

**CPC****COOPERATIVE PATENT CLASSIFICATION****E01F****ADDITIONAL WORK, SUCH AS EQUIPPING ROADS OR THE CONSTRUCTION OF PLATFORMS, HELICOPTER LANDING STAGES, SIGNS, SNOW FENCES, OR THE LIKE****WARNING**

The following IPC groups are not used in the CPC scheme. Subject matter covered by these groups is classified in the following groups:

[E01F 15/10](#) covered by [E01F 15/02](#)

**Guidance heading:** Arrangement or construction of additional equipment for roads or railways, Landing stages for helicopters

**E01F 1/00**

**Construction of { station or like } platforms or refuge islands { or like islands in traffic areas, e.g. intersection or filling-station islands } ( general arrangement { of filling stations [B60S 5/02](#), } of railway platforms { [B61B 1/02](#), of traffic-channelling island at intersections [E01C 1/02](#) } ) { ; Kerbs specially adapted for islands in traffic areas ( specially adapted for guiding, marking or signalling [E01F 9/0533](#), for illumination [E01F 9/0536](#); lane separators diverting traffic past safety zones [E01F 9/087](#) ) }**

**E01F 1/005**

- . { Portable or movable traffic-area platforms or islands, e.g. portable loading islands, retractable platforms for traffic-directing officer }

**E01F 3/00**

**Landing stages for helicopters, e.g. located above buildings ( layout of airfields [B64F](#); buildings or like structures for special purposes [E04H](#) )**

**E01F 5/00**

**Draining the sub-base { i.e. subgrade or ground-work, e.g. embankment } of roads or { of the } ballastway of railways { or draining-off road surface or ballastway drainage } by trenches, culverts, or conduits { or other specially adapted means } ( { drainage of the ballastway of railways [E01B 11/00](#); surface drainage of roads [E01C 11/224](#); drainage of soil [E02B 11/00](#); } underground drainage [E02D](#); conduits for sewerage [E03F](#) )**

**E01F 5/005**

- . { Culverts ( underground siphons [E02D 29/08](#); tunnels or galleries [E21D](#); pipes in general [F16L](#) ); Head-structures for culverts, or for drainage-conduit outlets in slopes }

**E01F 7/00**

**Devices affording protection against snow, sand drifts, side-wind effects, snowslides, avalanches or falling rocks ( permanently installed heating or blowing devices for roads [E01C 11/26](#) ); Anti-dazzle arrangements { ; Sight-screens for roads, e.g. to mask accident site ( [E01F 8/00](#) takes precedence ) }**

**E01F 7/02**

- . Snow fences or similar devices, e.g. devices affording protection against sand drifts or side-wind effects ( fences in general [E04H 17/00](#) )

**E01F 7/025**

- . . { Devices specially adapted for protecting against wind, e.g. screens, deflectors or attenuators at tunnel or lock entrances ( for protecting plants [A01G 13/00](#); portable windscreens, e.g. for beach use [E04H 15/003](#); noise absorption; airfield deflectors for jet gases [B64F 1/26](#) ) }

- E01F 7/04
  - . Devices affording protection against snowslides, avalanches or falling rocks, e.g. avalanche preventing structures, galleries ( [securing of slopes E02D 17/20](#); [roof snow-traps E04D 13/10](#) )
- E01F 7/045
  - .. { Devices specially adapted for protecting against falling rocks, e.g. galleries, nets, rock traps ( [crash-barriers with nets E01F 15/06](#); [safety arrangements for blasting F42D 5/00](#) ) }
- E01F 7/06
  - . Anti-dazzle arrangements ( [E01F 8/00](#) takes precedence ) { [Securing anti-dazzle means to crash-barriers](#) ( [securing signs or supports therefor to crash-barriers E01F 9/03](#) ) }
- E01F 8/00**

