

NSQF QUALIFICATION FILE

Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020

CONTACT DETAILS OF THE BODY SUBMITTING THE QUALIFICATION FILE**Name and address of submitting body:**

Automotive Skills Development Council
Leela Building, 153 GF, Okhla Phase III,
Okhla Industrial Area, New Delhi,
Delhi 110020

Name and contact details of individual dealing with the submission

Name: Mr. Arindam Lahiri

Position in the organisation: CEO

Address if different from above: Same as above

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List of documents submitted in support of the Qualifications File

1. Qualification Pack:- ASC/Q3501
2. Documents related to QP Development (Refer to folder "Common Files")
 - (i) RFP for QP Development
 - (ii) Supporting Document from GC meetings
 - (iii) Labour Market Survey
 - (iv) About the sector
 - (v) Occupational Map
 - (vi) List of Companies participating in QP Development Process
 - (vii) QRC Summary Sheet
 - (viii) Model Curriculum

NSQF QUALIFICATION FILEApproved in 3rd NSQC – NCVET, Dated: 20th November, 2020

1	Qualification Title – Automotive Machining Operator	
2	Qualification Code, if any - ASC/Q3501	
3	NCO code and occupation - NCO-2015/7223.5001	
4	Nature and purpose of the qualification (Please specify whether qualification is short term or long term) - This is a Qualification Pack (QP), corresponding to Level – 3 and includes Four (4) NOSs. Targeted learners: The role entails setting up and operating a variety of machine tools to produce precision parts, tools and instruments. Main purpose of the qualification – is to get unemployed people into work and also to up-skilling of Skilled Operators already in employment and to enable them to take up this role. This is a short-term qualification.	
5	Body/bodies which will award the qualification	ASDC
6	Body which will accredit providers to offer courses leading to the qualification	ASDC (recommended)
7	Whether accreditation/affiliation norms are already in place or not , if applicable (if yes, attach a copy)	ASDC Norms
8	Occupation(s) to which the qualification gives access	MachiningOperation
9	Job description of the occupation	The individual in this role supports the machining technician in various machining and inspection work onCNC/conventional machines such as quality verification, minor repair work, change of worn out tools, re-setting of the tools, machine programming and de-burring.
10	Licensing requirements	NA
11	Statutory and Regulatory requirement of the relevant sector (documentary evidence to be provided)	NA
12	Level of the qualification in the NSQF	Level 3
13	Anticipated volume of training/learning required to complete the qualification	320 Hrs
14	Indicative list of training tools required to deliver this qualification	Please refer annexure
15	Entry requirements and/or recommendations and minimum age	10th ClassORCertificate-NSQF (Automotive Machining Assistant)with 1-2 Years of experience, 15 years

NSQF QUALIFICATION FILE

Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020

16	Progression from the qualification (Please show Professional and academic progression)	<p>Automotive CNC Machining Technician The individual is primarily involved in various machining and inspection work on CNC machines such as quality verification, minor repair work, change of worn out tools, re-setting of the tools, machine programming and de-burring.</p> <p>Automotive Machining Lead Technician A Machining Lead Technician is fully conversant with setting and running all machines (CNC and Conventional) required for the production of the products. He/She is expert in understanding the processes for sequencing of operations and ways to optimize it on continuous basis and able to create/ modify process for new part development.</p> <p>Automotive Machining Master Technician A Master Technician Machine Shop is fully conversant with setting and running all machines (CNC and Conventional) required for the production of the products. Installation and commission of machine, setting of PPAP standards for new products, implementation of Six Sigma process in the shop floor, basic understanding of research and development outputs and finding innovative methods of cost reduction and increase in production.</p>
17	Arrangements for the Recognition of Prior learning (RPL)	NA
18	International comparability (where known (research evidence to be provided))	NA
19	Date of planned review of qualification	20 th November 2025

2	Formal structure of the qualification		
	Mandatory components		
	Title of component and identification code/NOSs/Learning outcomes	Estimated size (learning hours)	Level

