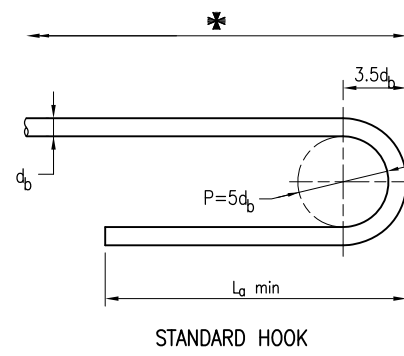
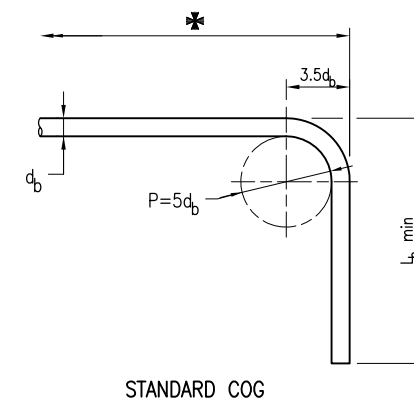


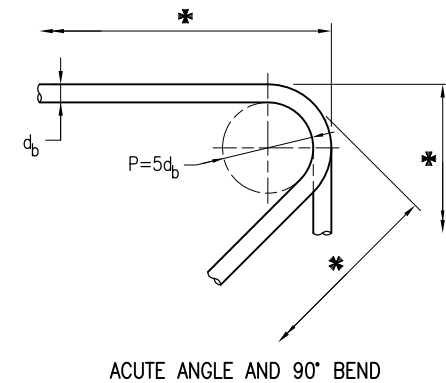
OBTUSE ANGLE BEND



STANDARD HOOK



STANDARD COG

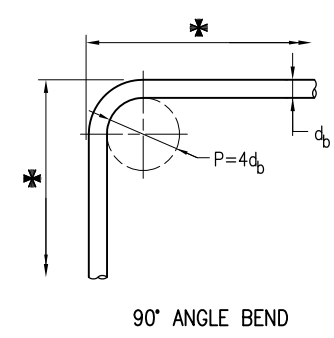


ACUTE ANGLE AND 90° BEND

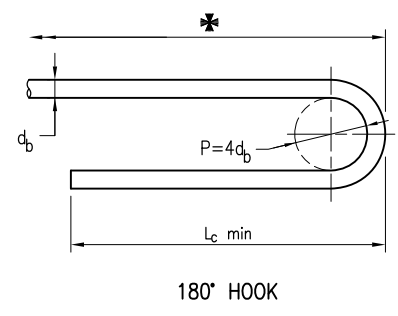
Standard Hook and Cog Dimensions for Reinforcing Bars

d_b	10	12	16	20	24	28	32	36	40
P	50	60	80	100	120	140	160	180	200
L_a	105	115	130	150	180	210	240	270	300
L_b	155	170	205	245	295	345	395	440	490

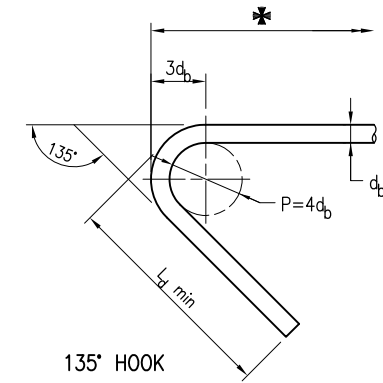
HOOK, COG AND BEND DETAILS FOR REINFORCING BARS
(Except Stirrups and Ligatures)



90° ANGLE BEND



180° HOOK

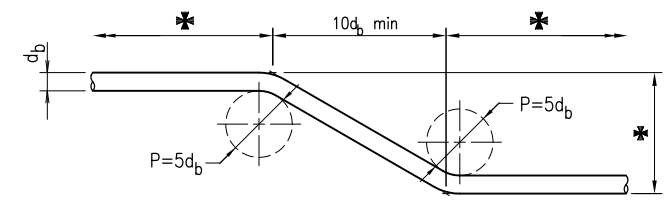


135° HOOK

Hook and Bend Dimensions for Stirrups, Ligatures or Ties (fitments)

d_b	10	12	16	20	24
P	40	48	64	80	96
L_c	100	110	120	140	170
L_d	120	130	150	180	215

HOOK AND BEND DETAILS FOR STIRRUPS, LIGATURES OR TIES (FITMENTS)



BEND DETAILS FOR CRANKED BARS
Refer Note 4

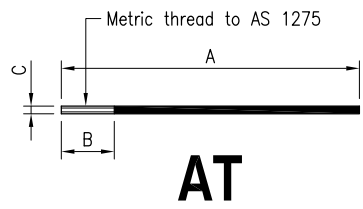
NOTES:

- SCOPE: This drawing is to detail standard bar shapes used by TMR and also the hooks, cogs and bends to be used. This Standard Drawing was developed in accordance with AS 5100.5. Hook, cog and bend details shown in this drawing do not apply to the following:
 - Structural elements built with slip form construction
 - Epoxy coated or galvanised bars, either before or after bending
 - Bends that are subsequently straightened or rebent
 - Bundled bars
 - Stainless steel reinforcement.
 Hooks, cogs and bends for any of the above shall be project specific design in accordance with AS 5100.5. Refer Standard Drawing 1044 for lapped splice lengths and general steel reinforcement information.
- REINFORCING STEEL shall be in accordance with MRTS71 and AS/NZS 4671. Deformed bars Grade D500N. Round bars Grade R250N. All reinforcing steel shall be ACRS certified.
- BAR SHAPE DIMENSIONS denoted by * in the details on this drawing are those labelled A, B, C, E, F, G, H, L shown on Drawings 2 to 4 of this Standard Drawing.
- PIN DIAMETER $P=5d_b$ shall be used for cranking of bars unless shown otherwise in the Steel Schedule. Measurements at bends are taken from the intersection of the lines along the outer faces of the bar.
- WELDING of reinforcement shall only be used where prior approval of the Project Administrator has been obtained and shall be carried out in accordance with MRTS71. Welding symbols to AS 1101.3. Welding of bar splices to AS/NZS 1554.3. All welds, except location tack welds, shall be SP category. Tack welding for location purposes to AS/NZS 1554.3. Welding shall not be carried out within L_e from any bent portion of the bar. Welding consumables shall be controlled hydrogen type: C49X to AS/NZS 14341-B or T49X to AS/NZS ISO 17632-B.
- DIMENSIONS are in millimetres.

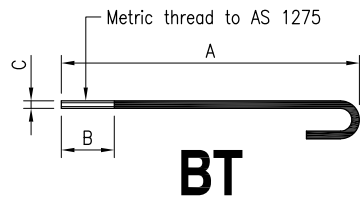
REFERENCED DOCUMENTS:
Departmental Standard Drawings:
1044 Reinforcing Steel – Lap Lengths

Departmental Specifications:
MRTS71 Reinforcing Steel

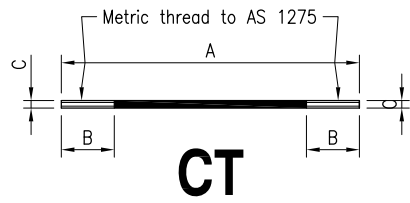
Department of Transport and Main Roads				© The State of Queensland (Department of Transport and Main Roads) 2018 http://creativecommons.org/licenses/by/3.0/au	
REINFORCING STEEL				A3	Standard Drawing No
STANDARD BAR SHAPES TYPICAL DETAILS AND NOTES		Not to Scale	1043		Date 3/18
DRAWING 1 OF 4					



AT

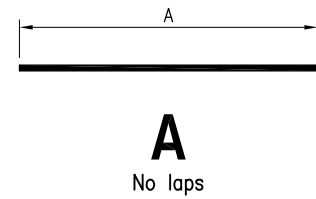


BT

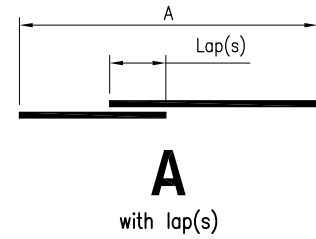


CT

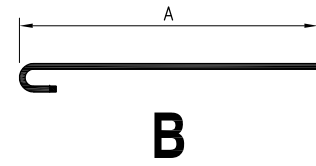
Bar Diameter	16	20	24	28	36	40
C (Thread Size)	M12	M16	M20	M24	M33	M36



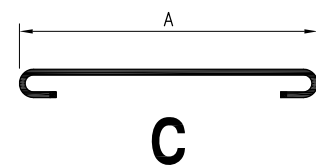
A
No laps



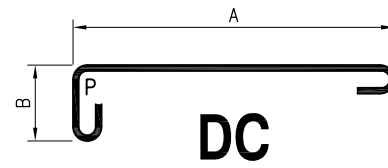
A
with lap(s)



