

EEC 94/20/EC APPROVED KINGPINS

All Capus EEC approved Kingpin Assemblies have been tested in Germany by RWTuV. The tests include a simulated life test - 2 million cycles at the approved 'D' value loadings.

In addition to the dynamic tests, the manufacturing processes have also been approved, both at the forging and machining facilities.

Capus also has continuing on-going tests. Our kingpins are used by a leading European coupling manufacturer, to test their 5th wheel couplings. Some Capus kingpins have exceeded the basic life test by over 20 times.

There is no minimum 'D' value for kingpins specified in the EEC Directive, and therefore this has to be calculated by the trailer builder, knowing all the loadings etc. to the following formula:-

$$'D' = 9.81 \frac{x 0.6 x \text{Max. Tractor Weight} x \text{Max. Trailer Weight}}{\text{Max. Tractor Weight} + \text{Max. Trailer Weight} - \text{Imposed Load Thro' Kingpin}}$$

For example:- At 38t gross combination weight:-

$$'D' = \frac{9.81 x 0.6 x 20 x 31}{20 + 31 - 12} = 93.6\text{kN}$$

Or at 44t G.C.W.

$$'D' = \frac{9.81 x 0.6 x 22 x 37}{22 + 37 - 14} = 106.5\text{kN}$$

Capus have a range of kingpin assemblies to suit various 'D' values

CAP136 / CAP194 = 108kN

CAP303 = 152kN

CAP262 = 165kN

CAP273 = 180kN

KINGPIN FITTING INSTRUCTIONS

Kingpins are a very safety critical part of a semi-trailer.

Capus kingpins are manufactured and tested to the highest standards. The attachment of the kingpin to the trailer must also be to the highest standards.

The trailer rubbing plate must be seamless and flat, it should completely cover the fifth wheel coupling. The reinforcing of the rubbing plate around the kingpin area should be designed in accordance with the 'D' value of the kingpin and the design loadings of the trailer.

It is recommended that the rubbing plate should be manufactured from MSt 37-2 or St52-3 material with maximum tolerances on the thickness of 0.3mm.

Welding of the kingpin assemblies and or the backplates can be done by MAG - C or stick electrodes using a suitable TuV approved wire/electrode. To achieve a flat mounting the welding should be carried out in quarter opposite segments (6mm min. fillet - 3 runs), ensuring any weld splashes are cleaned off.

All mounting bolts/nuts must be tightened to the correct torque setting and should be checked after an initial settling in period (1 week) and then rechecked at each service.

Before use, the kingpin must be greased thoroughly, using longlife high pressure grease with a graphite or molybdenum additive.

All Capus kingpins are marked with part number reference, material specification code, week of manufacture code and where applicable - approval numbers, 'D' rating etc..

KINGPIN IDENTIFICATION

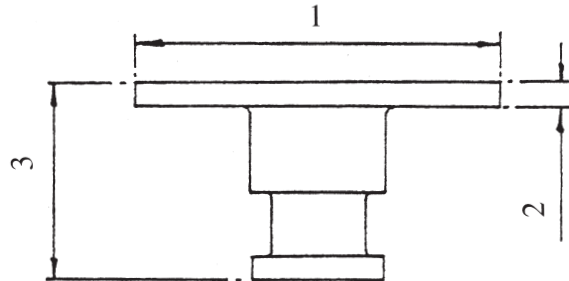
BOLT-UNDER TYPES

There have been many makes and types of 2" 'Bolt-under' kingpin (the type that bolts up into a backplate/retention plate, which is welded to the trailer rubbing plate).

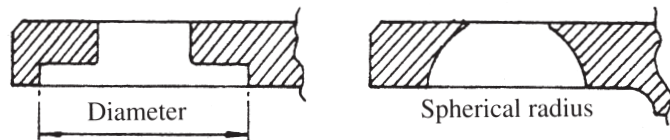
Some are interchangeable and some are definitely not interchangeable - it is therefore very important to identify the correct replacement kingpin.

First establish the make and part number, marked on the kingpin and use a cross reference list to identify the correct Capus replacement part number. If there are no marks or they are illegible, then measure the critical dimensions and check the type of fixing bolts, against the chart below.

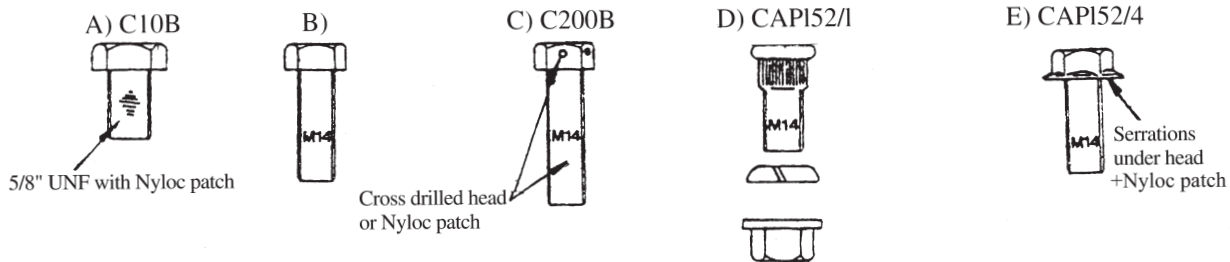
1. Flange Diameter
2. Flange Thickness
3. Overall Height of kingpin



4. Counterbore



5. Fixing Bolts



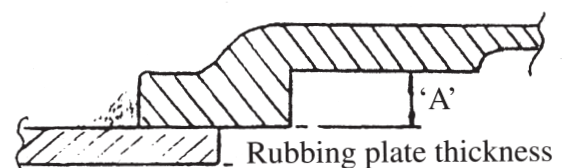
	108 CAP 108 Int. 313	113 CAP 113	DAVIES	200 CAP 200 Trailer	136 CAP 107 old TUV type	CAP194,303 151 304 TuV EEC TYPE	262 CAP 263 EEC type
1. Flange Diameter	197.9	200	198	197.9	200	200	200
2. Flange Thickness	10	12	11	12	13	13	13
3. Overall Height	101.4	107.5	102.3	101.4	108.7	108.7	108.7
4. Counterbore (Dia.)	38	38	35	32	Spherical Radius	None	None
5. Bolt Type	A	A	B	C	D	E	E

