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)	
	GAG		53	OVERPRESSURE - %	
	BALANCED BELLOWS			ORIFICE AREA:	
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)	
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)	
23	BACKSEAT		56		
24	MANUAL OVERRIDE				
25	LIMIT SWITCH				
26	POSITION INDICATOR				
27	POSITION STOP				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 0.
- Valve is located inside OSC building.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **S36-8**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**55776, 55777**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-6*** NO
	VALVE IDENTIFICATION No.	**1-S36**	29	TEMP. MIN / MAX. - °C (°F)		max. 49 (120)
	BODY	**1”**	30	PRESSURE MAX. - bar (psig)		10,35 (150)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	BALL	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		600
4	BONNET SEAL TYPE	**	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	*				
6	BODY & BONNET MATERIAL	CS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL		41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	**	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR		48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP		49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT		56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR					
27	POSITION STOP					

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

*** Fuel oil (diesel)

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 3.
- Valve is located on the roof with outside environmental conditions.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Olgica Perović Specification No.: **SP - G3032 rev.0**

Date: 21 / 6 / 2019 Reviewed: Samo Hrvatin Spec. Sheet No.: **S42-2**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59265; 59268; 59269; 59270; 59272; 59275; 59276; 59277; 59281; 59285; 59286; 59287; 59288; 59289; 59307; 59308; 59310; 59312; 59313; 59314; 59315; 59317; 59319; 59320; 59321; 59322; 59323; 59324; 59325; 59326; 59327; 59354; 59355; 59356; 59358; 59359; 59360;**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**3/4-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	3/4 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	SW-40	32	$C_{V\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR	YES***	48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT						
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle;

- Valve is Seismic category I equipment.;
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.;
- Use FRS figures for Level 1.;
- Valve is located inside OSC building.;
- Nozzle loads in accordance to ASME III ND-3521(a);
- Pipe A312 TP 304

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER 59352 59357			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**1-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	1 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	SW-40	32	$C_{v\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
			44				
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR	YES***	48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT		56				
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1. Valve is located inside OSC building.
- Nozzle loads in accordance to ASME III ND-3521(a)
- Valve eqquipped with mechanism for pipe locking in L.O. position.
- Pipe A312 TP 304

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Olgica Perović Specification No.: **SP - G3032 rev.0**

Date: 21 / 6 / 2019 Reviewed: Samo Hrvatin Spec. Sheet No.: **S42-4**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59299; 59300; 59301; 59290; 59291; 59293; 59294; 59296; 59297; 59298;**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**2 1/2-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	2 1/2 IN.	30	PRESSURE MAX. (bar g) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	BW-40	32	$C_{v\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR	YES***	48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT		56				
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME III ND-3521(a)
- Pipe A312 TP 304

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **PCV 8420A PCV8420C** **PCV8420B PCV8420D**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**2 1/2-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	2 1/2 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	BW-40	32	$C_{V\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**			
7	STEM MATERIAL	**	36	POWER: VOLTS/PHASE/CYCLES		220V 1ph 50Hz	
8	ASME CODE CLASS	NSR	37	STROKE TIME OPEN (MAX) sec.		10 sec	
	TRIM		38	STROKE TIME CLOSE (MAX) sec.		10 sec	
9	PLUG FORM	**	39	MAX. ΔP VALVE to OPEN against bar (psig)		7 (101,5)	
10	MATERIAL: PLUG / DISC	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)		7 (101,5)	
11	SEAT MATERIAL	**	41	AIR OPERATED (only)			
12	DIAPHRAGM MATERIAL		42	- OPERATING PRESSURE MAX. bar (psig)			
13	BONNET MATERIAL	**	43	- FILTER & REGULATOR			
14	PORT MATERIAL			**RELIEF VALVE (only)**			
	RELIEF VALVE (only)		45	CAPACITY m^3/h (gpm)			
15	GUIDE & RING MATERIAL		46	MOL WT OR SP.GR @ FT			
16	SPRING MATERIAL		47	VISCOSITY @ FT (centipose)			
	ACCESSORIES		48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
17	OPERATOR	YES***	49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
18	BONNET TAP		50	CONSTANT BACK PRESSURE, bar (psig)			
19	BONNET O-RING STEM SEAL		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
20	POSITION LOCKING DEVICE		52	SPRING SET PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		53	OVERPRESSURE %			
	- TEST GAG			ORIFICE AREA:			
	- BALANCED BELLOWS		54	- CALCULATED mm^2 (sq.in.)			
	- LEVER PLAIN / PACKED		55	- SELECTED mm^2 (sq.in.)			
22	LEAKOFF	NO					
23	BACKSEAT						
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