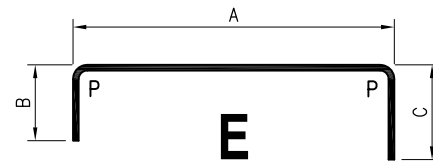
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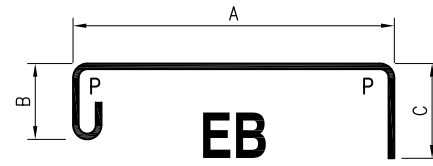
C



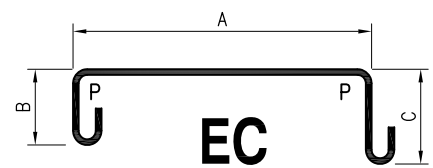
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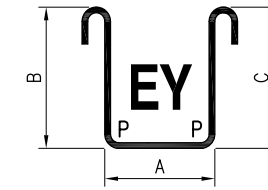
E



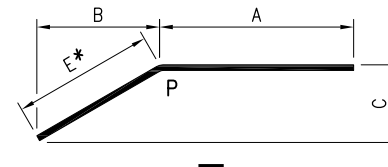
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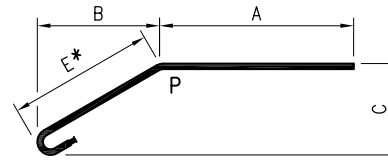
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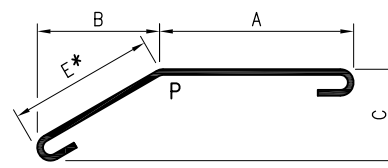
EY



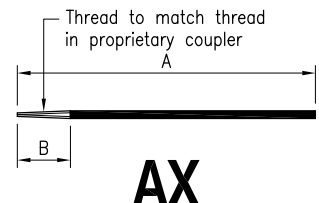
F



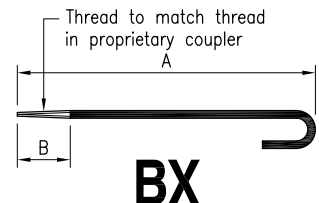
FB



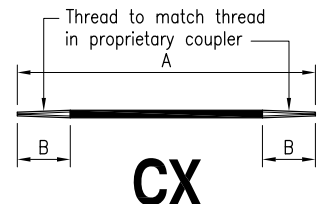
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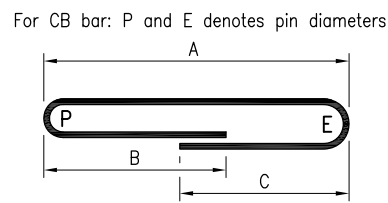
AX



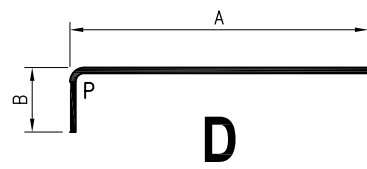
BX



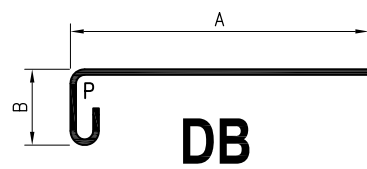
CX



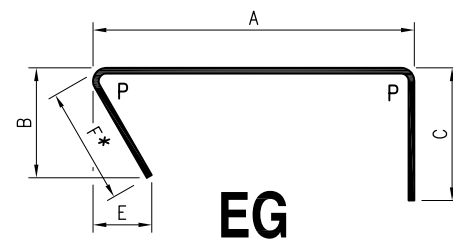
CB



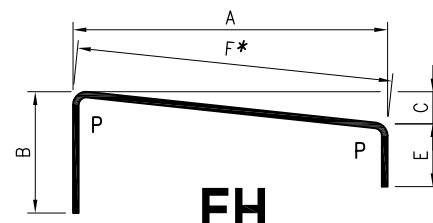
D



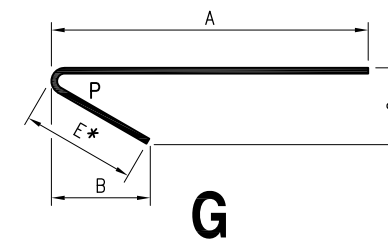
DB



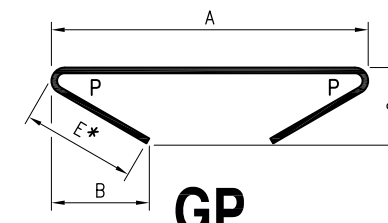
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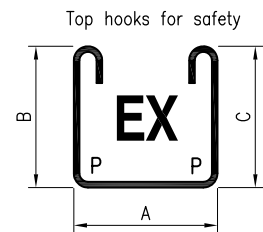
EH



