Work Item Number	2481
Title of Work Item	5CT Q125 to SR43 Charpy Impact Requirements
Ballot Revision Level	Initial Draft for Work Item Session Review
Type of Ballot (Initial, Comment, Comment resolution (reference API ballot#), 1st Re-ballot, 2nd Re-ballot, etc.)	Initial (Draft for Work Item Review)
Submitter Name(s)	Atsushi Soma Christelle Gomes
API Document Modified	API 5CT 11th Edition, Addendum 1
Impacted Documents	API 5CT 11th Edition, Addendum 1
Revision Key	Current API document in black, ~~Deletions in red strikethrough,~~ Additions in red with gray highlight

Work Item Charge: This Work Item addresses the long-standing inconsistency between SR43 and the absorbed energy values listed in Tables C/E 12–15 for Grade Q125. SR43 defines YSmax = 140 ksi, while the current table values were calculated using 150 ksi. This discrepancy can lead to inconsistent interpretations and evaluation results among manufacturers and end users. The objective of this Work Item is to establish a unified and technically consistent basis for Charpy absorbed energy calculations for Q125 with SR43 by recalculating the values using 140 ksi and adding a dedicated SR43 column.

Ballot Rationale: In the WI2481 kickoff meeting held on June 10, 2026, participants confirmed that the absorbed energy values for Q125 in Tables C/E 12–15 were originally calculated using 150 ksi, while SR43 specifies YSmax = 140 ksi.
This discrepancy has created ambiguity in how Charpy requirements should be interpreted and applied.

During the meeting, all participating companies agreed on the following approach:

- Use 140 ksi as the basis for recalculating the absorbed energy values required under SR43.
- Add a new SR43-specific column to Tables C/E 12–15 so that SR43 requirements can be clearly distinguished from the existing Q125 values.

- Recalculate all absorbed energy values in the new column using 140 ksi.
- Apply the same rounding method used in WI2390 to maintain consistency across Work Items.

This ballot proposal reflects the draft direction agreed during the kickoff meeting and is provided for review and discussion at the API 2026 Summer Meeting.

Ballot Text:

1. **Add a new SR43-specific column to Tables C/E 12–15**

   A new column titled “Q125 (SR43)” shall be added immediately to the right of the existing Q125 column.

2. **Recalculate absorbed energy values based on YSmax = 140 ksi**

   All values in the new SR43 column shall be recalculated using 140 ksi as the basis, following the same methodology used in WI2390.

3. **Apply rounding rules consistent with WI2390**

   The rounding method shall follow the same approach used in WI2390 to maintain consistency across Work Items.

4. **No changes to SR43 text**

   No additional wording will be added to SR43, as agreed during the kickoff meeting.

Updated tables

Updated versions of Tables C/E 12–15 with the new SR43 column are attached for review during the API 2026 Summer Meeting.

Table C.12—Minimum Absorbed Energy for Couplings, Coupling Stock, Coupling Material, and Coupling Blanks—Transverse Orientation (Joules)

Critical Thickness mm	**L80** [a, b, ~~c, d, e~~]	**N80** [a, ~~b, c, d~~]	**C90** [a, ~~b, c, d~~]	**R95/T95** [a, ~~b, c, d~~]	**P110** [a, ~~b, c, d~~]	**C110** [a, ~~b, c, d~~]	**C125** [a, ~~b, c, d~~]	**Q125** [a, ~~b, c, d~~]	**Q125(SR43)** [a]
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*~~9~~*	*10*
≤ 12.70	27	21	27	27	27	27	30	34	34
15.24	27	23	27	27	30	27	30	34	34
17.78	27	25	27	27	32	28	31	35	35
20.32	27	28	27	28	35	30	34	38	35
22.86	27	30	29	30	38	33	37	41	38
25.40	28	32	31	32	41	35	40	44	41
27.94	30	35	33	35	44	38	42	47	44
30.48	32	37	35	37	47	40	45	50	47
33.02	34	39	37	39	50	43	48	53	50
35.56	36	41	39	41	53	45	51	56	53
38.10	38	44	42	44	56	48	54	60	56
40.64	40	46	44	46	58	50	56	63	58
43.18	42	48	46	48	61	53	59	66	61
45.64	44	50	48	50	64	55	62	69	64
48.26	46	53	50	53	67	58	65	72	67
50.80	48	55	53	55	70	60	68	75	70
53.34	49	57	55	57	73	63	70	78	73
55.88	51	60	57	60	76	65	73	81	76
58.42	53	62	59	62	79	68	76	84	79
60.96	55	64	61	64	82	70	79	87	82
63.50	57	66	63	66	84	72	81	90	84

~~[a] Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.~~

~~[b] If transverse specimens of $^{1}/_{2}$-size cannot be taken, refer to 9.7.1.~~

~~[c] For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.4.4 or the next higher wall in this table.~~

~~[d] For all Grades except L80 13 Cr, wall thickness greater than 63.5 mm, refer to 4.2.1 or 4.3.1 or 4.4.3.~~

[a] Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values. If transverse specimens of 1/2-size cannot be taken, refer to 9.7.1. For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.4.4 or the next higher wall in this table. For all Grades except L80 13 Cr, wall thickness greater than 63.5 mm, refer to 4.2.1, 4.3.1, or 4.4.3.