Fail close function

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

Limit switches OPEN/CLOSE status (NO/NC-2 x SPDT per STATUS)

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59251; 59252; 59254; 59255; 59258; 59261; 59328; 59329;**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**3-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	3 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	BW-40	32	$C_{V\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
			44				
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR	YES***	48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT						
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME ND-3521(a)

Pipe A-312 TP304 Sch 40S

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59342**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**3/4-S42**	28	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		29	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	3/4 IN.	30	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Ball	31	L/D AT FULL OPEN @ MAX. FLOW		L/D 3 MAX.	
3	END CONNECTIONS – SCH	SW-40	32	$C_{v\ MAX}$ (VALVE FULL OPEN @ MAX. FLOW)		**	
4	BONNET SEAL TYPE	**	33	ANSI PRESSURE RATING		150	
5	STEM PACKING MATERIAL	*	34	SEAT LEAKAGE @ MAX. PRESSURE			
6	BODY & BONNET MATERIAL	SS	35				
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	ASME CODE CLASS	NSR	36	POWER: VOLTS/PHASE/CYCLES			
	TRIM		37	STROKE TIME OPEN (MAX) sec.			
9	PLUG FORM	**	38	STROKE TIME CLOSE (MAX) sec.			
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	SEAT MATERIAL	**	40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	DIAPHRAGM MATERIAL		41	AIR OPERATED (only)			
13	BONNET MATERIAL	**	42	- OPERATING PRESSURE MAX. bar (psig)			
14	PORT MATERIAL		43	- FILTER & REGULATOR			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
15	GUIDE & RING MATERIAL		45	CAPACITY m^3/h (gpm)			
16	SPRING MATERIAL		46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
17	OPERATOR	YES***	48	PRESSURE, bar_g (psig) NORMAL\RELIEVE			
18	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE			
19	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)			
20	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %			
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
22	LEAKOFF	NO	55	- SELECTED mm^2 (sq.in.)			
23	BACKSEAT						
24	MANUAL OVERRIDE						
25	LIMIT SWITCHES						
26	POSITION INDICATOR						
27	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0
** Data furnished with quotation.
*** Manual, Handle;

- Valve is Seismic category I equipment.;
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.;
- Use FRS figures for Level 1.;
- Valve is located inside OSC building.; Nozzle loads in accordance to ASME III ND-3521(a);
- Pipe A312 TP 304
- Valve equipped with machanism for pipe locking in "locked-open" (L.O.) position.