G



GP



EX

For CB bar: P and E denotes pin diameters

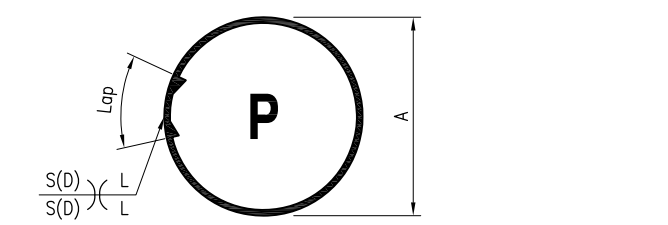
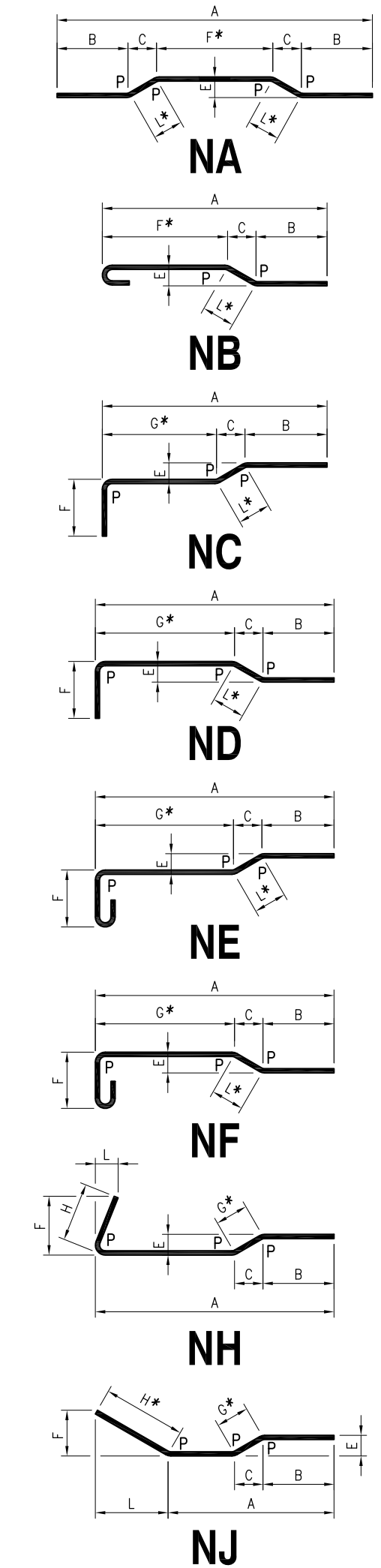
