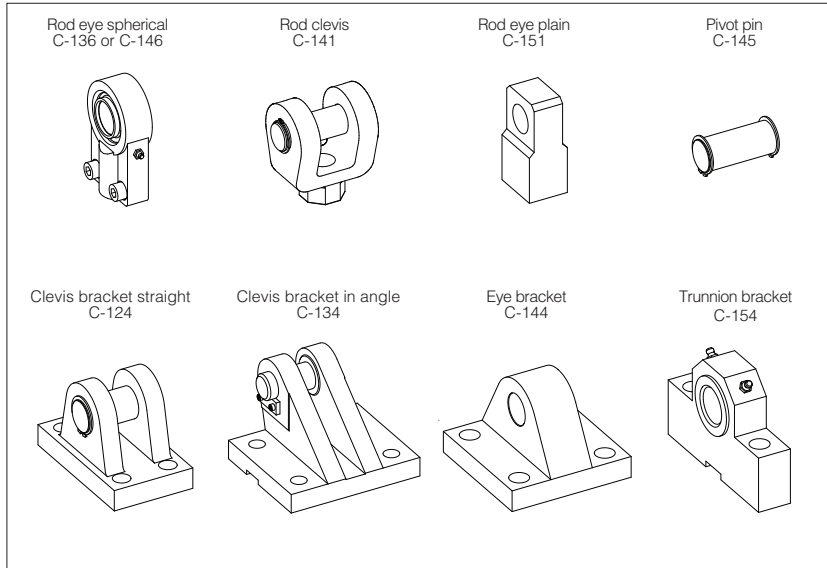


Attachments for hydraulic cylinders

to ISO 6982, ISO 8132 and ISO 8133












The table at side shows the Atos range of standard rod attachments and brackets: they are available for each cylinder bore. See section 2 for possible combinations. Stainless steel attachments are available on request.

1 MODEL CODE

| | | | | | | |
|---|---|------------|---|-----------|---|-----------------------------|
| C | - | 141 | - | 12 | - | V |
| Standard attachment | | | | | | Painting see sect. 5 |
| Rod attachments: 136= Rod eye spherical 146= Rod eye spherical 141= Rod clevis 151= Rod eye plain 145= Pivot pin Brackets: 124= Clevis bracket straight 134= Clevis bracket in angle 144= Eye bracket 154= Trunnion bracket | | | | | | Bore size/rod diameter [mm] |

2 POSSIBLE COMBINATIONS

| Ø Rod | Rod attachments codes | | | | | Ø Bore | Brackets codes | | | |
|--|---|---|---|---|---|------------|--|---|---|---|
| |  (b) |  |  |  |  | |  |  |  |  |
| 12 18 opt.H(a) | NA | C-14612 | C-14112 | C-15112 | C-14512 | 25 | NA | C-13425 | C-14425 | C-15425 |
| 14 22 opt.H(a) | C-13616 | C-14614 | C-14114 | C-15114 | C-14514 | 32 | NA | C-13432 | C-14432 | C-15432 |
| 18 22 opt.H(a) 28 opt.H | C-13618 | C-14618 | C-14118 | C-15118 | C-14518 | 40 | C-12422 (c) | C-13440 | C-14440 | C-15440 |
| 22 28 opt.H(a) 36 opt.H | C-13622 | C-14622 | C-14122 | C-15122 | C-14522 | 50 | C-12428 (c) C-12436 (d) | C-13450 | C-14450 | C-15450 |
| 28 36 opt.H(a) 45 opt.H | C-13628 | C-14628 | C-14128 | C-15128 | C-14522 | 63 | C-12436 (c) C-12445 (d) | C-13463 | C-14463 | C-15463 |
| 36 45 opt.H(a) 56 opt.H | C-13636 | C-14636 | C-14136 | C-15136 | C-14536 | 80 | C-12445 (c) C-12456 (d) | C-13480 | C-14480 | C-15480 |
| 45 56 opt.H(a) 70 opt.H | C-13645 | C-14645 | C-14145 | C-15145 | C-14545 | 100 | C-12456 (c) C-12470 (d) | C-134100 | C-144100 | C-154100 |
| 56 70 opt.H(a) 90 opt.H | C-13656 | C-14656 | C-14156 | C-15156 | C-14556 | 125 | C-12470 (c) C-12490 (d) | C-134125 | C-144125 | C-154125 |
| 70 90 opt.H(a) 110 opt.H | C-13670 | C-14670 | C-14170 | C-15170 | C-14570 | 160 | C-12490 (c) C-124100 (d) | C-134160 | C-144160 | C-154160 |
| 90 110 opt.H(a) 140 opt.H | C-13690 | C-14690 | C-14190 | C-15190 | C-14590 | 200 | C-124100 (c) | C-134200 | C-144200 | C-154200 |