**Arrangements for absorbing or reflecting air-transmitted noise from road or railway traffic ( [ground installations for reducing aircraft noise B64F 1/26](#); [general building constructions for absorbing or reflecting noise, noise absorption or reflection for buildings E04B 1/74](#) )**
- E01F 8/0005
  - . { [used in a wall type arrangement](#) }
- E01F 8/0011
  - .. { [Plank-like elements](#) }
- E01F 8/0017
  - .. { [Plate-like elements \( \[E01F 8/0035\]\(#\) takes precedence \)](#) }
- E01F 8/0023
  - .. { [Details, e.g. foundations \( \[solar cells specially adapted to be used in motorway sound barriers H01L 31/0426\]\(#\) \)](#) }
- E01F 8/0029
  - .. { [with porous surfaces, e.g. concrete with porous fillers](#) }
- E01F 8/0035
  - .. { [with undulated surfaces \( \[E01F 8/0029\]\(#\), \[E01F 8/0052\]\(#\) take precedence \)](#) }
- E01F 8/0041
  - .. { [Free-standing grates](#) }
- E01F 8/0047
  - .. { [with open cavities, e.g. for covering sunken roads](#) }
- E01F 8/0052
  - ... { [Grate-style, e.g. as wall facing](#) }
- E01F 8/0058
  - .... { [with damping material, e.g. rockwool, sand](#) }
- E01F 8/0064
  - ... { [Perforated plate or mesh, e.g. as wall facing](#) }
- E01F 8/007
  - .... { [with damping material](#) }
- E01F 8/0076
  - ... { [Cellular, e.g. as wall facing](#) }
- E01F 8/0082
  - .... { [with damping material](#) }
- E01F 8/0088
  - .. { [Suspended, e.g. ropes or mesh](#) }
- E01F 8/0094
  - . { [constructions for generation of phase shifting](#) }
- E01F 8/02
  - . specially adapted for sustaining vegetation or for accommodating plants ( [receptacles for cultivation of plants A01G 9/02](#); [securing slopes or inclines E02D 17/20](#); [retaining or protecting walls E02D 29/02](#) ); { [Embankment-type or crib-type noise barriers](#); [Retaining walls specially adapted to absorb or reflect noise \( \[building elements for planting walls E04C 1/395\]\(#\) \)](#) }
- E01F 8/021
  - .. { [with integral support structure](#) }
- E01F 8/022
  - ... { [Crib-type \( \[E01F 8/023\]\(#\) takes precedence \)](#) }
- E01F 8/023
  - ... { [made of stacked or staggered elements, e.g. hollow](#) }
- E01F 8/024
  - ... { [Beam-type, e.g. square-set](#) }
- E01F 8/025
  - ... { [Gabion-type](#) }
- E01F 8/026
  - ... { [Live wall, e.g. interlaced twines](#) }
- E01F 8/027
  - .. { [with external support, e.g. wall facing](#) }

E01F 8/028 . . . { Through-type, e.g. between adjacent kerbs }

**Guidance heading: Arrangements for facilitating the use of roads**

**E01F 9/00 Arrangement of road signs or traffic signals ( signals, signalling systems [G08](#); signs, attachment thereof to supports [G09F](#) ); Arrangements for enforcing caution, e.g. speed bumps**

E01F 9/002 . { Use of light guides, e.g. fibre optic devices ( in lighting devices or systems **F21S 5/00**; indicating arrangements with optic fibres [G09F 9/305](#) )}

E01F 9/005 . { Marking means constituting or comprising active or passive components adapted to interact with vehicle-borne or remote receivers or transmitters for purposes other than light reflection, light guiding or photoluminescence, e.g. forming radar reflectors, incorporating radio transmitters ( [E01F 11/00](#) takes precedence; control of position or course of vehicles [G05D 1/02](#) )}

E01F 9/007 . { Marking means with components adapted to auto-react to adverse atmospheric conditions, e.g. to signal icy road, to self-illuminate in fog; Marking or traffic control means with specific heating or drying arrangements }

E01F 9/011 . Upright bodies, e.g. marker posts or bollards; Supports for road signs, { e.g. posts, frames, gantries } ( { [E01F 9/045](#), [E01F 9/0533](#), [E01F 13/02](#) take precedence; } posts or poles in general [E04H 12/00](#); means for attaching signs to a supporting structure in general [G09F 7/18](#) )

E01F 9/0111 . . { Traffic guidance, warning or control posts, bollards, e.g. delineator posts, milestones ( barrier bollards [E01F 13/00](#); buffer bollards [E01F 15/003](#); boundary markers in general [G01C 15/04](#) )}

E01F 9/0112 . . . { Special features of delineator posts, e.g. with parts cantilevered toward the roadway or fixed vertically on a tilted surface ( [E01F 9/03](#), [E01F 9/053](#), [E01F 9/08](#) take precedence )}