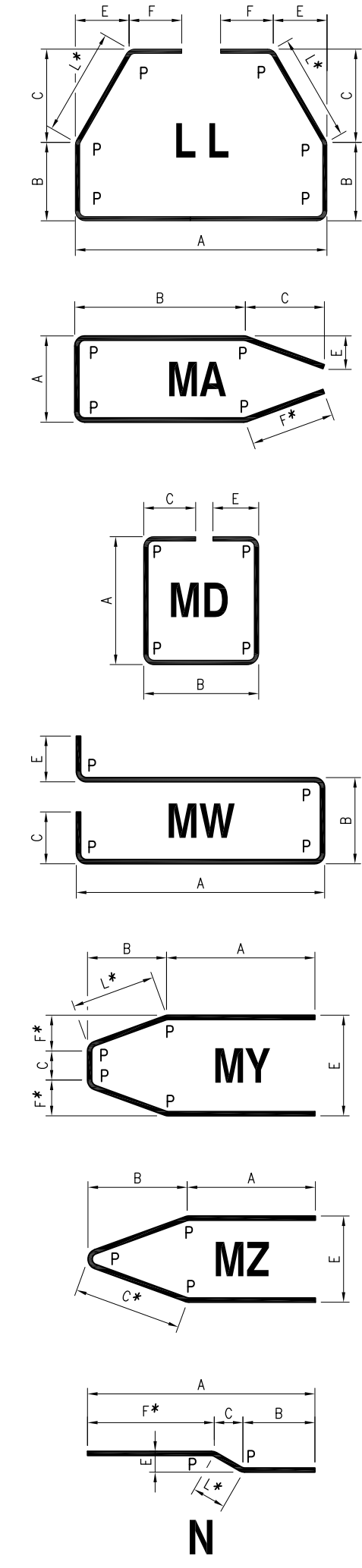
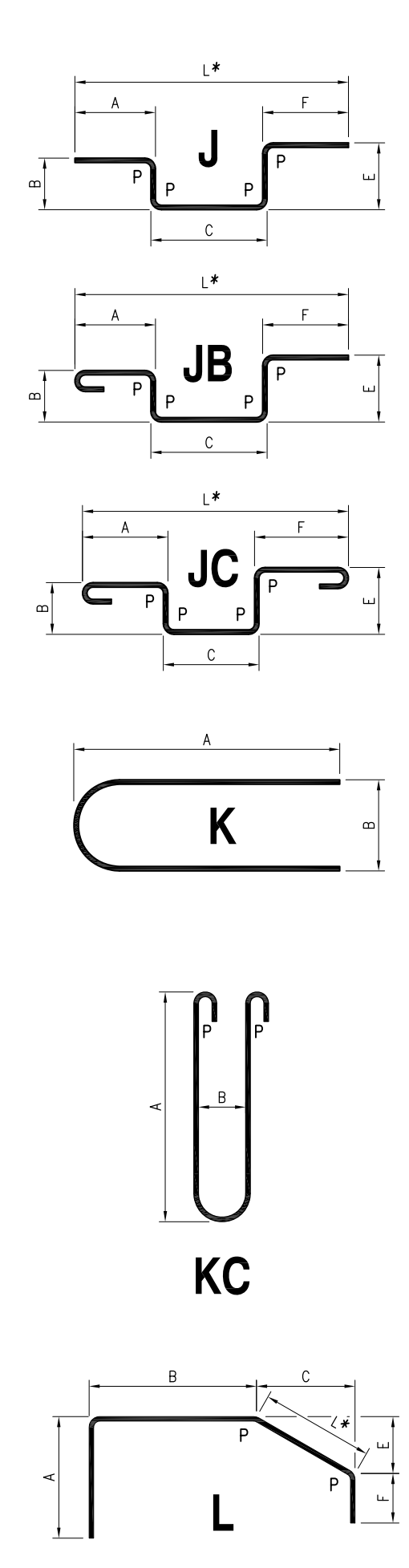
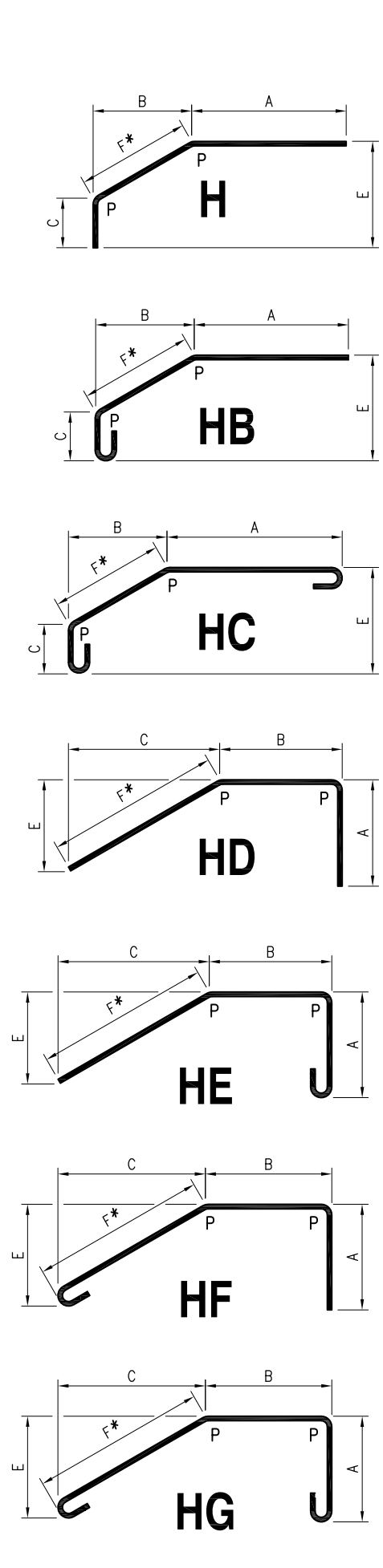
Top hooks for safety