NSQF QUALIFICATION FILEApproved in 3rd NSQC – NCVET, Dated: 20th November, 2020

(i)	Includes 4 NOSs - 1. ASC/N9803: Organize work and resources (Manufacturing) 2. ASC/N9802: Interact effectively with colleagues, customers and others 3. ASC/N9805: Interpret engineering drawing 4. ASC/N3506: Support in machining and post-machining activities	320 Hours	3
	Sub Total (A)	320 Hrs	3
	Optional components		
	Title of component and identification code/NOSs/ Learning outcomes	Estimated size (learning hours)	Level
	No optional components		
	Sub Total (B)		
	Total (A+B)	320 Hrs	3

SECTION 1**ASSESSMENT**

21	Body/Bodies which will carry out assessment:	
	S.No.	Assessment Agency Name
	1	Eduvantage Pvt. Ltd.
	2	Prima Competencies Pvt. Ltd.
	3	Trendsetters Skill Assessors Pvt. Ltd.
	4	VR Skill & HR Solutions
	5	SPIWD
	6	Induslynk training services pvt ltd
	7	Kumar Agromeditech India Pvt. Ltd.
	8	Ace Assessments Pvt. Ltd.
	9	Greenarrows Safety Management (P) Ltd.
	10	TCS iON
	11	Educe Consulting OPC Pvt. Ltd
22	How will RPL assessment be managed and who will carry it out? The assessment body or employer assessors shall be responsible for RPL assessment. In RPL, the candidate has acquired the skills and knowledge while working and requires assessment and certification only. RPL is the acknowledgement of skills and knowledge obtained through:	

NSQF QUALIFICATION FILEApproved in 3rd NSQC – NCVET, Dated: 20th November, 2020

	<ul style="list-style-type: none"> • formal training • work experience • life experiences <p>The focus of RPL is the competence gained from these experiences; not how, when or where the learning occurred.</p> <p>Process or steps in RPL assessments</p> <ol style="list-style-type: none"> 1. Offering RPL to potential candidates 2. Providing information to the candidate 3. Evidence collation 4. Pre-screening & orientation 5. Self-assessment 6. Assessment and making the decision 7. Feedback to the candidate 8. Documentation of outcomes 9. certification
23	<p>Describe the overall assessment strategy and specific arrangements which have been put in place to ensure that assessment is always valid, reliable and fair and show that these are in line with the requirements of the NSQF.</p> <p>The emphasis is on practical demonstration of skills and knowledge based on the performance criteria. The assessment papers are developed by subject matter experts (SMEs) available at the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Pack. The assessment papers are also checked for the various outcome-based parameters such as quality, time taken, precision, tools & equipment requirement, etc. The assessment results are backed by evidences collected by assessors.</p> <ol style="list-style-type: none"> 1. The assessor needs to collect a copy of the attendance for the training done under the scheme. The attendance sheets are signed and stamped by the In-charge/Head of the training centre. 2. The assessor needs to verify the authenticity of the candidates by checking the photo ID card issued by the institute as well as any one photo ID card issued by the Central Government. The same needs to be mentioned in the attendance sheet. In case of suspicion, the assessor should authenticate and cross verify trainee's credentials in the enrolment form. 3. The assessor needs to punch the trainee's roll number on all the test pieces. 4. The assessor can take a photograph of all the students along with the assessor standing in the middle and with the centre's name/banner at the back as evidence. 5. The assessor also needs to carry a photo IDcard. <p>The assessment agencies are instructed to hire assessors with integrity, reliability and fairness. All assessors shall sign a document with their assessment agency by which they need to commit themselves to</p>

NSQF QUALIFICATION FILEApproved in 3rd NSQC – NCVET, Dated: 20th November, 2020

	compliance with the rules of confidentiality and conflict of interest, and to independence from commercial and other interests that would compromise impartiality of the assessments.
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Please attach most relevant and recent documents giving further information about assessment and/or RPL.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

ASSESSMENT EVIDENCE

Complete a grid for each component as listed in “Formal structure of the qualification” in the Summary.

NOTE: this grid can be replaced by any part of the qualification documentation which shows the same information – i.e. Learning Outcomes to be assessed, assessment criteria and the means of assessment.