Notes:

(a) Option H : light male thread, for details see table B137 or B140

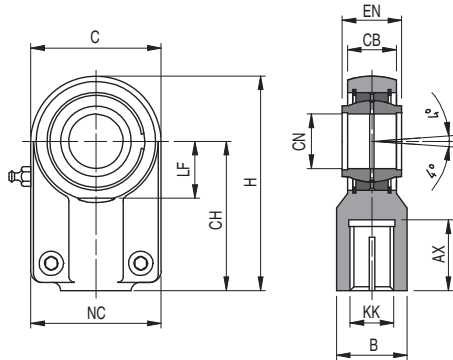
(b) C-136 is also available for rods 110, 140, 180 and 220. See section 3

(c) For S mounting styles in CN cylinder

(d) For S mounting styles in CC cylinder

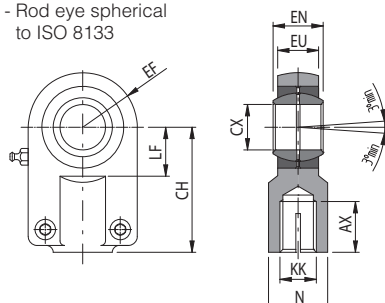
3 DIMENSIONS [mm]

| C-136 - Rod eye spherical to ISO 6982 and 8132 | | Code | KK | AX min | B max | C max | CB max | CH js13 | CN H7 | EN h12 | H | LF min | NC | Mass [kg] | Max load [kN] (2) | Screws torque |
|--|----------|------|-----|--------|-------|-------|--------|---------|-------|--------|-----|--------|-------|-----------|-------------------|---------------|
| | | | | | | | | | | | | | | | Dynamic | Static |
| C-13616 (1) | M12x1,25 | 17 | 19 | 33 | 11 | 38 | 12 | 12 | 54 | 13 | 32 | 0,11 | 10,8 | 24,5 | 6 Nm | |
| C-13618 | M14x1,5 | 19 | 22 | 41 | 14 | 44 | 16 | 16 | 64 | 16,5 | 40 | 0,2 | 17,6 | 36,5 | 10 Nm | |
| C-13622 | M16x1,5 | 23 | 28 | 50 | 17,5 | 52 | 20 | 20 | 75 | 20,5 | 47 | 0,35 | 30 | 48 | 25 Nm | |
| C-13628 | M20x1,5 | 29 | 31 | 64 | 22 | 65 | 25 | 25 | 96 | 25,5 | 54 | 0,62 | 48 | 78 | 25 Nm | |
| C-13636 | M27x2 | 37 | 38 | 80 | 28 | 80 | 32 | 32 | 118 | 30 | 66 | 1,15 | 67 | 114 | 49 Nm | |
| C-13645 | M33x2 | 46 | 47 | 100 | 34 | 97 | 40 | 40 | 146 | 39 | 80 | 2,18 | 100 | 204 | 49 Nm | |
| C-13656 | M42x2 | 57 | 58 | 126 | 42 | 120 | 50 | 50 | 179 | 47 | 96 | 3,96 | 156 | 310 | 86 Nm | |
| C-13670 | M48x2 | 64 | 70 | 145 | 53,5 | 140 | 63 | 63 | 211 | 58 | 114 | 6,8 | 255 | 430 | 210 Nm | |
| C-13690 | M64x3 | 86 | 91 | 184 | 68 | 180 | 80 | 80 | 270 | 74 | 148 | 13 | 400 | 695 | 410 Nm | |
| C-13690A (3) | M72x3 | 91 | 100 | 185 | 72 | 195 | 90 | 90 | 296 | 91 | 160 | 19,1 | 490 | 750 | 410 Nm | |
| C-136110 | M80x3 | 96 | 110 | 228 | 85,5 | 210 | 100 | 100 | 322 | 94 | 178 | 25 | 610 | 1.060 | 710 Nm | |
| C-136110A (3) | M90x3 | 106 | 125 | 235 | 88 | 235 | 110 | 110 | 364 | 106 | 190 | 32 | 655 | 1.200 | 710 Nm | |
| C-136140 | M100x3 | 113 | 135 | 320 | 105 | 260 | 125 | 125 | 405 | 116 | 200 | 46 | 950 | 1.430 | 710 Nm | |
| C-136180 | M125x4 | 126 | 165 | 400 | 133 | 310 | 160 | 160 | 488 | 145 | 250 | 82,5 | 1.370 | 2.200 | 710 Nm | |
| C-136220 | M160x4 | 161 | 215 | 500 | 165 | 390 | 200 | 200 | 620 | 190 | 320 | 168 | 2.120 | 3.650 | 1500Nm | |