P denotes pin diameter.
Dimensions marked thus * are calculated automatically by the Steel Schedule Program and are NOT to be entered on the data sheet.

NOTES:

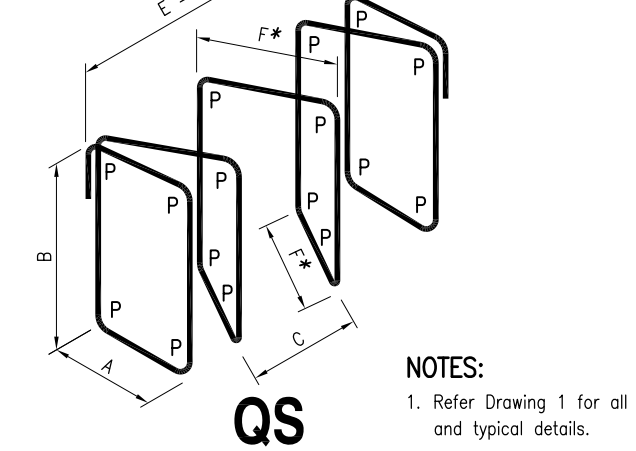
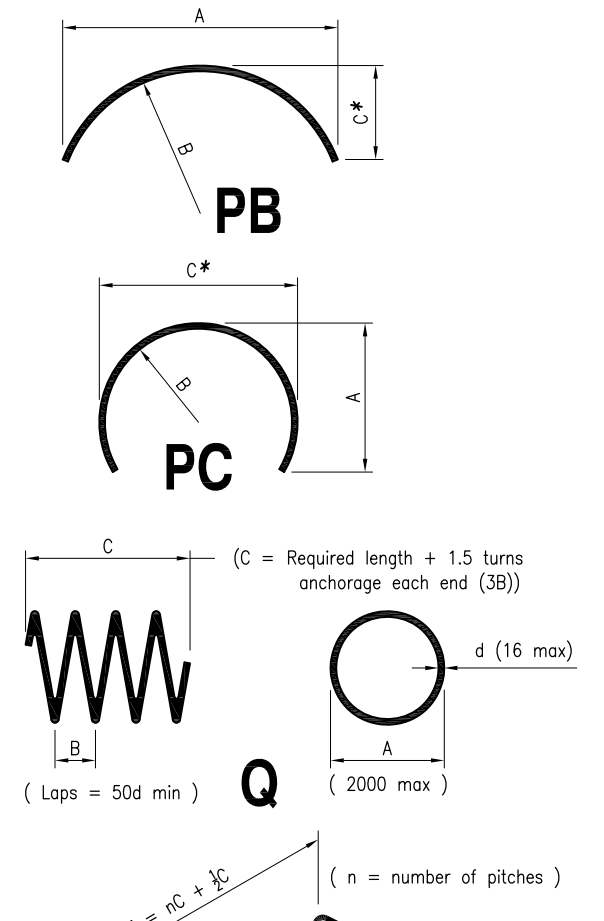
1. Refer Drawing 1 for all notes and typical details.

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REINFORCING STEEL				A3	Standard Drawing No
STANDARD BAR SHAPES		Not to Scale	1043		
DRAWING 2 OF 4			Date 3/18		