TuV = German type approved kingpin

BACKPLATES

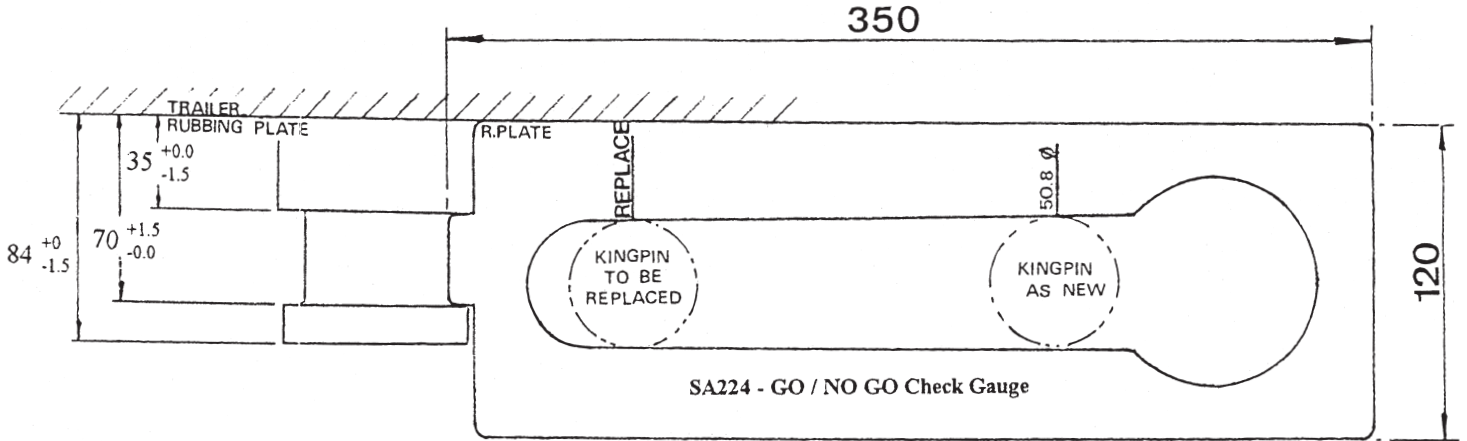
Some backplates are stamped with the part number or a colour code which indicates the thickness of trailer rubbing plate it is designed to be welded to, this is not the depth of machining (see below)

PART No.	TRAILER RUBBING PLATE THICKNESS	COLOUR CODE	DIMN. 'A'
CAP108/8 & CAP306/8	8mm	White	10
CAP 108/10 & CAP306/10	10mm	Blue	8
CAP112/8 & CAP307/8	8mm	White	16
CAP112/10 & CAP307/10	10mm	Blue	14
CAP112/12 & CAP307/12	12mm	Yellow	12
CAP106/8 / CAPCAP302/8	8mm	White	17.5
CAP155/8 & CAP305/8	8mm	White	17.5
CAP106/10 & CAP302/10	10mm	Blue	15.5
CAP155/10 & CAP305/10	10mm	Blue	15.5
CAP106/12 & CAP302/12	12mm	Yellow	13.5
CAP155/12 & CAP305/12	12mm	Yellow	13.5



MAINTENANCE RECOMMENDATIONS

When fitted to the trailer, the kingpin must be within the dimensions shown. The maximum wear on the diameters should not be more than 1.8/2mm. Therefore the minimum diameters allowable should be 50.8 pin = 49mm and 73mm upper shoulder - 71mm.



All nuts bolts on new trailers should be checked after the first week and first month to ensure the correct torque settings.

The kingpin must be kept free from contamination and thoroughly greased at all times with clean high pressure grease, with a graphite or molybdenum additive.

EVERY SIX MONTHS / 40,000km

Clean off the kingpin and inspect for wear, scoring, cracks, or fractures etc. and if OK re-grease thoroughly.

If excessive wear, or faults are found the kingpin must be replaced before the next journey.

Check torque setting of retaining nuts/bolts.

It is recommended that the kingpin retaining nuts/bolts are replaced each time a kingpin is removed. To ensure these bolts/nuts do not foul the 5th wheel, it is important the correct type are fitted.

SPARE PARTS & TORQUE SETTINGS

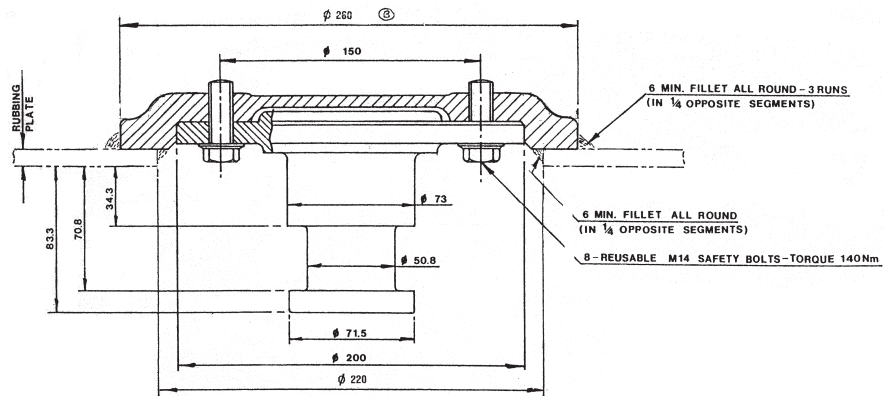
Capus Assy. Number	Capus Kingpin Part No.	Replacement Bolt Set	Torque Setting
CAP136	CAP107	CAP152/1	125Nm
—	CAP108	C10B	140Nm
—	CAP113	C10B	140Nm
CAP194	CAP151	CAP152/4	125Nm
—	CAP200	C200B	125Nm
CAP209	CAP208	CAP152/4	125Nm
CAP210	CAP212	CAP212B	390Nm
—	CAP217	CAP217B	390Nm
CAP259	CAP258	CAP152/1	125Nm
CAP262	CAP263	CAP152/4	140Nm
SA273	CAP273	CAP152/4	185Nm
CAP303	CAP304	CAP152/4	180Nm

2" (50mm) DIN SPECIFICATION KINGPINS TO BS AUlc - 1989; SMMT 37; DIN 74080; I.S.O. 337; SAE; BNA; RDW STANDARDS E.E.C. - 94/20/EC

DIN SPECIFICATION STEEL - 50Cr Mo4

This high quality steel with a strength of 1000 N/mm² (64 tons/in²) combined with a high Brinell hardness gives a high strength, high quality machine finish to withstand higher friction and loadings. These high 'D' value kingpins are heat treated after machining and are supplied with a noticeable 'grey' colour to indicate this.

CAP 262 - 2" KINGPIN ASSEMBLY

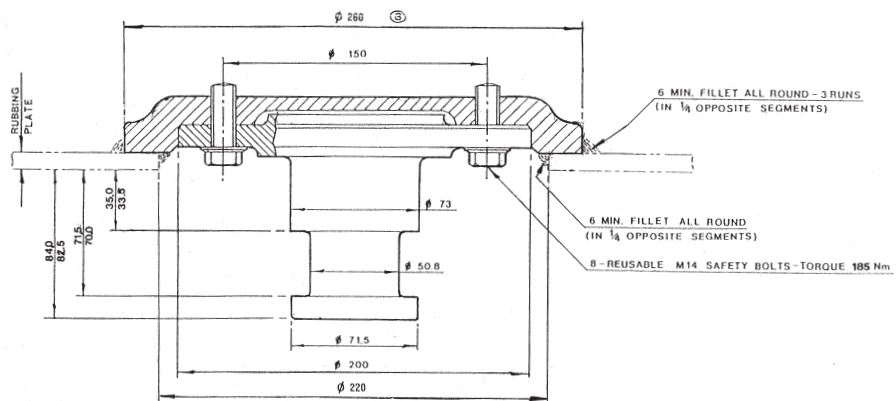


EEC (German TuV) Approval No. 94/20 0261

'D' VALUE - 165kN

KINGPIN	-	CAP263	
BACKPLATE	-	CAP305/12	- For 12mm Rubbing Plate
BACKPLATE	-	CAP305/10	- For 10mm Rubbing Plate
BACKPLATE	-	CAP305/8	- For 8mm Rubbing Plate
BOLT SET	-	CAP152/4	- 8 Bolts