24. Assessment evidences Title of Component:

Criteria for Assessment of Trainees

Job Role : AutomotiveMachining Operator

Qualification Pack ASC/Q3501

Sector Skill Council Automotive

Guidelines for Assessment

1. Criteria for assessment for each Qualification Pack will be created by the Sector Skill Council. Each Performance Criteria (PC) will be assigned marks proportional to its importance in NOS. SSC will also lay down proportion of marks for Theory and Skills Practical for each PC.
2. The assessment for the theory part will be based on knowledge bank of questions created by the SSC.

NSQF QUALIFICATION FILE**Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020**

3. Assessment will be conducted for all compulsory NOS, and where applicable, on the selected elective/option NOS/set of NOS.
4. Individual assessment agencies will create unique question papers for theory part for each candidate at each examination/training center (as per assessment criteria below).
5. Individual assessment agencies will create unique evaluations for skill practical for every student at each examination/training center based on this criterion.
6. To pass the Qualification Pack, every trainee should score a minimum of 70% of aggregate marks to successfully clear the assessment.
7. In case of *unsuccessful completion*, the trainee may seek reassessment on the Qualification Pack.

Compulsory NOS

ASC/Q9803

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Maintain safe and secure working environment</i>	11	5	-	7
PC1. identify hazardous activities and the possible causes of risks or accidents in the workplace	2	1	-	2
PC2. follow safe working practices while dealing with hazards to ensure safety of self and others	2	-	-	1
PC3. carry out routine check of the machine for identifying potential hazards	2	1	-	1
PC4. use appropriate protective clothing/equipment for specific tasks and work	2	1	-	1
PC5. follow safety hazards and preventive techniques during fire drill	2	1	-	1
PC6. report any identified breaches in health, safety and security policies and procedures to the designated person	1	1	-	1
<i>Health and hygiene</i>	7	5	-	2
PC7. ensure workstation and equipment are regularly clean and sanitized	2	2	-	1
PC8. clean hands with soap, alcohol-based sanitizer regularly	1	1	-	1
PC9. avoid contact with ill people and self-isolate in a similar situation	1	-	-	-
PC10. wear and dispose PPEs regularly and appropriately	1	-	-	-

NSQF QUALIFICATION FILE

Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020

PC11. report advanced hygiene and sanitation issues to appropriate authority	1	1	-	-
PC12. follow stress and anxiety management techniques	1	1	-	-
<i>Perform work as per quality standards</i>	5	3	-	2
PC13. ensure that work is accomplished as per the requirements within the specified timeline	2	2	-	1
PC14. ensure team goals are given preference over individual goals	3	1	-	1
<i>Effective waste management practices</i>	15	10	-	4
PC15. follow the fundamentals of 5S for waste management	3	2	-	1
PC16. segregate waste into different categories	2	1	-	-
PC17. follow processes specified for disposal of hazardous waste	2	2	-	1
PC18. identify recyclable, non-recyclable and hazardous waste	4	2	-	1
PC19. dispose non-recyclable, recyclable and reusable waste appropriately at identified location	4	3	-	1
<i>Material/energy conservation practices</i>	12	7	-	5
PC20. identify ways to optimize usage of material in various tasks/activities/processes	2	1	-	1
PC21. check for spills/leakages in various tasks/activities/processes	2	1	-	1
PC22. plug spills/leakages and escalate to appropriate authority if unable to rectify	2	1	-	-
PC23. check if the equipment/machine is functioning normally before commencing work and rectify wherever required	2	2	-	1
PC24. report malfunctioning (fumes/sparks/emission/vibration/noise) and lapse in maintenance of equipment	2	1	-	1
PC25. ensure electrical equipment and appliances are properly connected and turned off when not in use	2	1	-	1

NSQF QUALIFICATION FILEApproved in 3rd NSQC – NCVET, Dated: 20th November, 2020

NOS Total	50	30	-	20
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ASC/Q9802