WELD TABLE

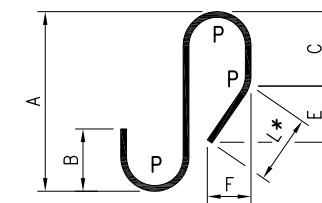
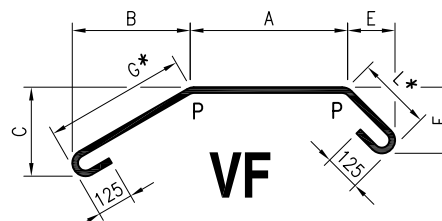
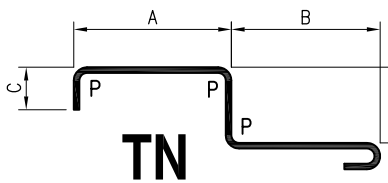
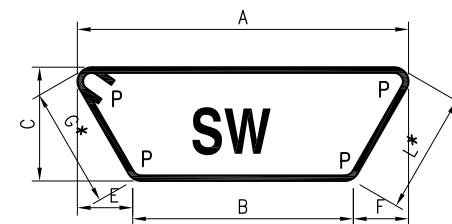
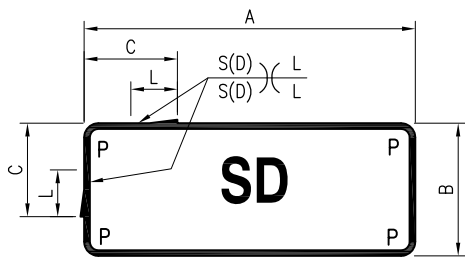
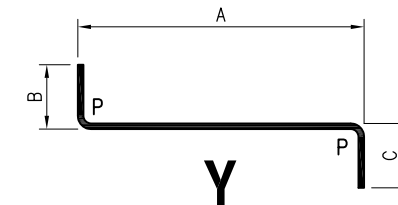
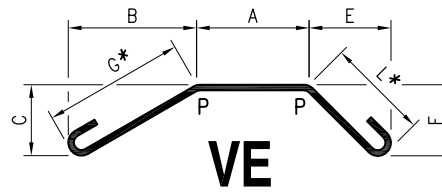
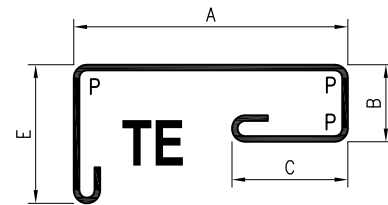
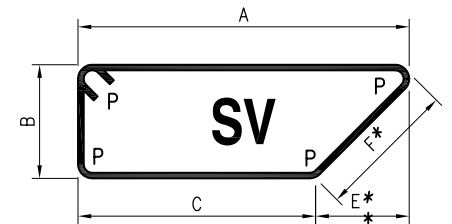
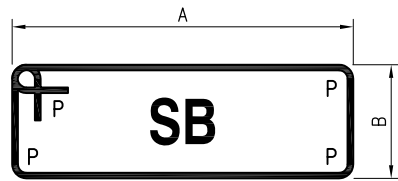
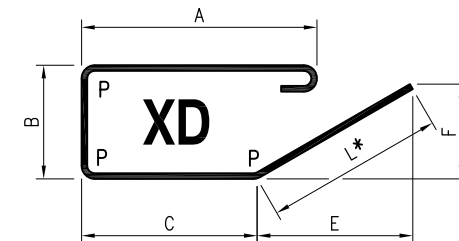
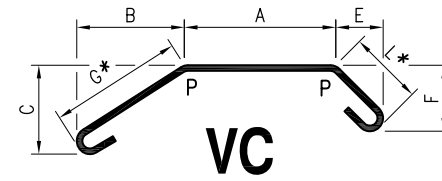
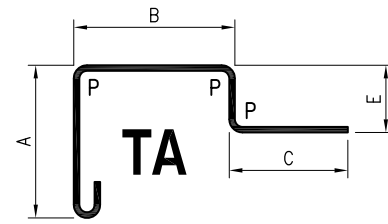
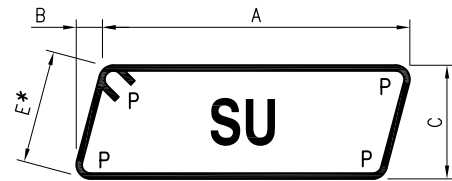
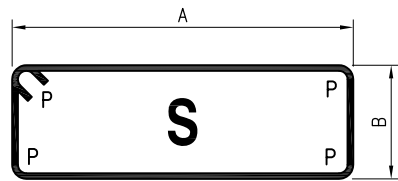
Bar Diameter	10	12	16	20	24
S	5	6	8	10	12
D	3	3	4	5	6
L	50	60	80	100	120



P denotes pin diameter.
Dimensions marked thus * are calculated automatically by the Steel Schedule Program and are NOT to be entered on the data sheet.

NOTES:
1. Refer Drawing 1 for all notes and typical details.

Department of Transport and Main Roads			
REINFORCING STEEL			
STANDARD BAR SHAPES		A3	Standard Drawing No
DRAWING 3 OF 4		Not to Scale	1043
			Date 3/18

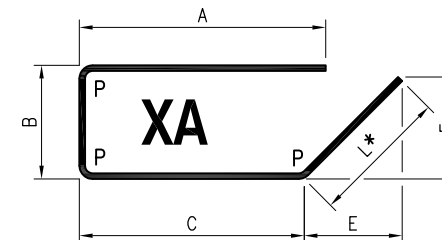
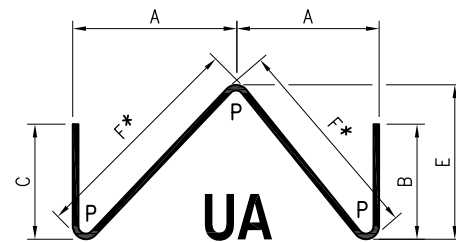
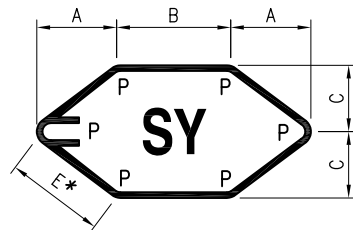
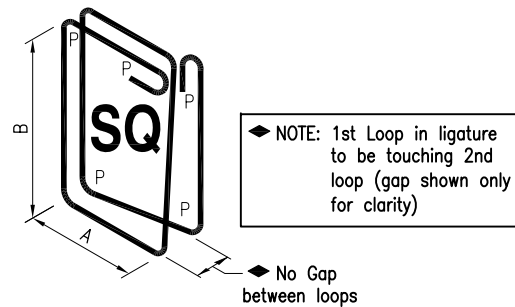
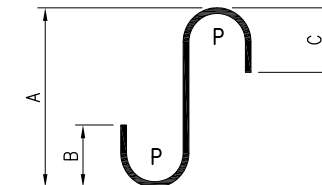
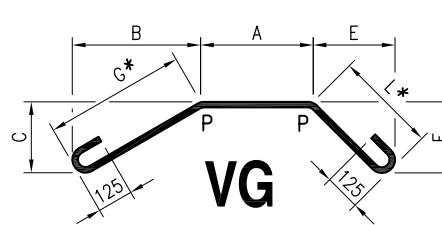
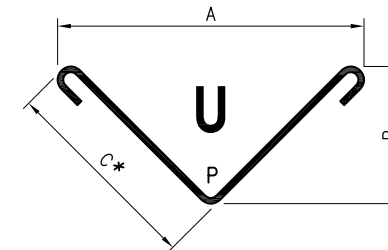
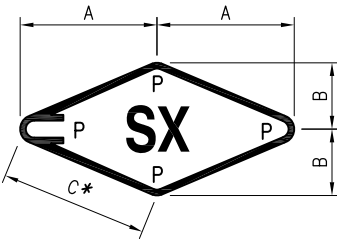