SA 273 - 2" KINGPIN ASSEMBLY



'D' VALUE (Tested by RWTuV - Essen) - 180kN

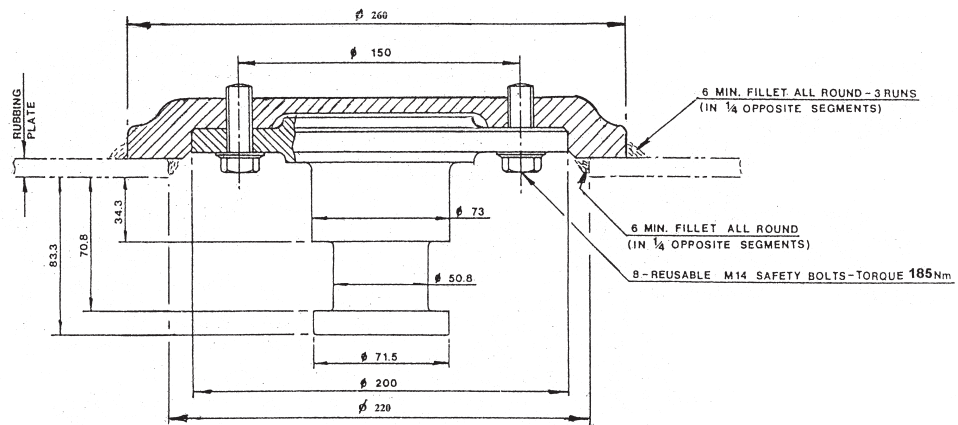
KINGPIN	-	CAP273	
BACKPLATE	-	CAP305/12	- For 12mm Rubbing Plate
BACKPLATE	-	CAP305/10	- For 10mm Rubbing Plate
BACKPLATE	-	CAP305/8	- For 8mm Rubbing Plate
BOLT SET	-	CAP152/4	- 8 Bolts

2" (50mm) DIN SPECIFICATION KINGPINS TO BS AUlc - 1989; SMMT 37; DIN 74080; I.S.O. 337; SAE; BNA; RDW STANDARDS E.E.C. - 94/20/EC

DIN SPECIFICATION STEEL - 50Cr Mo4

This high quality steel with a tensile strength of 900 N/mm² (58 tons/in²) combined with a high Brinell hardness gives a high strength, high quality machined finish to withstand higher friction and loadings.

CAP 303 - 2" KINGPIN ASSEMBLY

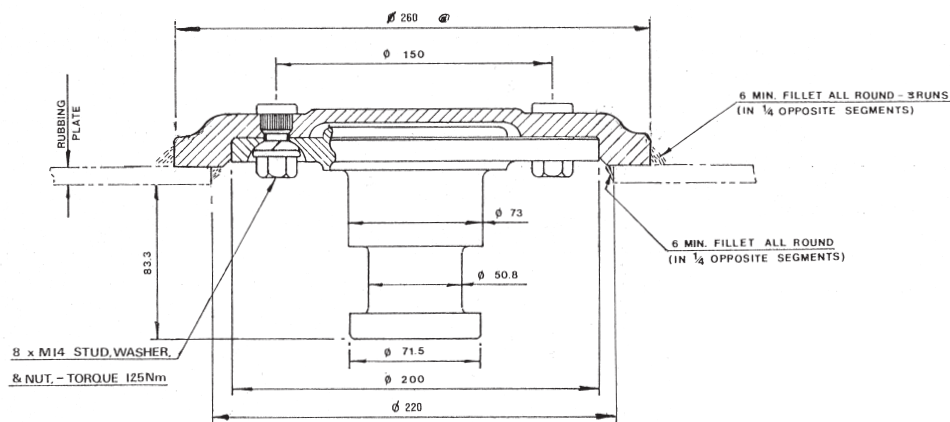


EEC Approval No. 94/20 3942 00

'D' VALUE - 152kN

KINGPIN	-	CAP304	-	(S/S CAP151)
BACKPLATE	-	CAP305/12	-	For 12mm Rubbing Plate
BACKPLATE	-	CAP305/10	-	For 10mm Rubbing Plate
BACKPLATE	-	CAP305/8	-	For 8mm Rubbing Plate
BOLT SET	-	CAP152/4	-	8 Bolts

CAP 136 - 2" KINGPIN ASSEMBLY

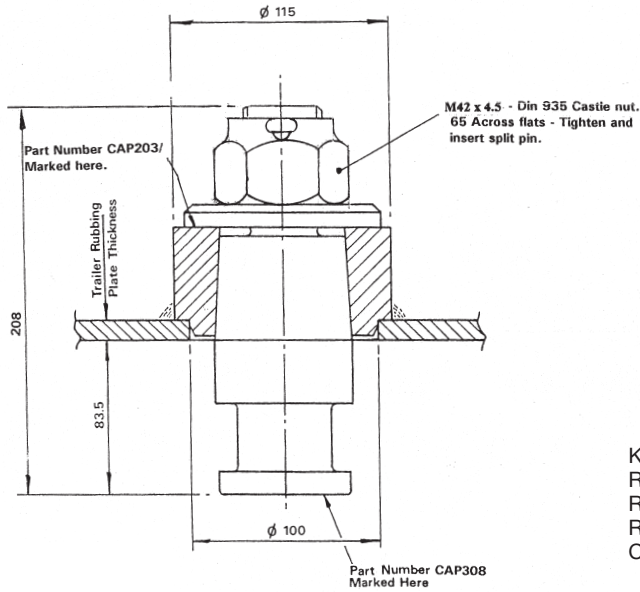


EEC Approval No. 94/20 0262
TuV Type Approval No. F4072

'D' VALUE - 108kN

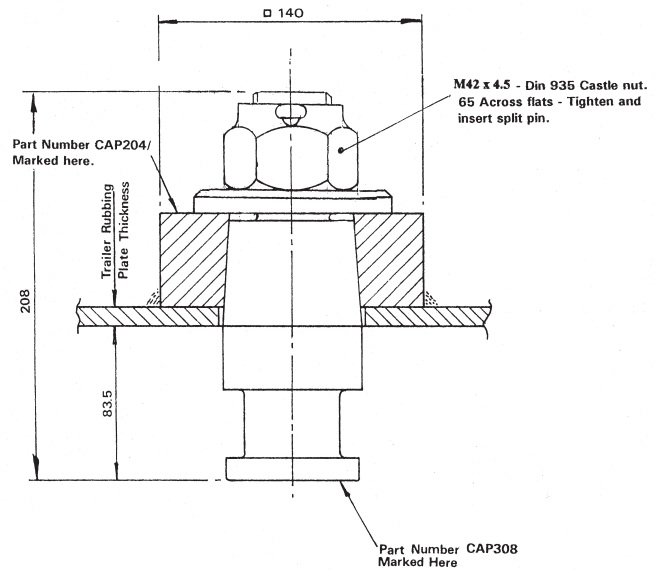
KINGPIN	-	CAP107	-	
BACKPLATE	-	CAP106/12 or CAP302/12	-	For 12mm Rubbing Plate
BACKPLATE	-	CAP106/10 or CAP302/10	-	For 10mm Rubbing Plate
BACKPLATE	-	CAP106/8 or CAP302/8	-	For 8mm Rubbing Plate
BOLT SET	-	CAP152/1	-	8 Bolts, Nuts and Washers