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Communicate effectively with colleagues, customers and others</i>	36	11	-	14
PC1. maintain clear communication with colleagues, customers and others, wherever needed, through all means i.e. face-to-face, telephonic or written	8	-	-	4
PC2. adjust communication styles to reflect gender and persons with disability (PwD) sensitivity	8	-	-	-
PC3. work in a way that shows respect for colleagues and others	7	4	-	3
PC4. follow the organisation's policies and procedures while working in a team	7	4	-	3
PC5. respect personal space of colleagues and customers	6	3	-	4
<i>Interact with supervisor or superior</i>	14	19	-	6
PC6. identify work requirements by receiving instructions from reporting supervisor	7	4	-	-
PC7. escalate problems to supervisors that cannot be handled including repairs and maintenance of machine	-	5	-	3
PC8. report the completed work	7	5	-	-
PC9. rectify errors as per feedback	-	5	-	3
NOS Total	50	30	-	20

ASC/Q9805

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Interpret information from various views, projection, 2D and 3D shapes</i>	21	11	-	10

NSQF QUALIFICATION FILE**Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020**

PC1. interpretengineeringdrawing'suniqueness, dimensionsandimportantfeaturesin2Dand3D shapes	5	3	-	2
PC2. identify the difference between 2D and 3D shapes	4	2	-	2
PC3. explain difference between first angle projection and third angle projection in mechanical engineering drawing	4	-	-	2
PC4. interpret all the 3 axes (x, y and z axis) and geometrical shapes (cones, cylinder, sphere, cuboid, etc) on to a 2D and 3D projection	5	3	-	2
PC5. identify details of the machine component which are not clearly visible by interpreting section views	3	3	-	2
<i>Identify drawing standards and symbols</i>	23	15	-	8
PC6. interpretGeometricDimensioningand Tolerancing(GD&T)symbolsinthedrawings	6	4	-	2
PC7. interpret symbols of Radius, controlled radius, spherical radius, diameter, spherical diameter, square, counterbore, spotface, depth, countersink, "by", maximum dimension, minimum dimension, reference, dimension origin etc.	6	4	-	2
PC8. identify the sequence of operations which enables the selection and prioritization of the datums	5	3	-	2
PC9. read and interpret information from Tolerance Zone boundaries for part features in terms of shape and size	6	4	-	2
<i>Modification and storage of drawing</i>	6	4	-	2
PC10. observe any modification, changes required in the drawing and communicate the same to the concerned team in the organization	3	2	-	1
PC11. store the drawings in an easily accessible place, avoiding damage from moisture, chemicals and fire	3	2	-	1
NOS Total	50	30	-	20

NSQF QUALIFICATION FILE**Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020**

Assessment Criteria for Outcomes	Theory Marks	Practical Marks	Project Marks	Viva Marks
<i>Identify work requirements</i>	5	9	-	6
PC1. take inputs from the immediate supervisor regarding production planning	1	1	-	1
PC2. identify the input and output product based on engineering drawing and job orders	1	2	-	1
PC3. identify the tools, measuring instruments and input materials required for the job	1	3	-	2
PC4. identify the tooling instructions for fixtures, cutting tools, jigs, gauges etc. as specified in the Operating Manual/Work Instructions (WI) or Standard Operating Procedures (SOP)	2	3	-	2
<i>Preparing for machining activities</i>	8	14	-	6
PC5. support the machining technician in setting of the machine and its parameters as per SOP	2	3	-	2
PC6. select appropriate coolant and lubricant required for machining component as per SOP/WI	2	2	-	1
PC7. ensure that all the items required for production and inspection are available as per SOP	-	2	-	-
PC8. check the tools and equipment for any defects before use	2	4	-	2
PC9. check the input material as per the control plan/check sheet and the required quality standard	2	3	-	1
<i>Support in machining operations</i>	8	13	-	4
PC10. start the machine for machining operations	2	3	-	1
PC11. support in selecting the right CNC programme in the CNC machine as defined in the SOP	2	2	-	1
PC12. support in production process of component, measure the final machine piece and compare with the dimensions as prescribed in the work order and engineering drawing	3	6	-	2
PC13. escalate the problems faced during machining to the supervisor	1	2	-	-
<i>Support in post-machining operations</i>	9	14	-	4
PC14. check the component as per the control plan, WI for product quality	2	3	-	-
PC15. support in inspection process and check the work pieces as per the work instructions for product quality	2	3	-	1