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59292 59304** **59295 59305**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**2 1/2-T42**	29	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		30	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	2 1/2 IN.	31	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Globe	32	L/D AT FULL OPEN @ MAX. FLOW		L/D 340 MAX.	
3	END CONNECTIONS – SCH	BW-40	33	ANSI PRESSURE RATING		150	
4	BONNET SEAL TYPE	**	34	ANSI CODE CLASS		NSR	
5	STEM PACKING MATERIAL	*	35	WEIGHT (max) LBS			
6	BODY & BONNET MATERIAL	SS					
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	INLET/OUTLET PIPE MATERIAL		36	POWER: VOLTS/PHASE/CYCLES			
9	INLET/OUTLET PIPE SCHEDULE		37	STROKE TIME OPEN (MAX) sec.			
	TRIM		38	STROKE TIME CLOSE (MAX) sec.			
10	PLUG FORM		39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	MATERIAL: PLUG / DISC		40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	SEAT MATERIAL		41	AIR OPERATED (only)			
13	DIAPHRAGM MATERIAL		42	- OPERATING PRESSURE MAX. bar (psig)			
14	BONNET MATERIAL		43	- FILTER & REGULATOR			
15	PORT MATERIAL		44				
	RELIEF VALVE (only)						
16	GUIDE & RING MATERIAL		45				
17	SPRING MATERIAL		46				
	ACCESSORIES		47				
18	OPERATOR		48				
19	BONNET TAP		49				
20	BONNET O-RING STEM SEAL		50				
21	POSITION LOCKING DEVICE		51				
22	RELIEF VALVES (only)		52				
	- TEST GAG		53				
	- BALANCED BELLOWS						
	- LEVER PLAIN / PACKED		54				
23	LEAKOFF		55				
24	BACKSEAT		56				
25	MANUAL OVERRIDE						
26	LIMIT SWITCHES						
27	POSITION INDICATOR						
28	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59257** **59260**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**3-T42**	29	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		30	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	3 IN.	31	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Globe	32	L/D AT FULL OPEN @ MAX. FLOW		L/D 340 MAX.	
3	END CONNECTIONS – SCH	BW-40	33	ANSI PRESSURE RATING		150	
4	BONNET SEAL TYPE	**	34	ANSI CODE CLASS		NSR	
5	STEM PACKING MATERIAL	*	35	WEIGHT (max) LBS			
6	BODY & BONNET MATERIAL	SS					
7	STEM MATERIAL	**		**MOTOR OPERATOR**			
8	INLET/OUTLET PIPE MATERIAL		36	POWER: VOLTS/PHASE/CYCLES			
9	INLET/OUTLET PIPE SCHEDULE		37	STROKE TIME OPEN (MAX) sec.			
	TRIM		38	STROKE TIME CLOSE (MAX) sec.			
10	PLUG FORM		39	MAX. ΔP VALVE to OPEN against bar (psig)			
11	MATERIAL: PLUG / DISC		40	MAX. ΔP VALVE to CLOSE against bar (psig)			
12	SEAT MATERIAL		41	AIR OPERATED (only)			
13	DIAPHRAGM MATERIAL		42	- OPERATING PRESSURE MAX. bar (psig)			
14	BONNET MATERIAL		43	- FILTER & REGULATOR			
15	PORT MATERIAL		44				
	RELIEF VALVE (only)						
16	GUIDE & RING MATERIAL		45				
17	SPRING MATERIAL		46				
	ACCESSORIES		47				
18	OPERATOR		48				
19	BONNET TAP		49				
20	BONNET O-RING STEM SEAL		50				
21	POSITION LOCKING DEVICE		51				
22	RELIEF VALVES (only)		52				
	- TEST GAG		53				
	- BALANCED BELLOWS						
	- LEVER PLAIN / PACKED		54				
23	LEAKOFF		55				
24	BACKSEAT		56				
25	MANUAL OVERRIDE						
26	LIMIT SWITCHES						
27	POSITION INDICATOR						
28	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

*** Manual, Handle

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.: **X42D-10**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**13755, 13752, 13768, 13769**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9 YES
	VALVE IDENTIFICATION No.	**2-X42D**	29	TEMP. MIN / MAX. - °C (°F)		max. 100 (212)
	BODY	**2”**	30	PRESSURE MAX. - bar (psig)		10 (145)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	DIAPHRAGM	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	**				
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL	EPT	41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	SS	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR	HAND WHEEL	48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP	YES	49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL	YES	50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE	YES	51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	**	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR	YES				
27	POSITION STOP	YES				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake and environmental requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building except valve 13769 located on outside OSC on YARD.