CAP 309 - 2" TAPER SHANK KINGPIN ASSEMBLY



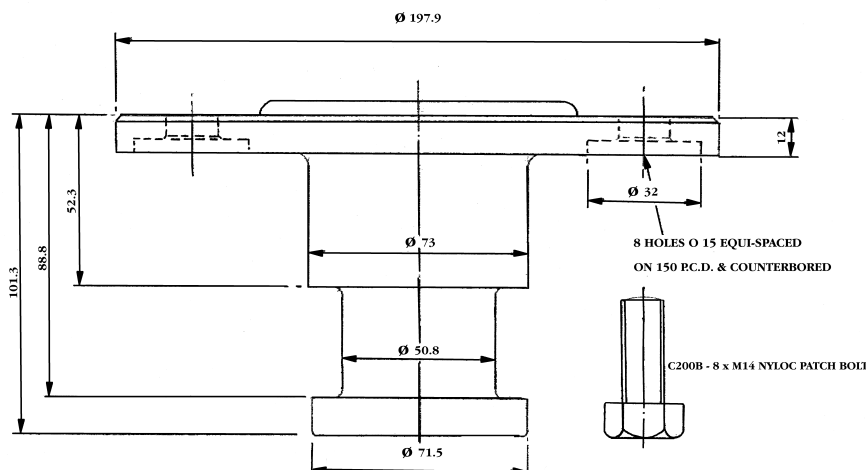
- | | | | |
|-----------------------|---|-----------|--------------------------|
| KINGPIN, NUT & WASHER | - | CAP308 | |
| ROUND RETAINER | - | CAP203/12 | - For 12mm Rubbing Plate |
| ROUND RETAINER | - | CAP203/10 | - For 10mm Rubbing Plate |
| ROUND RETAINER | - | CAP203/8 | - For 8mm Rubbing Plate |
| CALCULATED 'D' VALUE | - | 152KN | |

CAP 310 - 2" TAPER SHANK KINGPIN ASSEMBLY



- | | | | |
|-----------------------|---|-----------|--------------------------|
| KINGPIN, NUT & WASHER | - | CAP308 | |
| SQUARE RETAINER | - | CAP204/12 | - For 12mm Rubbing Plate |
| SQUARE RETAINER | - | CAP204/10 | - For 10mm Rubbing Plate |
| SQUARE RETAINER | - | CAP204/8 | - For 8mm Rubbing Plate |
| CALCULATED 'D' VALUE | - | 152KN | |

CAP 200 - 2" KINGPIN ASSEMBLY



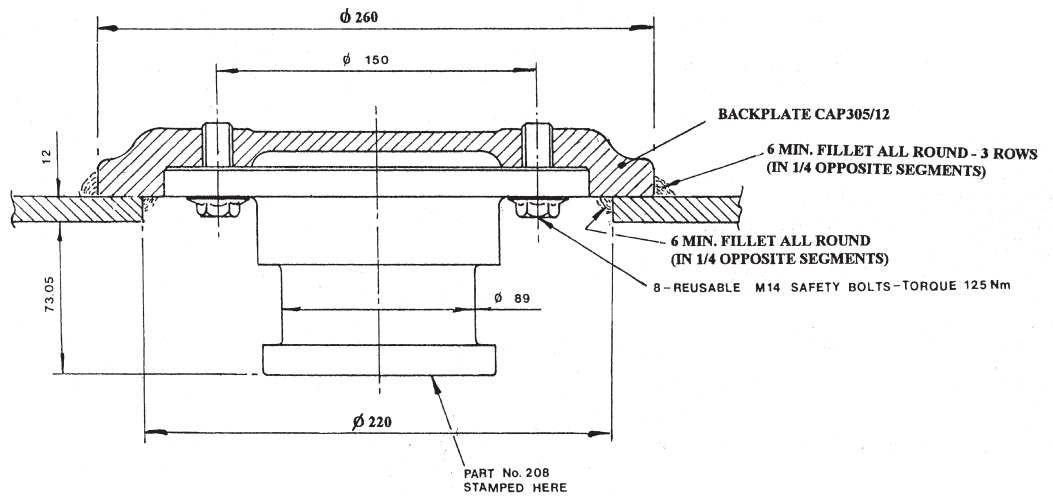
- | | | | |
|----------|---|--------|-----------|
| KINGPIN | - | CAP200 | |
| BOLT SET | - | C200B | - 8 Bolts |

3.5" (89mm) DIN SPECIFICATION KINGPINS TO MEET B.S. AU2a-1970; SMMT 55; DIN 74083; I.S.O. 4086; SAE; BNA; RDW STANDARDS

DIN SPECIFICATION STEEL - 50Cr Mo4

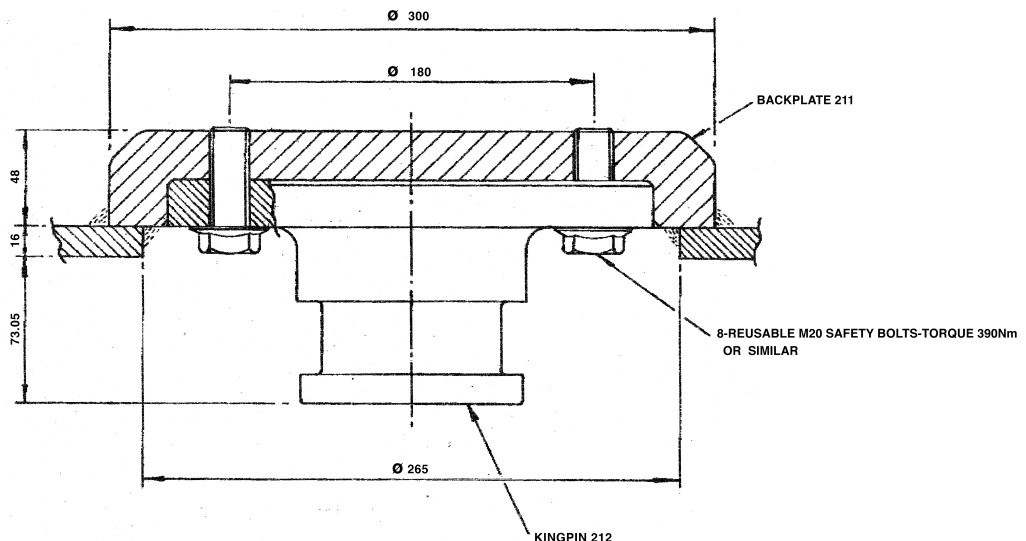
This high quality steel with a tensile strength of 900 N/mm² (58 tons/in²) combined with a high Brinell hardness gives a high strength, high quality machined finish to withstand higher friction and loadings.