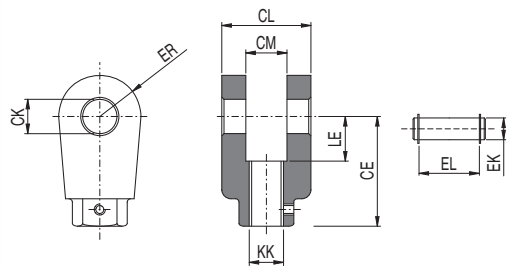
- Notes:**
 (1) This attachment does not include the greaser because it is selflubricated
 (2) Dynamic loads has to be considered when the cylinders work with oscillatory motions or push-pull loads in high frequencies
 (3) Attachment not compliant with ISO standard

| C-146 - Rod eye spherical to ISO 8133 | | Code | KK | AX min | CH js13 | CX | EF max | EN | EU max | LF min | N max | Mass [kg] | Max load [kN] (2) | Screws torque |
|---------------------------------------|----------|------|-----|----------------------------------|---------|-------------------------------------|--------|-----|--------|--------|-------|-----------|-------------------|---------------|
| | | | | | | | | | | | | | Dynamic | Static |
| C-14612 (1) | M10x1,25 | 15 | 42 | 12 ⁰ _{0,008} | 18 | 10 ⁰ _{0,12} (3) | 8,5 | 16 | 19 | 0,12 | 10,8 | 17 | 10 Nm | |
| C-14614 (1) | M12x1,25 | 17 | 48 | 16 ⁰ _{0,008} | 23 | 14 ⁰ _{0,12} (3) | 11,5 | 20 | 22 | 0,22 | 21,1 | 28,5 | 10 Nm | |
| C-14618 (1) | M14x1,5 | 19 | 58 | 20 ⁰ _{0,01} | 28 | 16 ⁰ _{0,12} (3) | 13,5 | 25 | 28 | 0,43 | 30 | 42,5 | 25 Nm | |
| C-14622 | M16x1,5 | 23 | 68 | 25 ⁰ _{0,01} | 33 | 20 ⁰ _{0,12} (3) | 18 | 30 | 31 | 0,67 | 48 | 67 | 25 Nm | |
| C-14628 | M20x1,5 | 29 | 85 | 30 ⁰ _{0,01} | 41 | 22 ⁰ _{0,12} (3) | 20 | 35 | 37 | 1,25 | 62 | 108 | 49 Nm | |
| C-14636 | M27x2 | 37 | 105 | 40 ⁰ _{0,012} | 51 | 28 ⁰ _{0,12} (3) | 24 | 45 | 47 | 2,16 | 100 | 156 | 49 Nm | |
| C-14645 | M33x2 | 46 | 130 | 50 ⁰ _{0,012} | 61 | 35 ⁰ _{0,12} (3) | 31 | 58 | 57 | 3,9 | 156 | 245 | 86 Nm | |
| C-14656 | M42x2 | 57 | 150 | 60 ⁰ _{0,015} | 80 | 44 ⁰ _{0,15} | 39 | 68 | 69 | 7,15 | 245 | 380 | 210 Nm | |
| C-14670 | M48x2 | 64 | 185 | 80 ⁰ _{0,015} | 102,5 | 55 ⁰ _{0,15} | 48 | 92 | 91 | 15 | 400 | 585 | 410 Nm | |
| C-14690 | M64x3 | 86 | 240 | 100 ⁰ _{0,02} | 120 | 70 ⁰ _{0,20} | 57 | 116 | 110 | 27,3 | 610 | 865 | 710 Nm | |