NSQF QUALIFICATION FILE**Approved in 3rd NSQC – NCVET, Dated: 20th November, 2020**

PC16. support in segregating the completed pieces in to Ok pieces, defective pieces which can be repaired/reworked and pieces which are beyond repair and maintain records of each category	2	2	-	1
PC17. check the machine operations for any malfunctions/defects in the component and immediately inform the supervisor/maintenance team for correction	2	3	-	1
PC18. support in removing chips, burrs and sharp edges from different machine areas and disposing scrap or waste material in accordance with the company policies and environmental regulations	1	3	-	1
NOS Total	30	50	-	20

Means of assessment 1

The emphasis is on 'learning-by-doing' and practical demonstration of skills and knowledge based on the performance criteria.

The assessment papers for theory and practical are developed by Subject Matter Experts (SME) available with the Assessment Agency as per the performance and assessment criteria mentioned in the Qualification Packs.

Tests are administered and marks for theory paper and practical's demonstrating the selling techniques, handling of jewellery and retail sales counter. All the components and the performance criteria are covered during the test.

Means of assessment 2

The assessments for theory is carried out in Offline mode (TAB) and the practical assessments is carried out with the availability of the equipment at the TC, as predefined for the job role.

Pass/Fail

The minimum total marks to be achieved for being competent are 70% in total.

NSQF QUALIFICATION FILE

SECTION 2

25. EVIDENCE OF LEVEL

OPTION A

Title/Name of qualification/component: AutomotiveMachining OperatorQP Code: ASC/Q3501 Level: 3			
NSQF Domain	Outcomes of the Qualification/Component	How the job role relates to the NSQF level descriptors	NSQF Level
Process	The Individual must be able to assist in routine tasks like pre-machining activities either manually or through specialized techniques as per the given work order and the standards specified by the organization.	The individual on the job works under close supervision and is responsible for supporting the machine operator in all pre-machining activities, machining of the actual part, ad hoc repair work like in auto service stations, gauging, deburring and inspection activities.	3
Professional knowledge	The individual on the job needs factual knowledge of different types of machining processes and tools used in the machining process with respect to type of process to be conducted. Knowledge of 5S in manufacturing – Cleaning, sorting etc	Factual knowledge of machining operations and operations of different machine tools performed both manually and through automatic/ CNC machines	3
Professional skill	The individual on the job needs to recall and demonstrate practical skill like planning work assigned on a daily basis and provide estimates of time required for each piece of work. Prioritizing actions to achieve required outcomes	Recall and demonstrate practical skill, routine and repetitive in wide range of application, using appropriate rule and tool, using quality concepts.	3
Core skill	The individual on the job must be able to read, write and draw basic level drawings and charts. To discuss task lists and job requirements with co-workers and effectively communicate information to team members.	Language to communicate written or oral, with required clarity, skill to basic arithmetic and algebraic principles, basic understanding of social political and natural environment.	3
Responsibility	The individual on the job works under close supervision and is responsible for supporting the machine operator in all pre-machining activities, machining of the actual part, ad hoc repair work like in auto service stations, gauging, deburring and inspection activities.	The individual on the job is responsible for own work and fully responsible for other's work and learning.	3

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SECTION 3 EVIDENCE OF NEED

26. What evidence is there that the qualification is needed? What is the estimated uptake of this qualification and what is the basis of this estimate?

Need of the qualification?

ASDC carried out comprehensive skill gap study and collected feedback from industry with respect to roles for which qualification packs development are required. The occupational map was finalised accordingly. The need of this particular qualification was revalidated during the comprehensive interaction with Industry in the process of seeking their input for QP/NOS development.

Industry relevance?