CAP209 - 3.5" (89) KINGPIN ASSEMBLY



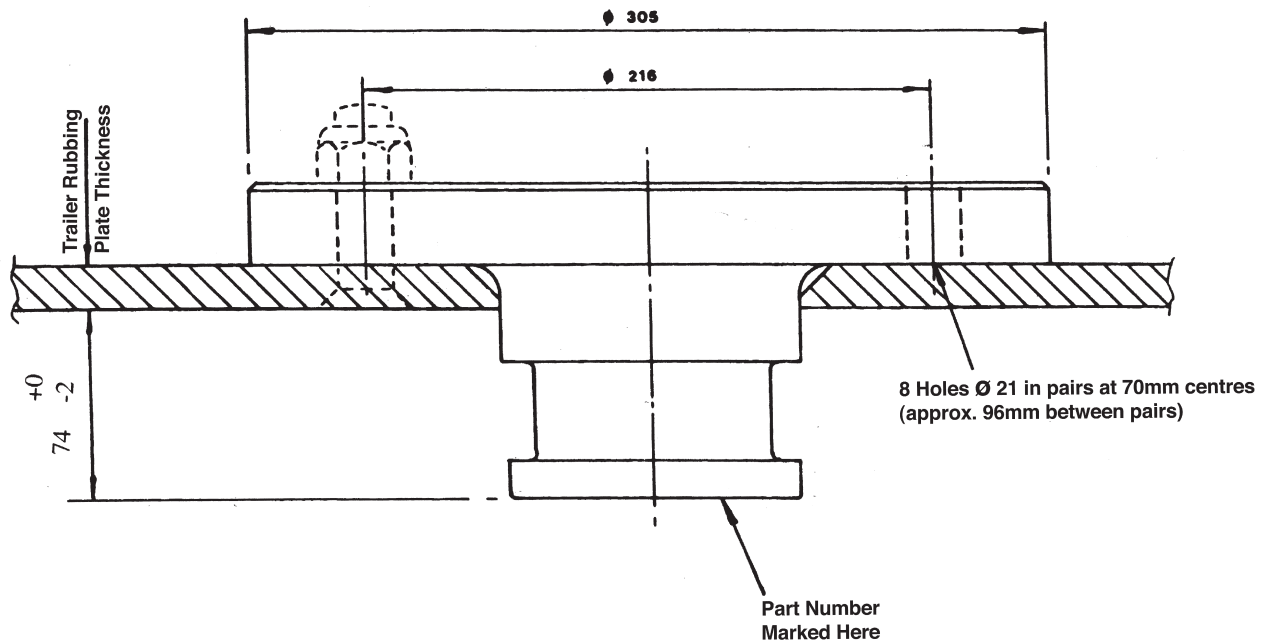
KINGPIN - CAP208
 BACKPLATE - CAP305/12 - For 12mm Rubbing Plate
 BOLT SET - CAP152/4 - 8 Bolts
 CALCULATED 'D' VALUE - 165KN

CAP 210 - 3.5" (89) KINGPIN ASSEMBLY



KINGPIN - CAP212
 BACKPLATE - CAP211 - For 16mm Rubbing Plate
 BOLT SET - CAP212B - 8 Bolts
 KINGPIN 2" - CAP279
 CALCULATED 'D' VALUE - 280KN

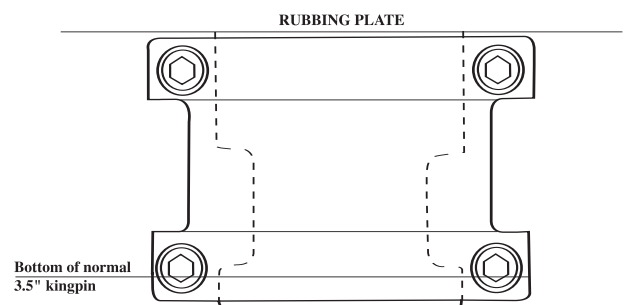
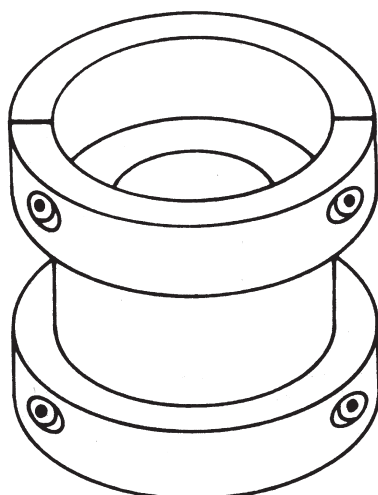
CAP 217 - 3.5" (89) BOLT-IN KINGPIN



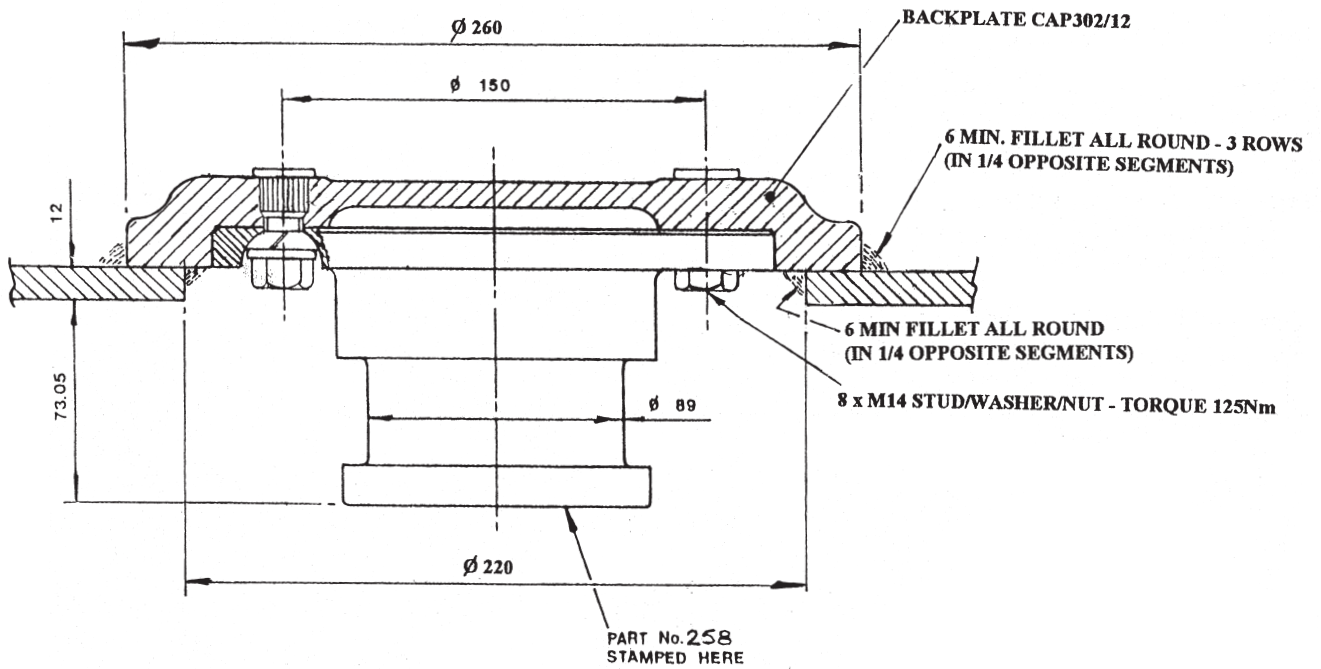
- | | | |
|----------------------|---|--|
| CAP217/13 KINGPIN | - | For 13mm Rubbing Plate |
| CAP217/16 KINGPIN | - | For 16mm Rubbing Plate |
| CAP217/19 KINGPIN | - | For 19mm Rubbing Plate |
| CAP217B | - | BOLT SET - 8 Bolts (M20CSK.BOLT+NYLOC NUT) |
| CALCULATED 'D' VALUE | - | 250KN |