KRŠKO NUCLEAR POWER PLANT ATTACHMENT 34.4

Originator: Rajmund Mlakar Specification No.: **SP - G3032 rev.0**

Date: 15 / 05 / 2019 Reviewed: Vladimir Butković Spec. Sheet No.**: X42D-11**

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER	**13753, 13750**		**SERVICE CONDITIONS**		
			28	FLUID	RADIOACTIVITY	WF-9 / YES
	VALVE IDENTIFICATION No.	**3/4-X42D**	29	TEMP. MIN / MAX. - °C (°F)		max. 100 (212)
	BODY	**3/4”**	30	PRESSURE MAX. - bar (psig)		10 (145)
1	NOMINAL SIZE		31	L/D AT FULL OPEN @ MAX. FLOW		
2	FORM	DIAPHRAGM	32	Cv max (valve full open @ max.flow)		**
3	END CONNECTIONS – SCH.	SW	33	ANSI - PRESSURE RATING		150
4	BONNET SEAL TYPE	*	34	SEAT LEAKAGE @ MAX.PRESS		
5	STEM PACKING MATERIAL	**				
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**		
7	STEM MATERIAL	**	35	POWER: VOLTS/PHASE/CYCLE		
8	CODE CLASS	NSR	36	STROKE TIME OPEN MAX. - sec.		
	TRIM		37	STROKE TIME CLOSE MAX. - sec.		
9	PLUG FORM	**	38	MAX. ΔP VALVE to OPEN against bar(psig)		
10	MATERIAL: PLUG / DISC	**	39	MAX. ΔP VALVE to CLOSE against – bar(psig)		
11	SEAT MATERIAL	**	40	AIR OPERATED (only)		
12	DIAPHRAGM MATERIAL	EPT	41	OPERATING PRESSURE MAX. bar(psig)		
13	BONNET MATERIAL	SS	42	FILTER & REGULATOR		
14	PORT MATERIAL		43			
	RELIEF VALVE (only)			**RELIEF VALVE (only)**		
15	GUIDE & RING MATERIAL		45	CAPACITY - m³/h (gpm)		
16	SPRING MATERIAL		46	MOL. WT or SP. GR @ FT		
	ACCESSORIES		47	VISCOSITY @ FT (centipoise)		
17	OPERATOR	HAND WHEEL	48	PRESS.: bar_g (psig) NORM/RELIEVE		
18	BONNET TAP	YES	49	TEMP.: °C(°F) NORM / RELIEVE		
19	BONNET O-RING STEM SEAL	YES	50	CONSTANT BACK PRESS. bar(psig)		
20	POSITION LOCKING DEVICE	YES	51	DEVELOPED BACK PRESS bar_g(psig)		
21	RELIEF VALVES (only)		52	SPRING SET PRESSURE - bar_g(psig)		
	GAG		53	OVERPRESSURE - %		
	BALANCED BELLOWS			ORIFICE AREA:		
	LEVER PLAIN / PACKED		54	CALCULATED mm² (sg.in.)		
22	LEAK-OFF	NO	55	SELECTED mm² (sq.in.)		
23	BACKSEAT	**	56			
24	MANUAL OVERRIDE					
25	LIMIT SWITCH					
26	POSITION INDICATOR	YES				
27	POSITION STOP	YES				

Important Notes:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation

- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirements specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.