List of industries involved in the Validation process for the QP

S No.	Large scale industries	Medium scale industries	Small scale industries
1	Hero Moto Corp	Rockman Industries Ltd.	Alicon Castalloy Ltd.
2	TATA Motors Limited	Sansera Engineering Pvt. Ltd.	Shiv Engineering Industries
3	Bajaj Motors Limited	Subros Limited	Bharadwaj Engineering Services

Uses of Qualifications and industry uptake

Skill GAP analysis carried out by a reputed research agency provided a broad estimate of demand. The report can be referred in the Common Files. ASDC is taking initiative to develop a labour market information database that would peg the demand more accurately- job role wise as well as based on geographical spread. Key enabler segments for the core segments of the Automotive Industry include Auto Insurance, Financiers, Mechanics, and Auto Dealers etc.

Based on the current growth profile in the Indian auto Industry, it is expected that an additional 2~2.5 million employment opportunities per annum will be created in the Indian auto industry over the next decade. The details below provide the manpower requirement at various levels:

- Skill Level 1 – 4, people, Demand for such manpower is expected to be around 15 – 18 lakh per annum.
- Skill Level 5 -6 people working as supervisors on the shop floor. Demand for such manpower is expected to be around 4 lakh per annum.
- Skill Level 5- 7 people includes primarily engineers (B.E., M. Tech., MS), working in managerial grade, and demand for such manpower is expected to be around 1 lakh per annum.

Skill Level 6-10 people are executives, including engineers and doctorates, and demand for such manpower is expected to be around 0.5 lakh per annum.

27. Recommendation from the concerned Line Ministry of the Government/Regulatory Body
18th November 2025

28. What steps were taken to ensure that the qualification(s) does/do not duplicate already existing or planned qualifications in the NSQF?

- NSDC list of Approved and Under-Development QPs were checked prior to commissioning the work.
- NSDC QRC team also confirmed the same.
- Qualifications Registration Committee's (QRC) diligence process ensures no duplication

29. What arrangements are in place to monitor and review the qualification(s)? What data will be used and at what point will the qualification(s) be revised or updated?

- ASDC Review committee will review all QP/NOS at regular periodicity or as per NSDC guidelines.
- Review will be based on –
a) Revalidation of minimum requisites to perform in a Job role from pan India industry partners.

NSQF QUALIFICATION FILE

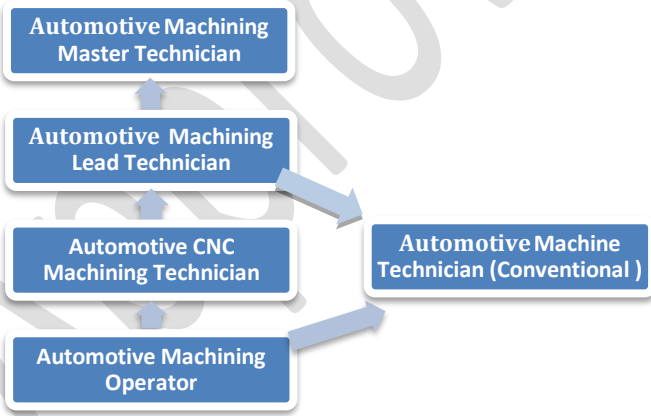
b) Any change in technology and process relevant to the particular QP and Job roles.

Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

SECTION 4

EVIDENCE OF PROGRESSION

30	<p>What steps have been taken in the design of this or other qualifications to ensure that there is a clear path to other qualifications in this sector?</p> <p><i>Show the career map here to reflect the clear progression</i></p> <p>Occupational and career maps indicating horizontal and vertical mobility have been created and are being used.</p>  <pre>graph TD; A[Automotive Machining Master Technician] <--> B[Automotive Machining Lead Technician]; B <--> C[Automotive CNC Machining Technician]; C <--> D[Automotive Machining Operator]; B --> E[Automotive Machine Technician (Conventional)]; C --> E; D --> E;</pre>
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Please attach most relevant and recent documents giving further information about any of the topics above.

Give the titles and other relevant details of the document(s) here. Include page references showing where to find the relevant information.

1. QP ASC/Q3501
2. MC ASC/Q3501