CAP 220 - ADAPTOR 2" (50mm) to 3.5" (89mm) KINGPINS

N.B. - This adaptor does not increase load capacity of 2" (50mm) Kingpin, and should only be used for handling operations, allowing trailer to be coupled to tractor unit with 3.5" (89mm) coupling.
Before using this adaptor it is essential to check that the fifth wheel coupling will accept the extra 10mm depth of a 2" (50.8) kingpin.

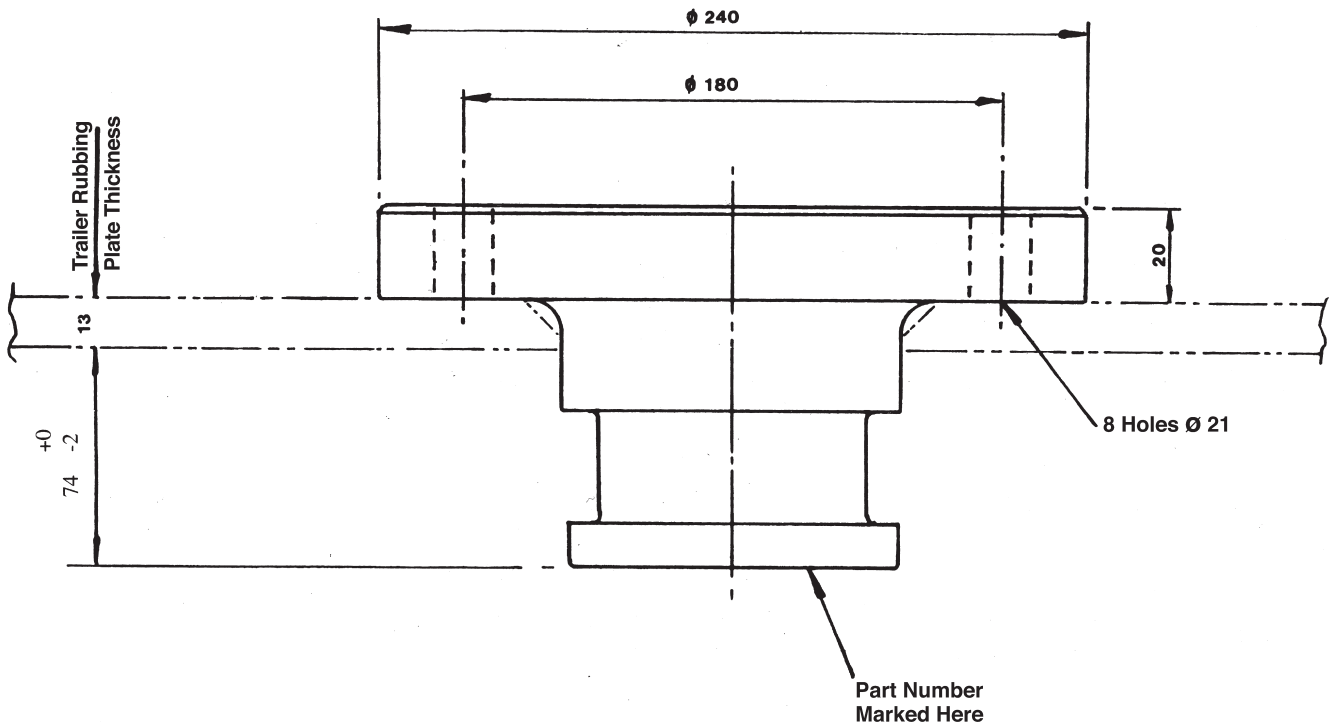


CAP 259 - 3.5" (89) KINGPIN ASSEMBLY



- | | | | |
|----------------------|---|------------------------|-----------------------------|
| KINGPIN | - | CAP258 | |
| BACKPLATE | - | CAP106/12 or CAP302/12 | - For 12mm Rubbing Plate |
| BOLT SET | - | CAP152/1 | - 8 Bolts, Nuts and Washers |
| CALCULATED 'D' VALUE | | | - 165KN |

CAP 261 - 3.5" (89) BOLT-IN KINGPIN



- | | | | |
|----------------------|---|---------|--------------------------|
| KINGPIN | - | CAP261 | - For 13mm Rubbing Plate |
| BOLT SET | - | CAP217B | (M20CSK.BOLT+NYLOC NUT) |
| CALCULATED 'D' VALUE | | | - 250KN |

2" (50mm) EN14B SPECIFICATION STEEL KINGPINS

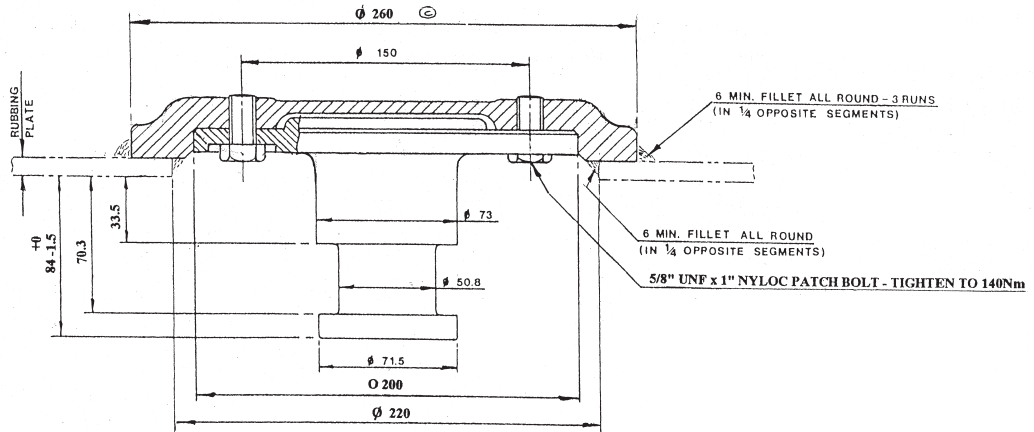
High quality steel with a tensile strength of 750N/mm² (49 tons/in²), and high Brinell hardness.