E01F 9/0113 . . { Gantries or semi-gantries; Foundation means specially adapted therefor }

E01F 9/0114 . . { Holders for traffic poles ( [E01F 9/0112](#), [E01F 9/0113](#), [E01F 9/0118](#), [E01F 9/013](#) take precedence )}

E01F 9/0115 . . . { Glued to surface, e.g. road }

E01F 9/0116 . . . { Removably fixed, e.g. by screws or bolts }

E01F 9/0117 . . . { Subsoil fixings, e.g. foundations for holders or posts }

E01F 9/0118 . . { designed or adapted to rotatably, swingably or adjustably carry the sign or signal ( [E01F 9/019](#) takes precedence; means for adjustably, rotatably or swingably attaching signs to a supporting structure in general [G09F 7/20](#), [G09F 7/22](#) )}

E01F 9/012 . . Free-standing, e.g. traffic cones, foldable or inflatable devices; { Portable supports ( for barriers [E01F 13/02](#) ); Portable traffic signs or signals ( specially adapted for fitting to raised kerbs [E01F 9/0533](#), to portable barriers [E01F 13/02](#), to crash barriers [E01F 9/03](#); normal vehicle equipment portable emergency signal devices to be placed on way [B60Q 7/00](#); portable traffic signalling devices, i.e. hand signals [G08B 5/006](#) )}

E01F 9/0122 . . . { in the form of a three-dimensional body, other than of the relatively thin panel type, or designed to assume such form, e.g. cones, devices expandable or erectable to form a geometric body; Inflatable structures }

E01F 9/0124 . . . { Portable base members ( post holders to be placed on the ground in general [E04H 12/2238](#) )}

- E01F 9/0126 . . . { mounted on vehicles, e.g. for rapid change of station, as signal fitting of service vehicle ( vehicle aspects [B60P](#), [B62D](#) ); Warning vehicles designed to move along with traveling road-maintenance, e.g. remotely controlled ( mobile impact cushioning arrangements [E01F 15/14](#) ) }
- E01F 9/0128 . . . { specially adapted for indicating freshly applied road surface markings, e.g. for straddling wet paint lines }
- E01F 9/013 . . intended to be readily removable, e.g. for insertion into road-stud sockets ( [E01F 9/012](#) takes precedence ); { Base members specially adapted therefor ( [E01F 9/018](#), [E01F 13/026](#) take precedence ) }
- E01F 9/014 . . Storing, transporting, placing or retrieving portable devices, { e.g. road cones emplacing vehicles ( vehicle aspects [B60P](#), [B62D](#); applying permanent markers, e.g. buttons [E01C 23/18](#) ) }
- E01F 9/015 . . with reflectors, e.g. with means for keeping clean, { e.g. for delineator posts; Substituting reflecting means by unsoiled ones }
- E01F 9/016 . . illuminated, { e.g. with provisions for wiring-up, lights for illuminated signs } ( for obstructing or restricting traffic [E01F 13/00](#); { lighting, e.g. for sheets [F21](#); illuminated signs in general [G09F 13/00](#) } )
- E01F 9/0165 . . . { Illuminated or wired-up posts, bollards, pillars or like upstanding bodies or structures for traffic guidance, warning or control ( [E01F 9/065](#) takes precedence ) }
- E01F 9/017 . . self-righting after deflection or displacement ( ( [E01F 9/012](#), [E01F 9/045](#), [E01F 9/076](#) take precedence ) )
- E01F 9/0175 . . . { Traffic guidance, warning or control posts, bollards, pillars or like upstanding bodies or structures }
- E01F 9/018 . . specially adapted for breaking, disengaging, collapsing or permanent deformation upon deflection or displacement, e.g. upon vehicle impact; { replaceable couplings ( [E01F 9/0118](#), [E01F 9/012](#), [E01F 9/014](#), [E01F 9/016](#), [E01F 9/017](#) take precedence ) }
- E01F 9/0182 . . . { by shearing or tearing, e.g. having weakened zones }
- E01F 9/0184 . . . { by connection of the "slide-shoe" type }
- E01F 9/0186 . . . { by connection of the "male-female" type, e.g. spring-loaded ( [E01F 9/0182](#), [E01F 9/0188](#) take precedence ) }
- E01F 9/0188 . . . { Friction coupled }
- E01F 9/019 . . Extensible, collapsible or pivotable, { e.g. telescopic } ( [E01F 9/017](#), [E01F 9/018](#) take precedence ); { Retractable or otherwise movable to an underground position ( [E01F 9/093](#), [E01F 13/046](#), [E01F 13/085](#) take precedence; retractable traffic islands [E01F 1/005](#) ) }
- E01F 9/03 . . Arrangements for fastening signs or signals to safety barriers or the like ( ( securing anti-dazzle means [E01F 7/06](#) ) )
- E01F 9/04 . Road surface markings; Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated ( for redirecting vehicles [E01F 15/00](#) )
- E01F 9/041 . . { Selection of materials for road surface marking, e.g. wheel-grip improving additives, reflecting particles ( specially adapted for kerbs [E01F 9/053](#), for playing grounds [A63C 19/06](#); reflecting or signal paints [C09D 5/004](#) ); Methods of forming, installing or applying markings in, on or to paving ( [E01F 9/047](#), [E01F 9/053](#), [E01F 9/06](#) take precedence; devices therefor [E01C](#) ) }
- E01F 9/042 . . . { Preformed markings, e.g. materials for sheets or signs, methods of bonding same to road surface ( traffic line tapes [E01F 9/083](#) ) }
- E01F 9/044 . . . { Reflecting elements specially adapted for incorporation in or application to road surface marking materials, sheets or tapes ( reflectors for individual road surface markers [E01F 9/06](#) ) }