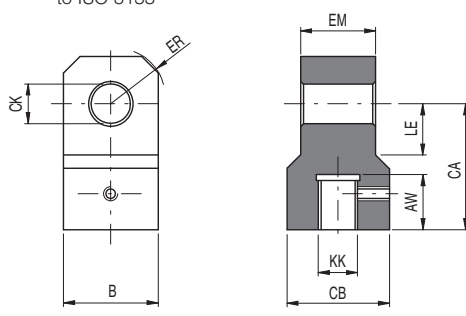
- Notes:**
 (1) This attachment does not include the greaser because it is selflubricated
 (2) Dynamic loads has to be considered when the cylinders work with oscillatory motions or push-pull loads in high frequencies
 (3) Not compliant with ISO 8133

| C-141 - Rod clevis to ISO 8133 | | C-145 - Pivot pin | | Code | KK | CE JS13 | CK H9 | CL max | CM A13 | EK f8 | EL min | ER max | LE min | Mass [kg] | Max load static [kN] |
|--------------------------------|---------|-------------------|-----|------|-----|---------|-------|--------|--------|-------|--------|--------|--------|-----------|----------------------|
| C-14112 | C-14512 | M10x1,25 | 32 | 10 | 26 | 12 | 10 | 29 | 12 | 13 | 0,1 | 8 | | | |
| C-14114 | C-14514 | M12x1,25 | 36 | 12 | 34 | 16 | 12 | 37 | 17 | 19 | 0,18 | 12,5 | | | |
| C-14118 | C-14518 | M14x1,5 | 38 | 14 | 42 | 20 | 14 | 45 | 17 | 19 | 0,23 | 20 | | | |
| C-14122 | C-14522 | M16x1,5 | 54 | 20 | 62 | 30 | 20 | 66 | 29 | 32 | 0,9 | 32 | | | |
| C-14128 | C-14522 | M20x1,5 | 60 | 20 | 62 | 30 | 20 | 66 | 29 | 32 | 0,91 | 50 | | | |
| C-14136 | C-14536 | M27x2 | 75 | 28 | 83 | 40 | 28 | 87 | 34 | 39 | 1,92 | 80 | | | |
| C-14145 | C-14545 | M33x2 | 99 | 36 | 103 | 50 | 36 | 107 | 50 | 54 | 4,92 | 125 | | | |
| C-14156 | C-14556 | M42x2 | 113 | 45 | 123 | 60 | 45 | 129 | 53 | 57 | 6,53 | 200 | | | |
| C-14170 | C-14570 | M48x2 | 126 | 56 | 143 | 70 | 56 | 149 | 59 | 63 | 10,11 | 320 | | | |
| C-14190 | C-14590 | M64x3 | 168 | 70 | 163 | 80 | 70 | 169 | 78 | 83 | 19,2 | 500 | | | |