This material can be welded by most methods

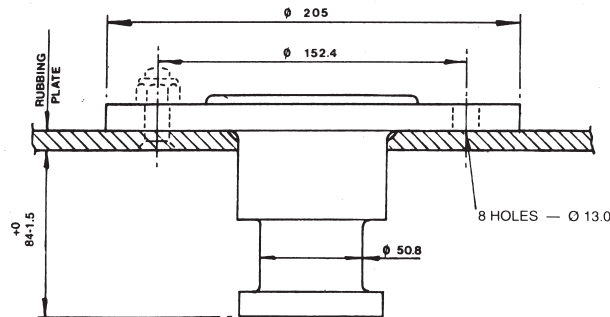
TO MEET:- BS AUIC - 1989, SMMT 37, DIN 74080, I.S.O. 337, SAE, BNA, RDW STANDARDS
CALCULATED 'D' VALUE 2" EN14B KINGPINS - 105KN,

CAP 112/113 - 2" KINGPIN ASSEMBLY

- KINGPIN - CAP113
- BACKPLATE - CAP112/12 or CAP307/12 - For 12mm Rubbing Plate
- BACKPLATE - CAP112/10 or CAP307/10 - For 10mm Rubbing Plate
- BACKPLATE - CAP112/8 or CAP307/8 - For 8mm Rubbing Plate
- BOLT SET - C10B - 8 Bolts

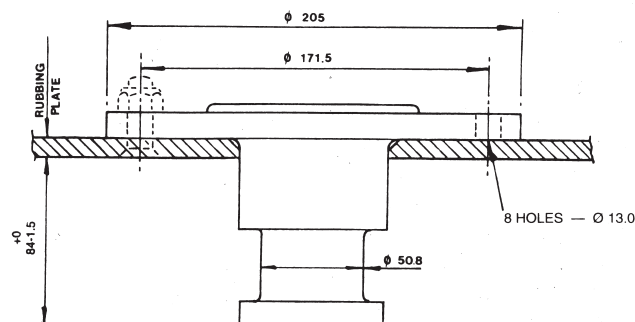


BOLT-IN 2" KINGPIN - 6" (152) PCD



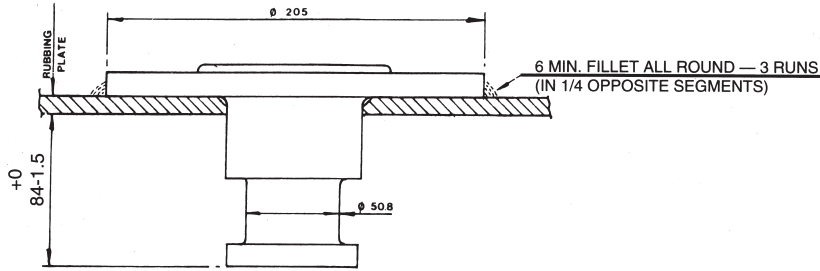
TRAILER RUBBING PLATE THICKNESS	KINGPIN PART NUMBER
8	CAP 114
10	CAP 193
BOLT SET - C9BA	

BOLT-IN 2" KINGPIN - 6 3/4" (171) PCD



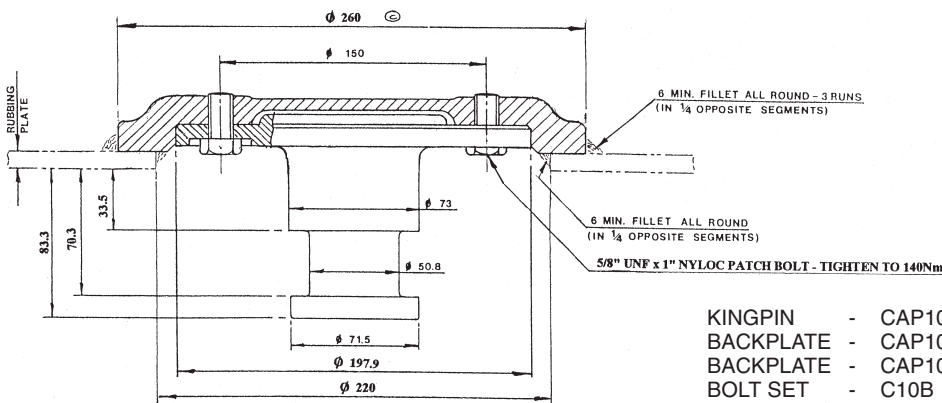
TRAILER RUBBING PLATE THICKNESS	KINGPIN PART NUMBER
8	CAP 102
10	CAP 101
12	CAP 110
BOLT SET - C9BA	

2" WELD IN KINGPIN



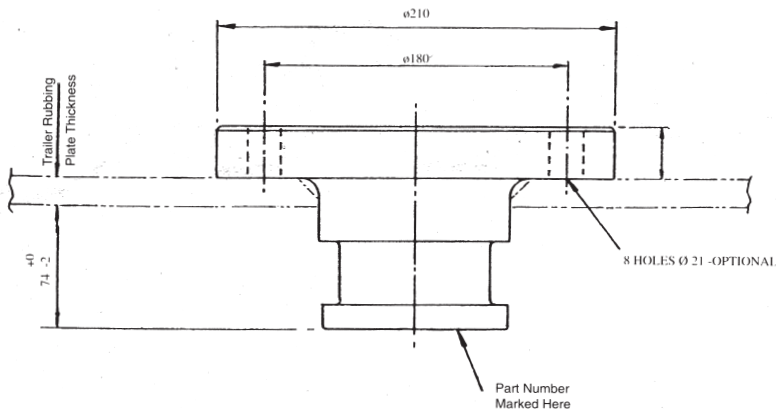
TRAILER RUBBING PLATE THICKNESS	KINGPIN PART NUMBER
6	CAP 245
8	CAP 104
10	CAP 103
12	CAP 109

CAP 108 - BOLT UNDER (313) 2" KINGPIN



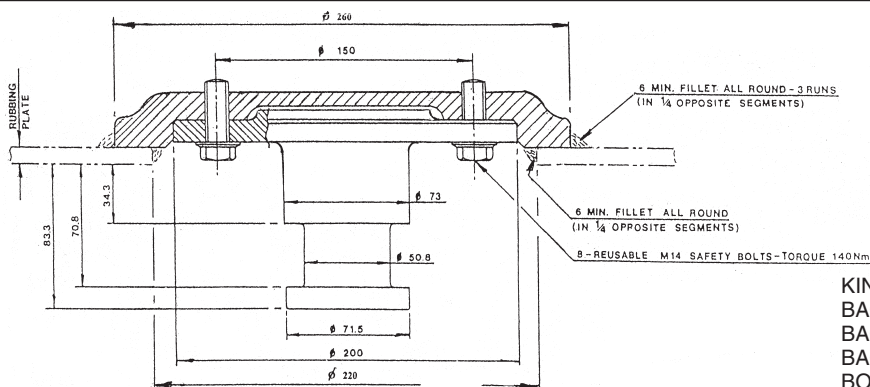
- KINGPIN - CAP108
- BACKPLATE - CAP108/10 or CAP306/10 - For 10mm Rubbing Plate
- BACKPLATE - CAP108/8 or CAP306/8 - For 8mm Rubbing Plate
- BOLT SET - C10B - 8 Bolts