- E01F 9/045      ..      { Upright or projecting signs or signals permanently installed directly on or in the roadway and designed to be depressed by rolling or other loads and then to return to normal position, e.g. collapsible or rockable stop signs, flexible vehicle-striking members for audible warning ( [E01F 9/07](#), [E01F 13/10](#) take precedence ) }
- E01F 9/047      ..      specially adapted for audible or vibrational signalling, e.g. rumble strips { across a lane }, or for enforcing reduced speed, e.g. speed bumps { ( [E01F 9/045](#), [E01F 9/053](#), [E01F 13/10](#) take precedence ) }
- E01F 9/053      ..      Kerbs or road edgings, specially adapted for informing road users, e.g. illuminated
- E01F 9/0533      ...      { Raised kerbs, e.g. reflective facings, traffic-actuated cleaning means for kerb reflectors; Signs or display means specially for association therewith, e.g. for indicating street names ( [E01F 9/0536](#) takes precedence ) }
- E01F 9/0536      ...      { Illuminated kerbs; Kerbs with illuminated signs or displays ( illuminated traffic lines [E01F 9/085](#) ) }
- E01F 9/06      ..      Traffic studs; Marking blocks { like individual road surface markers, e.g. buttons, flaps ( [E01F 9/083](#) takes precedence ); Methods of forming or installing same in or on the road surface ( devices therefor [E01C](#) ); Protecting same during road maintenance work; Reflectors specially for individual road surface markers; Illuminated low-built traffic guiding, warning or controlling bodies, e.g. of mushroom or dome type }
- E01F 9/065      ...      { illuminated; Illuminated low-built road traffic guiding, warning or controlling bodies, e.g. of mushroom or dome type ( illuminated bollards [E01F 9/0165](#) ) }
- E01F 9/07      ...      having deflectable or displaceable parts, with or without return to original position, e.g. flexible flaps
- E01F 9/073      ....      { designed to descend or deform under load essentially vertically downwards into the road or a housing, with or without concurrent rotational movement, while biased to raised position }
- E01F 9/076      ....      { Self-righting, upright flexible or rockable markers, e.g. resilient flaps bending over ( depressible road surface signs or flexible vehicle-striking members for audible warning [E01F 9/045](#) ) }
- E01F 9/08      ..      Traffic lines, { e.g. edge lines ( flush kerbs or edge strips specially adapted for traffic guidance [E01F 9/053](#) ); Methods of forming, installing or applying same in, on or to the road ( devices therefor [E01C 23/16](#) ); Traffic lane separators }
- E01F 9/081      ...      { formed in situ, e.g. painted on or cast into the road, made by sculpturing the surface ( [E01F 9/085](#), [E01F 9/087](#) take precedence; materials therefor [E01F 9/041](#) ) }
- E01F 9/083      ...      { consisting of preformed elements, e.g. tapes, block-type elements specially designed or arranged to make up a traffic line ( [E01F 9/085](#), [E01F 9/087](#), [E01F 9/093](#) take precedence; studs, blocks or like markers per se [E01F 9/06](#) ) }
- E01F 9/085      ...      { Illuminated traffic lines ( [E01F 9/093](#) takes precedence ) }
- E01F 9/087      ...      Lane delineators for physically separating traffic lanes and discouraging but not preventing crossing { ,e.g. low barriers for channelling traffic ( [E01F 9/093](#) takes precedence; insurmountable lane-separating barriers [E01F 15/006](#), [E01F 15/02](#) ) }
- E01F 9/093      ...      movable for repeated use at different locations { ,e.g. shiftable lines, line location transferable by selective illumination, retractable lane delineating posts ( [E01F 15/006](#) takes precedence; retractable posts [E01F 9/019](#) ) }
- E01F 11/00      { Road engineering aspects of } **Embedding pads or other sensitive devices in paving or other road surfaces** { e.g. traffic detectors, vehicle-operated pressure-sensitive actuators, devices for monitoring atmospheric or road conditions } ( pressure-sensitive elements [G01L](#); traffic control systems [G08G](#) )
- E01F 13/00      **Arrangements for obstructing or restricting traffic, e.g. gates, barricades ( for**