Note: Pivot pin C-145* is included in the supply

| C-151 - Rod eye plain to ISO 8133 | | Code | KK | AW min | B | CA JS13 | CB max | CK H9 | EM h13 | ER max | LE min | Mass [kg] | Max load static [kN] |
|-----------------------------------|----------|------|-----|--------|-----|---------|--------|-------|--------|--------|--------|-----------|----------------------|
| C-15112 | M10x1,25 | 14 | 18 | 32 | 18 | 10 | 12 | 12 | 13 | 0,08 | 8 | | |
| C-15114 | M12x1,25 | 16 | 22 | 36 | 22 | 12 | 16 | 17 | 19 | 0,15 | 12,5 | | |
| C-15118 | M14x1,5 | 18 | 25 | 38 | 20 | 14 | 20 | 17 | 19 | 0,22 | 20 | | |
| C-15122 | M16x1,5 | 22 | 35 | 54 | 30 | 20 | 30 | 29 | 32 | 0,5 | 32 | | |
| C-15128 | M20x1,5 | 28 | 40 | 60 | 30 | 20 | 30 | 29 | 32 | 1,1 | 50 | | |
| C-15136 | M27x2 | 36 | 50 | 75 | 40 | 28 | 40 | 34 | 39 | 1,5 | 80 | | |
| C-15145 | M33x2 | 45 | 70 | 99 | 50 | 36 | 50 | 50 | 54 | 2,5 | 125 | | |
| C-15156 | M42x2 | 56 | 100 | 113 | 65 | 45 | 60 | 53 | 57 | 4,2 | 200 | | |
| C-15170 | M48x2 | 63 | 116 | 126 | 90 | 56 | 70 | 59 | 63 | 11,8 | 320 | | |
| C-15190 | M64x3 | 85 | 160 | 168 | 110 | 70 | 80 | 78 | 83 | 17 | 500 | | |



| C-124 - Clevis bracket straight to ISO 8132 | Code | CK | CL | CM | FL | HB | LE | MR | RC | TB | UD | UH | Mass | Max load |
|---|----------|-----|-----|-----|------|------|-----|-----|------|------|-----|-----|------|-------------|
| | | H9 | h16 | A13 | JS12 | H13 | min | max | JS14 | JS14 | max | max | [kg] | static [kN] |
| | C-12414 | 12 | 28 | 12 | 34 | 9 | 22 | 12 | 20 | 50 | 40 | 70 | 0,31 | 8 |
| | C-12418 | 16 | 36 | 16 | 40 | 11 | 27 | 16 | 26 | 65 | 50 | 90 | 0,59 | 12,5 |
| | C-12422 | 20 | 45 | 20 | 45 | 11 | 30 | 20 | 32 | 75 | 58 | 98 | 0,9 | 20 |
| | C-12428 | 25 | 56 | 25 | 55 | 13,5 | 37 | 25 | 40 | 85 | 70 | 113 | 1,6 | 32 |
| | C-12436 | 32 | 70 | 32 | 65 | 17,5 | 43 | 32 | 50 | 110 | 85 | 143 | 2,8 | 50 |
| | C-12445 | 40 | 90 | 40 | 76 | 22 | 52 | 40 | 65 | 130 | 108 | 170 | 5 | 80 |
| | C-12456 | 50 | 110 | 50 | 95 | 26 | 65 | 50 | 80 | 170 | 130 | 220 | 10,1 | 125 |
| | C-12470 | 63 | 140 | 63 | 112 | 33 | 75 | 63 | 100 | 210 | 160 | 270 | 15,4 | 200 |
| | C-12490 | 80 | 170 | 80 | 140 | 39 | 95 | 80 | 125 | 250 | 210 | 320 | 30 | 320 |
| | C-124100 | 100 | 210 | 100 | 180 | 45 | 120 | 100 | 160 | 315 | 260 | 400 | 60,2 | 500 |