~~e~~b For Grade L80 13 Cr, wall thickness greater than 35.6 mm, refer to 4.2.1 or 4.3.1 or 4.4.3.

Table C.13—Minimum Absorbed Energy for Couplings, Coupling Stock, Coupling Material, and Coupling Blanks—Longitudinal Orientation (Joules)

L80	N80	C90	R95/T95	P110	C110	C125	Q125	Q125 (SR43)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
54	40	54	54	54	54	54	68	68

NOTE 1 Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.

NOTE 2 Longitudinal testing is required only if transverse testing is not possible. Coupling, coupling stock tested in the transverse direction does not need to be tested or demonstrate compliance to these values.

Table C.14—Minimum Absorbed Energy for Pipe—Transverse Orientation (Joules)

Wall Thickness mm	L80 [a, b, ~~c, d, e~~]	N80 [a, ~~b, c, d~~]	C90 [a, ~~b, c, d~~]	R95/T95 [a, ~~b, c, d~~]	P110 [a, ~~b, c, d~~]	C110 [a, ~~b, c, d~~]	C125 [a, ~~b, c, d~~]	Q125 [a, ~~b, c, d~~]	Q125(SR43) [a]
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*~~9~~*	*10*
≤ 17.78	20	20	21	22	28	27	31	35	32
20.32	20	20	23	24	28	30	34	38	35
22.86	22	22	25	26	30	33	37	41	38
25.40	23	23	26	28	32	35	40	44	41
27.94	25	25	28	30	35	38	42	47	44
30.48	27	27	30	32	37	40	45	50	47
33.02	28	28	32	34	39	43	48	53	50
35.56	30	30	34	36	41	45	51	56	53
38.10	32	32	36	38	44	48	54	60	56
40.64	33	33	38	40	46	50	56	63	58
43.18	35	35	39	42	48	53	59	66	61
45.72	37	37	41	44	50	55	62	69	64
48.26	38	38	43	46	53	58	65	72	67
50.80	40	40	45	48	55	60	68	75	70
53.34	42	42	47	49	57	63	70	78	73
55.88	43	43	49	51	60	65	73	81	76

58.42	45	45	51	53	62	68	76	84	79
60.96	47	47	52	55	64	70	79	87	82
63.50	48	48	54	57	66	72	81	90	84

~~a Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.~~

~~b If transverse specimens of 1/2-size cannot be taken, refer to 9.7.1.~~

~~c For wall thicknesses not listed, the manufacturer has the option to utilize applicable formula in accordance with 6.5.2 and 6.5.3 or the next higher wall in this table.~~

~~d For all Grades except L80 13 Cr, wall thickness greater than 63.5 mm, refer to 4.2.1 or 4.3.1 or 4.4.3.~~

a Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values. If transverse specimens of 1/2-size cannot be taken, refer to 9.7.1. For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.5.2 and 6.5.3 or the next higher wall in this table. For all Grades except L80 13 Cr, wall thickness greater than 63.5 mm, refer to 4.2.1, 4.3.1, or 4.4.3.

~~e~~b For Grade L80 13 Cr, wall thickness greater than 35.6 mm, refer to 4.2.1 or 4.3.1 or 4.4.3.

Table C.15—Minimum Absorbed Energy for Pipe—Longitudinal Orientation (Joules)

L80	N80	C90	R95/T95	P110	C110	C125	Q125	Q125 (SR43)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
40	40	40	40	52	54	54	54	54

NOTE 1 Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.

NOTE 2 Longitudinal testing is required only if transverse testing is not possible. Pipe tested in the transverse direction does not need to be tested or demonstrate conformance to these values.

Table E.12—Minimum Absorbed Energy for Couplings, Coupling Stock, Coupling Material, and Coupling Blanks—Transverse Orientation (ft·lb)

Critical Thickness in.	L80 a, b~~, c, d, e~~	N80 a~~, b, c, d~~	C90 a~~, b, c, d~~	R95/T95 a~~, b, c, d~~	P110 a~~, b, c, d~~	C110 a~~, b, c, d~~	C125 a~~, b, c, d~~	Q125 a~~, b, c, d~~	Q125(SR43) a
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	~~*9*~~	*10*
≤ 0.5	20	15	20	20	20	20	22	25	25
0.6	20	17	20	20	22	20	22	25	25
0.7	20	19	20	20	24	20	23	26	26
0.8	20	20	20	20	26	22	25	28	26
0.9	20	22	21	22	28	24	27	30	28
1.0	21	24	23	24	30	26	29	32	30