CAP 284 - 3.5" (89) WELD IN/BOLT - IN KINGPIN



TRAILER RUBBING PLATE THICKNESS	KINGPIN PART NUMBER WELD IN	KINGPIN PART NUMBER BOLT IN
8	CAP 284/8	NOT AVAILABLE
10	CAP 284/10	CAP284/10BI
12	CAP 284/12	CAP284/12BI
16	CAP 284/16	CAP284/16BI
BOLT SET (IF REQUIRED) CAP217B		

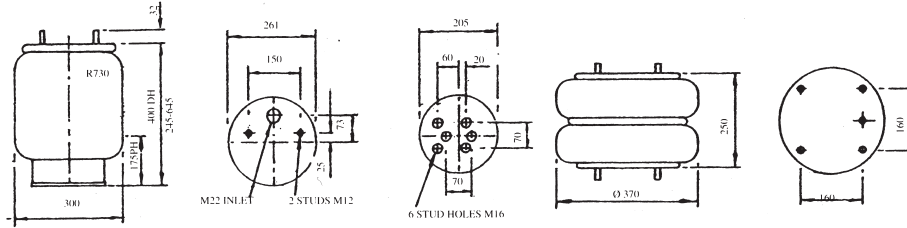
CAP 312 - 2" KINGPIN ASSEMBLY



- KINGPIN - CAP311
- BACKPLATE - CAP305/12 - For 12mm Rubbing Plate
- BACKPLATE - CAP305/10 - For 10mm Rubbing Plate
- BACKPLATE - CAP305/8 - For 8mm Rubbing Plate
- BOLT SET - CAP152/4 - 8 Bolts

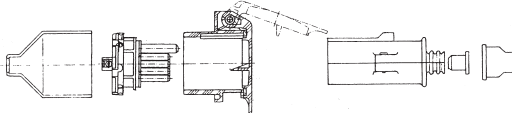
Other Capus O.E.M. Products include:-

Air Springs and Bellows

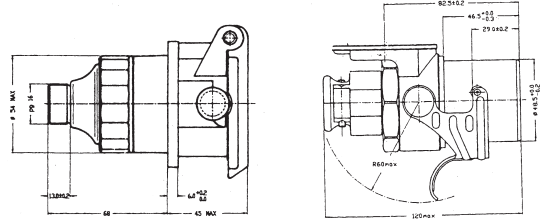


Electrical Connectors

24volt 'N' - I.S.O. 1185 }
 24volt 'S' - I.S.O. 3731 } ALUMINIUM OR POLYCARBONATE BODIES
 SCREW OR SPADE (FLAT 6.35) CONNECTION



24volt 15PIN - I.S.O./DIS 12098 SCREW CONNECTION
 24/12volt ABS - I.S.O. 7638 CRIMP OR SCREW CONNECTION
 24/12volt EBS - 7PIN CRIMP OR SCREW CONNECTION



12volt 'N' - I.S.O. 1724 }
 12volt 'S' - I.S.O. 3732 } ALUMINIUM OR THERMOPLASTIC BODIES
 SCREW OR SPADE (FLAT 6.35) CONNECTION
 12volt 13PIN - I.S.O. 11446 SCREW CONNECTION

Electrical Coils

LARGE DIAMETER

STANDARD SPECIFICATION - 6 x 1mm² = 1 x 1.5mm² WIRES.
 - 70mm INSIDE COIL DIAMETER - 3m OR 4m WORKING LENGTHS.
 - PLATED STEEL SPRING-GUARDS - ALUMINIUM OR POLYCARBONATE PLUGS.
 - 24v I.S.O. 1185 'N' OR I.S.O. 3731 'S' - 12v I.S.O. 1724 'N' OR I.S.O. 3732 'S'
 ALTERNATIVES - OUTER COLOURS - WIRE SIZES - WORKING LENGTHS - TAIL LENGTHS.

SMALL DIAMETER

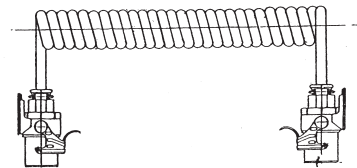
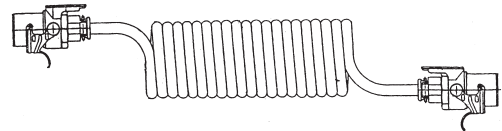
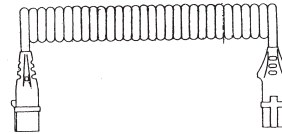
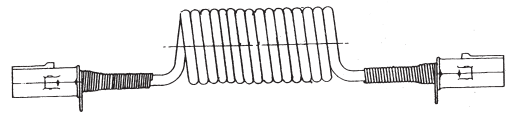
STANDARD SPECIFICATION - 6 x 1mm² + 1 x 1.5mm² WIRES.
 - 25mm INSIDE COIL DIAMETER - 3m, 3.5, 4m WORKING LENGTHS.
 - MOULDED 24v 'N' or 'S' PLUGS - 12v ALUMINIUM OR PLASTIC PLUGS.

ABS COILS

STANDARD SPECIFICATION - 3 x 1.5mm² + 2 x 4mm² WIRES.
 - 80mm INSIDE COIL DIAMETER - 3.5m OR 4.5m WORKING LENGTHS.
 - 40mm INSIDE COIL DIAMETER - 4m WORKING LENGTH.
 - 12v OR 24v PLUGS

EBS COILS

STANDARD SPECIFICATION - 5 x 1.5mm² + 2 x 4mm² WIRES.
 - 80mm INSIDE COIL DIAMETER - 3.5m OR 4.5m WORKING LENGTHS.
 - 40mm INSIDE DIAMETER - 4m WORKING LENGTH.



Reflectors

TRIANGULAR

07.900.00

BOLT-ON - 95 x 60

07.901.00 - RED

07.902.00 - AMBER

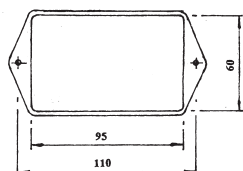
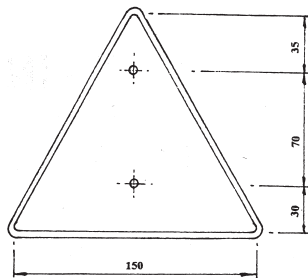
07.903.00 - WHITE/CLEAR

SELF ADHESIVE - 95 x 60

07.911.00 - RED

07.912.00 - AMBER

07.913.00 - WHITE/CLEAR

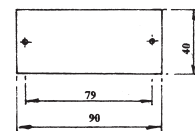


BOLT-ON - 90 x 40

07.907.00 - RED

07.908.00 - AMBER

07.909.00 - WHITE/CLEAR



SELF ADHESIVE - 90 x 40

07.917.00 - RED

07.918.00 - AMBER

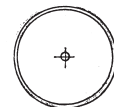
07.919.00 - WHITE/CLEAR

BOLT-ON - ø60

07.904.00 - RED

07.905.00 - AMBER

07.906.00 - WHITE/CLEAR



SELF ADHESIVE - ø60

07.914.00 - RED

07.915.00 - AMBER

07.916.00 - WHITE/CLEAR