railway crossings [B61L](#) ); { Preventing passage of vehicles of selected category or dimensions ( [E01F 13/12](#), [E01F 13/126](#) take precedence ) }

- E01F 13/02 . free-standing; { portable, e.g. for guarding open manholes ( [E01F 9/012](#) takes precedence ); Portable signs or signals specially adapted for fitting to portable barriers }
- E01F 13/022 . . { Pedestrian barriers; Barriers for channelling or controlling crowds ( [E01F 13/024](#), [E01F 13/028](#) take precedence; corrals [E04H 17/18](#) ) }
- E01F 13/024 . . { Removable barriers with permanently installed base members, e.g. to provide occasional passage ( [E01F 13/028](#), [E01F 15/12](#) take precedence ) }
- E01F 13/026 . . . { Detachable barrier bollards or parking posts ( portable signs co-operating with permanent base [E01F 9/013](#) ) }
- E01F 13/028 . . { Flexible barrier members, e.g. cords; Means for rendering same conspicuous; Adapted supports, e.g. with storage reel }
- E01F 13/04 . movable to allow or prevent passage { ( [E01F 13/12](#), [E01F 15/12](#) take precedence; removing part of barrier for occasional passage [E01F 13/024](#); gates for allowing passage through fences [E06B 11/02](#) ) }
- E01F 13/042 . . { for controlling access to an individual parking space ( [E01F 13/026](#), [E01F 13/046](#), [E01F 13/065](#), [E01F 13/085](#) take precedence ) }
- E01F 13/044 . . { the barrier being formed by obstructing members situated on, flush with, or below the traffic surface, e.g. with inflatable members on the surface ( [E01F 13/08](#), [E01F 13/10](#) take precedence; retractable speed humps [E01F 9/047](#) ) }
- E01F 13/046 . . . { the obstructing members moving up in a translatory motion, e.g. telescopic barrier posts ( for lane control [E01F 9/093](#) ) }
- E01F 13/048 . . { with obstructing members moving in a translatory motion, e.g. vertical lift barriers, sliding gates ( [E01F 13/04C2](#), [E01F 13/105](#) take precedence ) }
- E01F 13/06 . . by swinging into open position about a { vertical or } horizontal axis parallel to the road direction, i.e. swinging gates
- E01F 13/065 . . . { specially adapted for individual parking spaces }
- E01F 13/08 . . by swinging into closed position about a transverse axis situated in the road surface, e.g. tiltable sections of the road surface, tiltable parking posts
- E01F 13/085 . . . { specially adapted for individual parking spaces }
- E01F 13/10 . Vehicle barriers specially adapted for allowing passage in one direction only
- E01F 13/105 . . { depressible by right-way traffic, e.g. pivotally; actuated by wrong-way traffic ( type-disabling elements [E01F 13/123](#) ) }
- E01F 13/12 . for forcibly arresting or disabling vehicles, e.g. spiked mats
- E01F 13/123 . . { depressible or retractable below the traffic surface, e.g. one-way spike barriers, power-controlled prong barriers }
- E01F 13/126 . . { Pitfall barriers, causing the vehicle to face a step-like obstruction }
- E01F 15/00** **Safety arrangements for slowing, redirecting or stopping errant vehicles, e.g. guard posts or bollards; Arrangements for reducing damage to roadside structures due to vehicular impact** ( arrangements for fastening signs or signals to safety barriers or the like [E01F 9/03](#); for forcibly arresting vehicles [E01F 13/00](#); { guard barriers on road-bridges [E01D 19/103](#); fences in general [E04H 17/00](#) } )
- E01F 15/003 . { Individual devices arranged in spaced relationship, e.g. buffer bollards ( spaced