Note: Pivot pin and seeger are included in the supply
Supplied with threaded holes for pivot pin locking plate (not included)

| C-134 - Clevis bracket in angle to DIN 24556 or ISO 8133 with additional machining for dimension CO | Code | CF | CG | CO | CP | FM | FO | GL | HB | KC | LG | LJ | LO | RE | SR | TA | UJ | UK | Mass | Max load |
|---|----------|--------|-----------|--------|-----|------|----|------|----------|------|-----|-----|-----|------|------|------|-----|-----|------|-------------|
| | | H9 (1) | H9/H8 (1) | N9 (2) | h14 | js13 | F0 | JS13 | H13 | (2) | | min | max | js13 | js13 | js13 | max | max | [kg] | static [kN] |
| | C-13425 | 12 | 10 | 10 | 30 | 40 | 16 | 46 | 9 | 3,3 | 28 | 29 | 56 | 55 | 12 | 40 | 75 | 60 | 0,52 | 8 |
| | C-13432 | 16 | 14 | 16 | 40 | 50 | 18 | 61 | 11 | 4,3 | 37 | 38 | 74 | 70 | 16 | 55 | 95 | 80 | 1,05 | 12,5 |
| | C-13440 | 20 | 16 | 16 | 50 | 55 | 20 | 64 | 13,5 (1) | 4,3 | 39 | 40 | 80 | 85 | 20 | 58 | 120 | 90 | 1,72 | 20 |
| | C-13450 | 25 | 20 | 25 | 60 | 65 | 22 | 78 | 15,5 (1) | 5,4 | 48 | 49 | 98 | 100 | 25 | 70 | 140 | 110 | 2,72 | 32 |
| | C-13463 | 30 | 22 | 25 | 70 | 85 | 24 | 97 | 17,5 (1) | 5,4 | 62 | 63 | 120 | 115 | 30 | 90 | 160 | 135 | 5,15 | 50 |
| | C-13480 | 40 | 28 | 36 | 80 | 100 | 24 | 123 | 22 | 8,4 | 72 | 73 | 148 | 135 | 40 | 120 | 190 | 170 | 9,3 | 80 |
| | C-134100 | 50 | 35 | 36 | 100 | 125 | 35 | 155 | 30 | 8,4 | 90 | 92 | 190 | 170 | 50 | 145 | 240 | 215 | 18,3 | 125 |
| | C-134125 | 60 | 44 | 50 | 120 | 150 | 35 | 187 | 39 | 11,4 | 108 | 110 | 225 | 200 | 60 | 185 | 270 | 260 | 35 | 200 |
| | C-134160 | 80 | 55 | 50 | 160 | 190 | 35 | 255 | 45 | 11,4 | 140 | 142 | 295 | 240 | 80 | 260 | 320 | 340 | 63 | 320 |
| | C-134200 | 100 | 70 | 63 | 200 | 210 | 35 | 285 | 48 | 12,4 | 150 | 152 | 335 | 300 | 100 | 300 | 400 | 400 | 109 | 500 |