SPECIFICATION DATA SHEET

	VALVE TAG NUMBER **59353 59361**			**SERVICE CONDITIONS**			
	VALVE IDENTIFICATION No.	**1-RV42**	29	FLUID	RADIOACTIVITY	WF-9	NO
	BODY		30	TEMP. MAX. °C(°F)		40 (104)	
1	NOMINAL SIZE	1 IN.	31	PRESSURE MAX. (bar) psig		10 (145)	
2	FORM	Relief	32	L/D AT FULL OPEN @ MAX. FLOW			
3	END CONNECTIONS – SCH	FL-40	33	ANSI PRESSURE RATING		150	
4	BONNET SEAL TYPE	*	34	ANSI CODE CLASS		NSR	
5	STEM PACKING MATERIAL	*	35	WEIGHT (max) LBS			
6	BODY & BONNET MATERIAL	SS		**MOTOR OPERATOR**			
7	STEM MATERIAL	*	36	POWER: VOLTS/PHASE/CYCLES			
8	INLET/OUTLET PIPE MATERIAL		37	STROKE TIME OPEN (MAX) sec.			
9	INLET/OUTLET PIPE SCHEDULE		38	STROKE TIME CLOSE (MAX) sec.			
	TRIM		39	MAX. ΔP VALVE to OPEN against bar (psig)			
10	PLUG FORM		40	MAX. ΔP VALVE to CLOSE against bar (psig)			
11	MATERIAL: PLUG / DISC		41	AIR OPERATED (only)			
12	SEAT MATERIAL		42	- OPERATING PRESSURE MAX. bar (psig)			
13	DIAPHRAGM MATERIAL		43	- FILTER & REGULATOR			
14	BONNET MATERIAL		44				
15	PORT MATERIAL		44				
	RELIEF VALVE (only)			**RELIEF VALVE (only)**			
16	GUIDE & RING MATERIAL	*	45	CAPACITY m^3/h (gpm)		0.03	
17	SPRING MATERIAL	*	46	MOL WT OR SP.GR @ FT			
	ACCESSORIES		47	VISCOSITY @ FT (centipose)			
18	OPERATOR		48	PRESSURE, bar_g (psig) NORMAL\RELIEVE		7	101,5
19	BONNET TAP		49	TEMPERAT. °C (°F) NORMAL\RELIEVE		40	104
20	BONNET O-RING STEM SEAL		50	CONSTANT BACK PRESSURE, bar (psig)		0	
21	POSITION LOCKING DEVICE		51	DEVELOPED BACK PRESSURE, bar_g (psig)			
22	RELIEF VALVES (only)		52	SPRING SET PRESSURE, bar_g (psig)			
	- TEST GAG		53	OVERPRESSURE %		10	
	- BALANCED BELLOWS			ORIFICE AREA:			
	- LEVER PLAIN / PACKED		54	- CALCULATED mm^2 (sq.in.)			
23	LEAKOFF		55	- SELECTED mm^2 (sq.in.)			
24	BACKSEAT		56				
25	MANUAL OVERRIDE						
26	LIMIT SWITCHES						
27	POSITION INDICATOR						
28	POSITION STOP						

IMPORTANT NOTES:

* Per specification SP-G3032, Rev.0

** Data furnished with quotation.

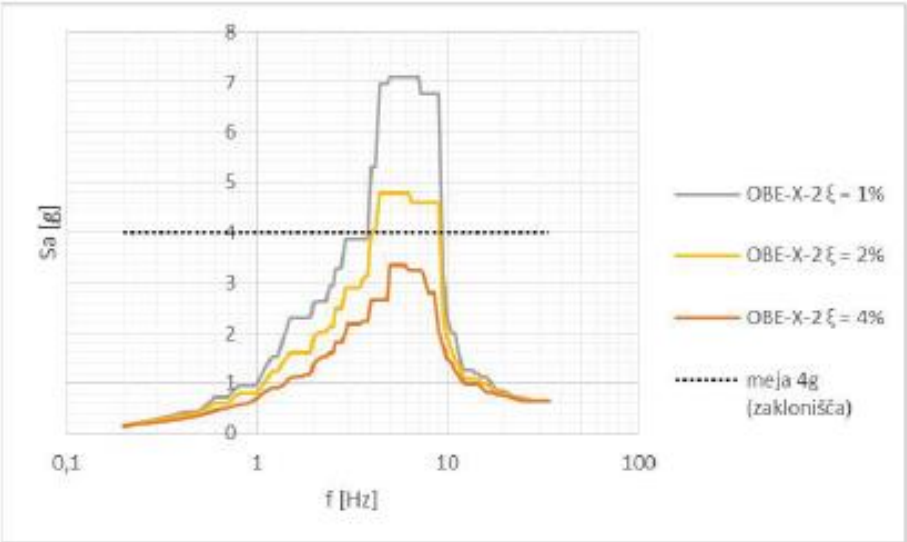
*** Manual, Handle

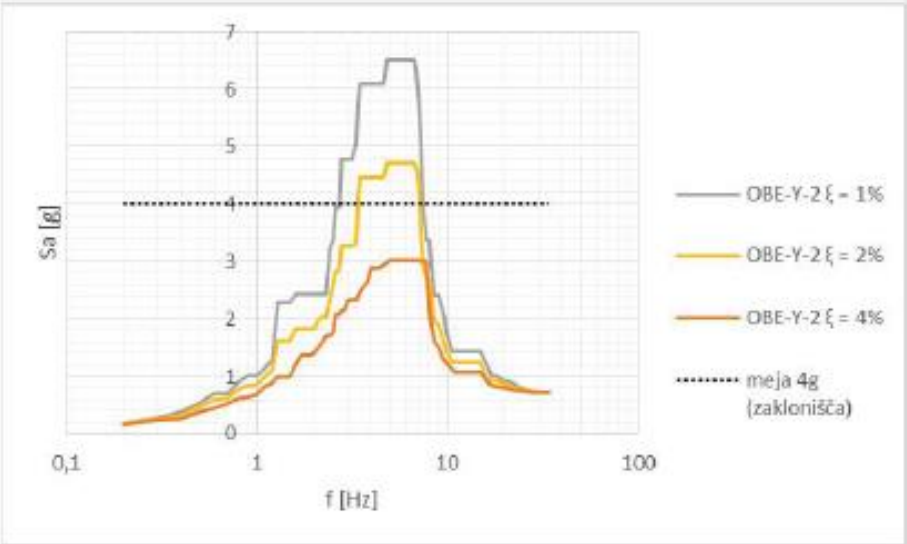
- Valve is Seismic category I equipment.
- Augmented Quality Class Valves design shall comply with SP-G3032 rev.0 and additional earthquake requirement specified in Attachment 34.5.
- Use FRS figures for Level 1.
- Valve is located inside OSC building.
- Nozzle loads in accordance to ASME ND-3521(a)
- Pipe A-312 TP304 Sch 40S

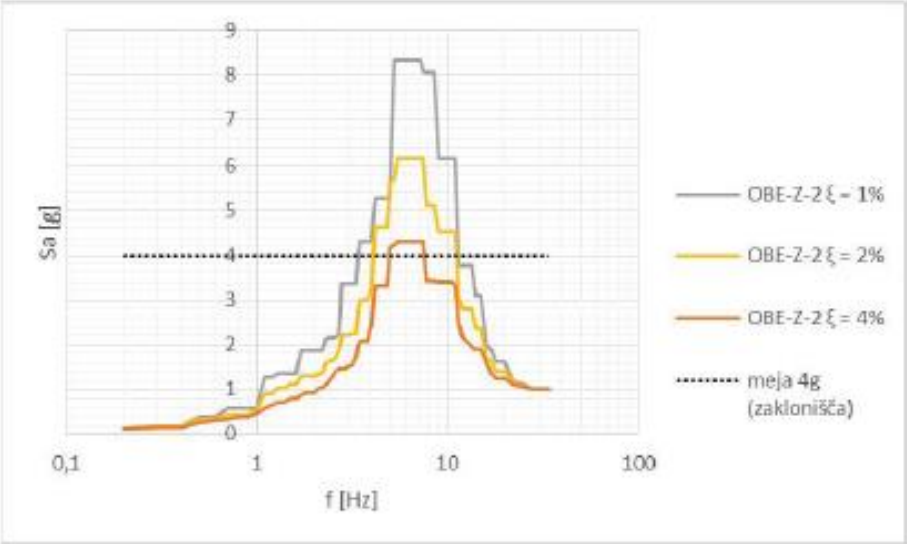
ATTACHMENT 34.5

Applicable OBE and SSE floor response spectra figures from
1056-NA-L-PZI-3/1-A1 "OSC Seismic Analysis

Floor Response Spectra - OBE - Level 2[1]