wall-type modules [E01F 15/08](#) )}

- E01F 15/006 . { Lane control by movable lane separating barriers, e.g. shiftable barriers, retractable kerbs ( [E01F 15/12](#) takes precedence; by crossable lane separators [E01F 9/093](#) ); Apparatus or barriers specially adapted therefor, e.g. wheeled barriers ( wall-type modules [E01F 15/08](#) ) }
- E01F 15/02 . Continuous barriers extending along roads or between traffic lanes ( crossable-lane separators { [E01F 9/087](#) } )
- E01F 15/025 .. { Combinations of at least two of the barrier member types covered by [E01F 15/04](#) to [E01F 15/08](#), e.g. rolled steel section or plastic strip backed up by cable, safety kerb topped by rail barrier }
- E01F 15/04 .. essentially made of longitudinal beams or rigid strips { supported above ground at spaced points ( [E01F 15/10](#), [E01F 15/12](#) take precedence ) }
- E01F 15/0407 ... { Metal rails ( [E01F 15/0446](#) and [E01F 15/0453](#) take precedence ) }
- E01F 15/0415 .... { with pivoting members }
- E01F 15/0423 .... { Details of rails ( [E01F 15/0415](#) takes precedence ) }
- E01F 15/043 ..... { with multiple superimposed members; Rails provided with skirts }
- E01F 15/0438 .... { Spacers between rails and posts, e.g. energy-absorbing means ( [E01F 15/0415](#) takes precedence ) }
- E01F 15/0446 ... { Concrete rails ( [E01F 15/0476](#) takes precedence; safety kerbs or walls [E01F 15/08](#) ) }
- E01F 15/0453 ... { Rails of materials other than metal or concrete, e.g. wood, plastics; Rails of different materials, e.g. rubber-faced metal profiles, concrete-filled steel tubes ( [E01F 15/0476](#) takes precedence; reinforced concrete rails [E01F 15/0446](#) ) }
- E01F 15/0461 ... { Supports, e.g. posts ( roadside posts in general [E01F 9/011](#) ) }
- E01F 15/0469 .... { Covers, e.g. of ground surface around the foot }
- E01F 15/0476 ... { Foundations }
- E01F 15/0484 ... { Installing; Repairing; Adjusting }
- E01F 15/0492 ... { Provisions for guiding in combination with rails, e.g. tire-gutters }
- E01F 15/06 .. essentially made of cables, nettings or the like ( [E01F 15/10](#), [E01F 15/12](#) take precedence; protection against falling rocks [E01F 7/04](#); arresting gear for aircraft [B64F 1/02](#) )
- E01F 15/065 ... { the barrier members being made of essentially non-metallic materials, e.g. naturel or synthetic fibres or webbing }
- E01F 15/08 .. essentially made of walls or wall-like elements ( [E01F 15/10](#), [E01F 15/12](#) take precedence ); { Cable-linked blocks }
- E01F 15/081 ... { characterised by the use of a specific material }
- E01F 15/083 .... { using concrete }
- E01F 15/085 .... { using metal }
- E01F 15/086 .... { using plastic, rubber or synthetic materials }
- E01F 15/088 ... { Details of element connection }
- E01F 15/10 .. portable, e.g. for temporary use { not used }
- E01F 15/12 .. and having means for providing occasional passage, e.g. for emergency vehicles
- E01F 15/14 . specially adapted for local protection, e.g. for bridge piers, for traffic islands
- E01F 15/141 .. { for column or post protection }

- E01F 15/143      ..      { Protecting devices located at the ends of barriers ( [E01F 15/145](#) takes precedence ) }
- E01F 15/145      ..      { Means for vehicle stopping using impact energy absorbers }
- E01F 15/146      ...      { fixed arrangements }
- E01F 15/148      ...      { mobile arrangements }