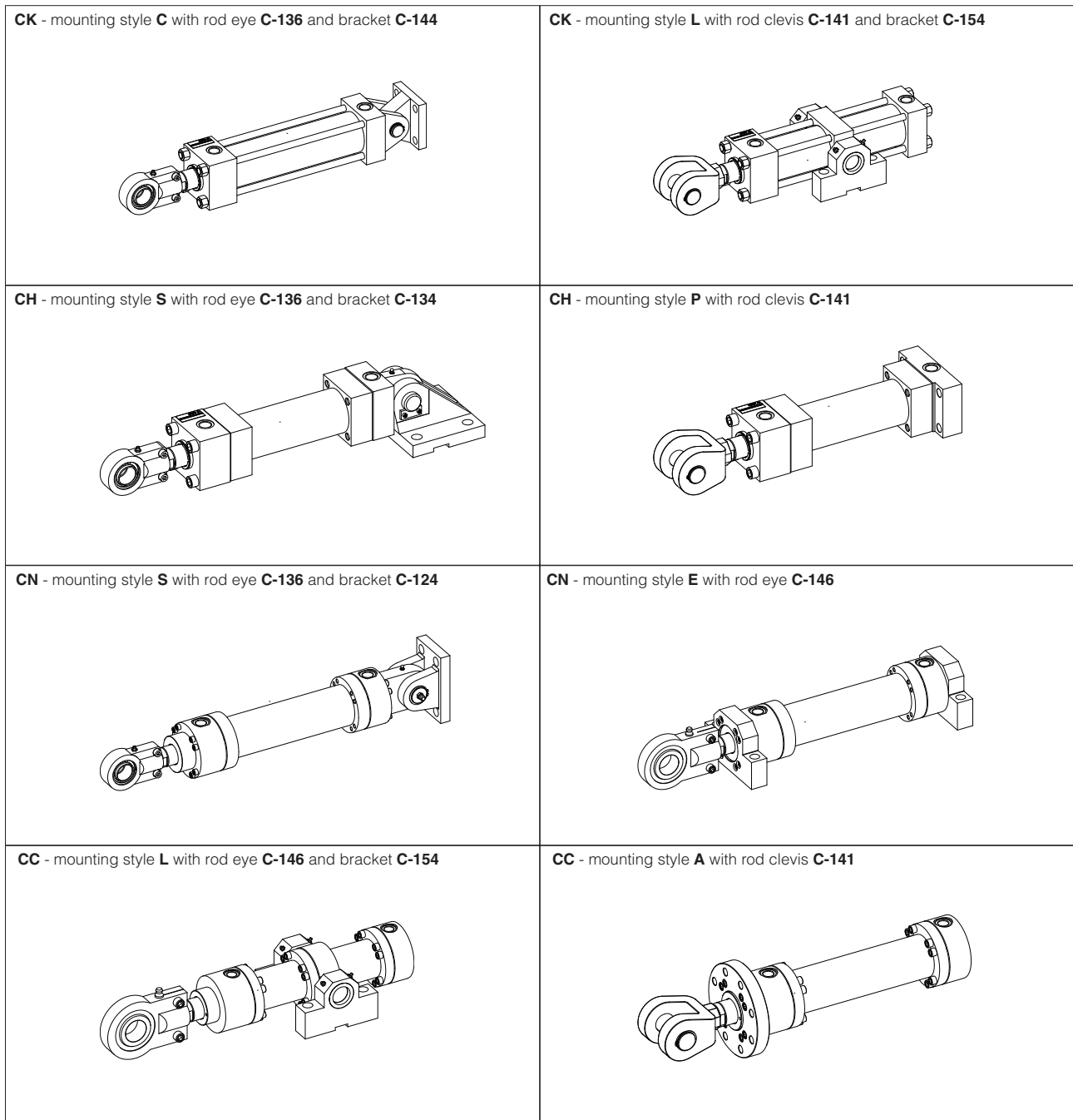
Notes:
Pivot pin with locking plate is included in the supply
(1) Not compliant with ISO 8133 and DIN 24556
(2) Not compliant with ISO 8133