WELD TABLE §

Bar Diameter	10	12	16	20	24
C	110	140	180	220	270
S	5	6	8	10	12
D	3	3	4	5	6
L	50	60	80	100	120

§ Applicable to stirrups and ligatures with P = 4d.

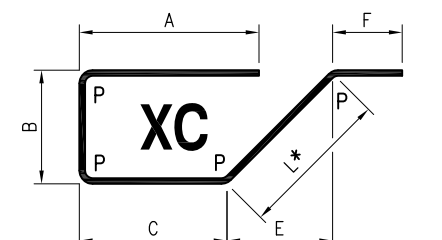
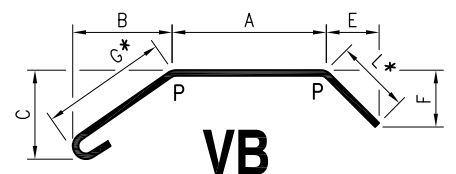
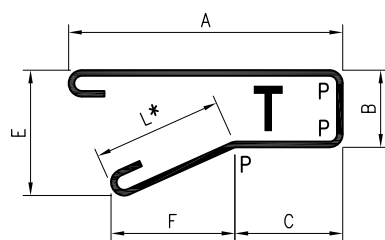
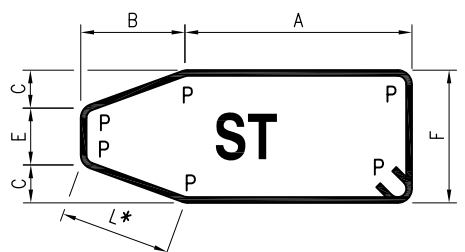
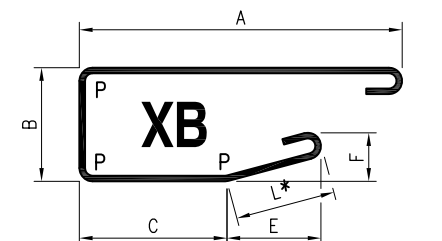
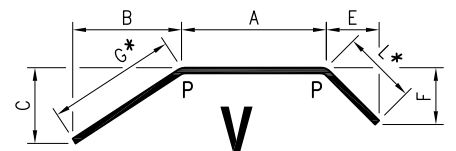
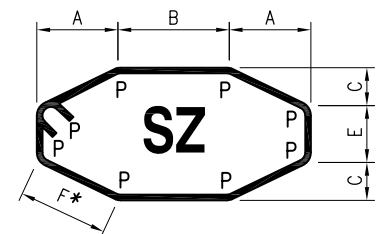
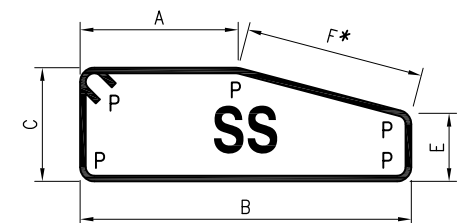
L denotes weld length



P denotes pin diameter.
Dimensions marked thus * are calculated automatically by the Steel Schedule Program and are NOT to be entered on the data sheet.

NOTES:

1. Refer Drawing 1 for all notes and typical details.



Department of Transport and Main Roads			
REINFORCING STEEL			
STANDARD BAR SHAPES		A3	Standard Drawing No
DRAWING 4 OF 4		Not to Scale	1043
			Date 3/18