1.1	22	25	24	25	32	28	31	35	32
1.2	23	27	26	27	34	30	33	37	34
1.3	25	29	27	29	37	31	35	39	37
1.4	26	30	29	30	39	33	37	42	39
1.5	28	32	31	32	41	35	39	44	41
1.6	29	34	32	34	43	37	41	46	43
1.7	31	35	34	35	45	39	44	48	45
1.8	32	37	35	37	47	41	46	51	47
1.9	34	39	37	39	49	42	48	53	49
2.0	35	40	39	40	52	44	50	55	52
2.1	36	42	40	42	54	46	52	57	54
2.2	38	44	42	44	56	48	54	60	56
2.3	39	45	43	45	58	50	56	62	58
2.4	41	47	45	47	60	51	58	64	60
2.5	42	49	47	49	62	53	60	67	62

~~[a] Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.~~

~~[b] If transverse specimens of $1/2$-size cannot be taken, refer to 9.7.1.~~

~~[c] For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.4.4 or the next higher wall in this table.~~

~~[d] For all Grades except L80 13 Cr, wall thickness greater than 2.5 in., refer to 4.2.1 or 4.3.1 or 4.4.3.~~

a Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values. If transverse specimens of 1/2-size cannot be taken, refer to 9.7.1. For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.4.4 or the next higher wall in this table. For all Grades except L80 13 Cr, wall thickness greater than 2.5 in., refer to 4.2.1, 4.3.1, or 4.4.3.

~~[e]~~b For Grade L80 13 Cr, wall thickness greater than 1.4 in., refer to 4.2.1 or 4.3.1 or 4.4.3.

Table E.13—Minimum Absorbed Energy for Couplings, Coupling Stock, Coupling Material, and Coupling Blanks—Longitudinal Orientation (ft·lb)

L80	N80	C90	R95/T95	P110	C110	C125	Q125	Q125 (SR43)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	9
40	30	40	40	40	40	40	50	50

NOTE 1 Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.

NOTE 2 Longitudinal testing is required only if transverse testing is not possible. Coupling, coupling stock tested in the transverse direction does not need to be tested or demonstrate compliance to these values.

Table E.14—Minimum Absorbed Energy for Pipe—Transverse Orientation (ft·lb)

Wall Thickness in.	**L80** [a, b, c, d, e]	**N80** [a, b, c, d]	**C90** [a, b, c, d]	**R95/T95** [a, b, c, d]	**P110** [a, b, c, d]	**C110** [a, b, c, d]	**C125** [a, b, c, d]	**Q125** [a, b, c, d]	**Q125(SR 43)** [a]
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*	*10*
≤ 0.7	15	15	15	16	20	20	23	26	24
0.8	15	15	17	18	20	22	25	28	26
0.9	16	16	18	19	22	24	27	30	28
1.0	17	17	19	21	24	26	29	32	30
1.1	18	18	21	22	25	28	31	35	32
1.2	20	20	22	23	27	30	33	37	34
1.3	21	21	24	25	29	31	35	39	37
1.4	22	22	25	26	30	33	37	42	39
1.5	23	23	26	28	32	35	39	44	41
1.6	25	25	28	29	34	37	41	46	43
1.7	26	26	29	31	35	39	44	48	45
1.8	27	27	30	32	37	41	46	51	47
1.9	28	28	32	34	39	42	48	53	49
2.0	29	29	33	35	40	44	50	55	52
2.1	31	31	34	36	42	46	52	57	54
2.2	32	32	36	38	44	48	54	60	56
2.3	33	33	37	39	45	50	56	62	58
2.4	34	34	39	41	47	51	58	64	60
2.5	36	36	40	42	49	53	60	67	62

~~a Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.~~

~~b If transverse specimens of 1/2 size cannot be taken, refer to 9.7.1.~~

~~c For wall thicknesses not listed, the manufacturer has the option to utilize applicable formula in accordance with 6.5.2 and 6.5.3 or the next higher wall in this table.~~

~~d For all Grades except L80 13 Cr, wall thickness greater than 2.5 in., refer to 4.2.1 or 4.3.1 or 4.4.3.~~

a Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values. If transverse specimens of 1/2-size cannot be taken, refer to 9.7.1. For wall thicknesses not listed, the manufacturer has the option to utilize the applicable formula in accordance with 6.5.2 and 6.5.3 or the next higher wall in this table. For all Grades except L80 13 Cr, wall thickness greater than 2.5 in., refer to 4.2.1, 4.3.1, or 4.4.3.

~~e~~b For Grade L80 13 Cr, wall thickness greater than 1.4 in., refer to 4.2.1 or 4.3.1 or 4.4.3.

Table E.15—Minimum Absorbed Energy for Pipe—Longitudinal Orientation (ft·lb)

L80	N80	C90	R95/T95	P110	C110	C125	Q125	Q125 (SR43)
1	*2*	*3*	*4*	*5*	*6*	*7*	*8*	*9*
30	30	30	30	38	40	40	40	40

NOTE 1 Values given are full-size, average minimums; refer to 6.3.1 for individual minimum values.

NOTE 2 Longitudinal testing is required only if transverse testing is not possible. Pipe tested in the transverse direction does not need to be tested or demonstrate conformance to these values.