| C-144 - Eye bracket to ISO 8133 | Code | CK | AA | E | EM | FL | HB | LE | MR | R | Mass | Max load |
|---------------------------------|----------|----|-----|-----|-----|------|------|-----|-----|-------|------|-------------|
| | | H9 | | max | h13 | js13 | H13 | min | max | js13 | [kg] | static [kN] |
| | C-14425 | 10 | 40 | 40 | 12 | 23 | 5,5 | 13 | 12 | 28,3 | 0,3 | 8 |
| | C-14432 | 12 | 47 | 46 | 16 | 29 | 6,6 | 19 | 17 | 33,2 | 0,45 | 12 |
| | C-14440 | 14 | 59 | 65 | 20 | 29 | 9 | 19 | 17 | 41,7 | 0,9 | 20 |
| | C-14450 | 20 | 74 | 79 | 30 | 48 | 13,5 | 32 | 29 | 52,3 | 1,3 | 32 |
| | C-14463 | 20 | 91 | 91 | 30 | 48 | 13,5 | 32 | 29 | 64,3 | 1,9 | 50 |
| | C-14480 | 28 | 117 | 118 | 40 | 59 | 17,5 | 39 | 34 | 82,7 | 4 | 80 |
| | C-144100 | 36 | 137 | 132 | 50 | 79 | 17,5 | 54 | 50 | 96,9 | 6,25 | 125 |
| | C-144125 | 45 | 178 | 174 | 60 | 87 | 24 | 57 | 53 | 125,9 | 11,4 | 200 |
| | C-144160 | 56 | 219 | 215 | 70 | 103 | 30 | 63 | 59 | 154,9 | 20,8 | 320 |
| | C-144200 | 70 | 269 | 256 | 80 | 132 | 33 | 82 | 78 | 190,2 | 38,8 | 500 |

| C-154 - Trunnion bracket (for cylinders with mounting styles G,H and L) to ISO 8132 | Code | CR | CO | FH | FK | FN | FS | HB | KC | NH | TH | UL | Mass | Max load |
|---|--------------|-----|----|-----|------|-----|------|------|--------|-----|------|-----|------|-------------|
| | | H7 | N9 | max | JS12 | max | js13 | H13 | 0/+0,3 | max | js13 | max | [kg] | static [kN] |
| | C-15425 | 12 | 10 | 25 | 34 | 50 | 8 | 9 | 3,3 | 17 | 40 | 63 | 0,46 | 8 |
| | C-15432 | 16 | 16 | 30 | 40 | 60 | 10 | 11 | 4,3 | 21 | 50 | 80 | 0,83 | 12,5 |
| | C-15440 | 20 | 16 | 38 | 45 | 70 | 10 | 11 | 4,3 | 21 | 60 | 90 | 1,21 | 20 |
| | C-15450 | 25 | 25 | 45 | 55 | 80 | 12 | 13,5 | 5,4 | 26 | 80 | 110 | 2,15 | 32 |
| | C-15463 | 32 | 25 | 52 | 65 | 100 | 15 | 17,5 | 5,4 | 33 | 110 | 150 | 4,63 | 50 |
| | C-15480 | 40 | 36 | 60 | 76 | 120 | 16 | 22 | 8,4 | 41 | 125 | 170 | 7,78 | 80 |
| | C-154100 | 50 | 36 | 75 | 95 | 140 | 20 | 26 | 8,4 | 51 | 160 | 210 | 14,3 | 125 |
| | C-154125 | 63 | 50 | 85 | 112 | 180 | 25 | 33 | 11,4 | 61 | 200 | 265 | 23,4 | 200 |
| | C-154160 | 80 | 50 | 112 | 140 | 220 | 31 | 39 | 11,4 | 81 | 250 | 325 | 53,1 | 320 |
| | C-154200 (1) | 100 | 63 | 150 | 200 | 300 | 42 | 52 | 12,4 | 101 | 320 | 410 | 112 | 500 |









Note: The code includes two trunnion brackets
(1) To ISO 8133

4 EXAMPLES OF ATTACHMENTS



5 SURFACE TREATMENT

Some attachments are provided with additional surface treatment to increase the corrosion resistance (24h in neutral salt spray), see table below for details. All the attachments, except pivot pin C-145, can be supplied with standard painting RAL 9007 (200h in neutral salt spray) selecting option **-V**, special painting are available on request.

| Code | Surface treatment | Code | Surface treatment |
|--|-------------------|---|-------------------|
|  C-136 or C-146 | No treatment |  C-124 | No treatment |
|  C-141 | No treatment |  C-134 | No treatment |
|  C-151 | Black phosphate |  C-144 | Black phosphate |
|  C-145 | Black phosphate |  C-154 | No treatment |