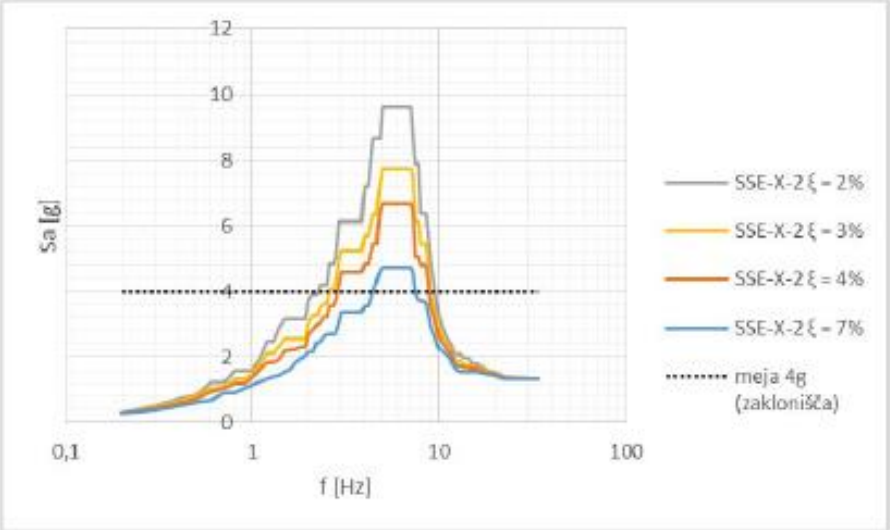


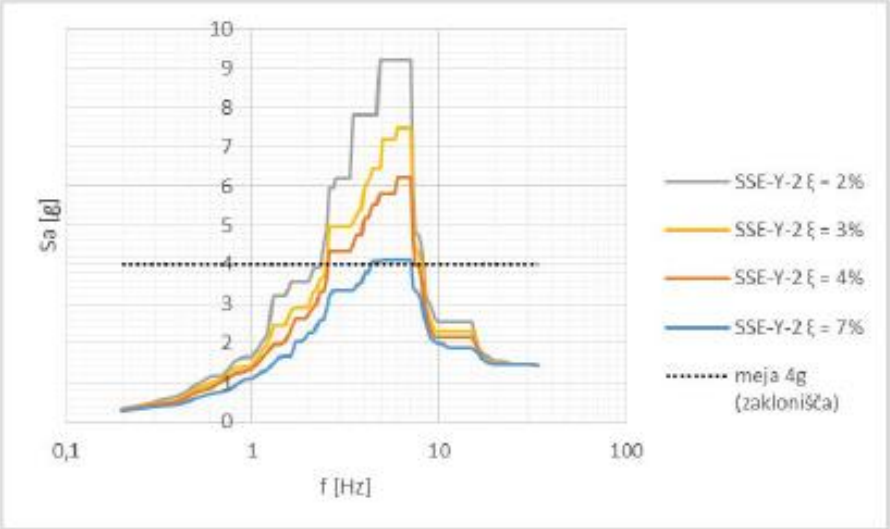


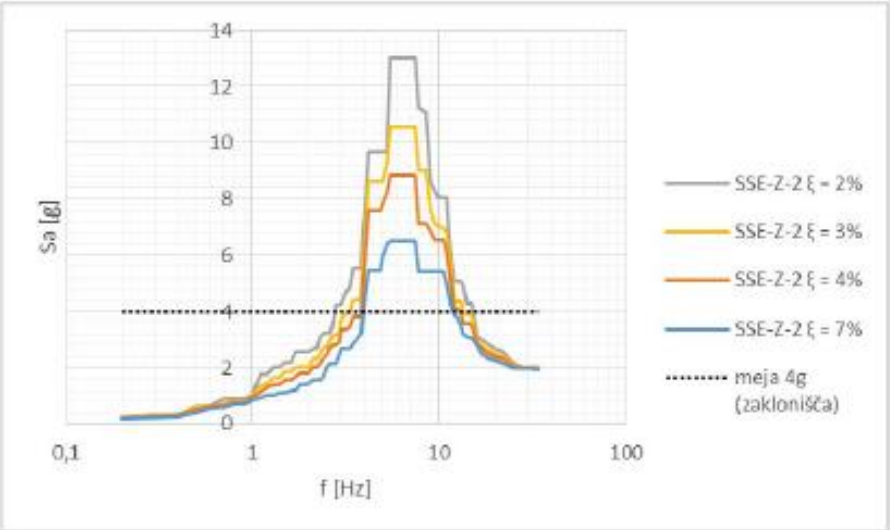


[1] Limit 4 g is not based on seismic demands and shall not be considered.

Floor Response Spectra - SSE - Level 2[1]







[1] Limit 4 g is not based on seismic demands and shall not be considered.