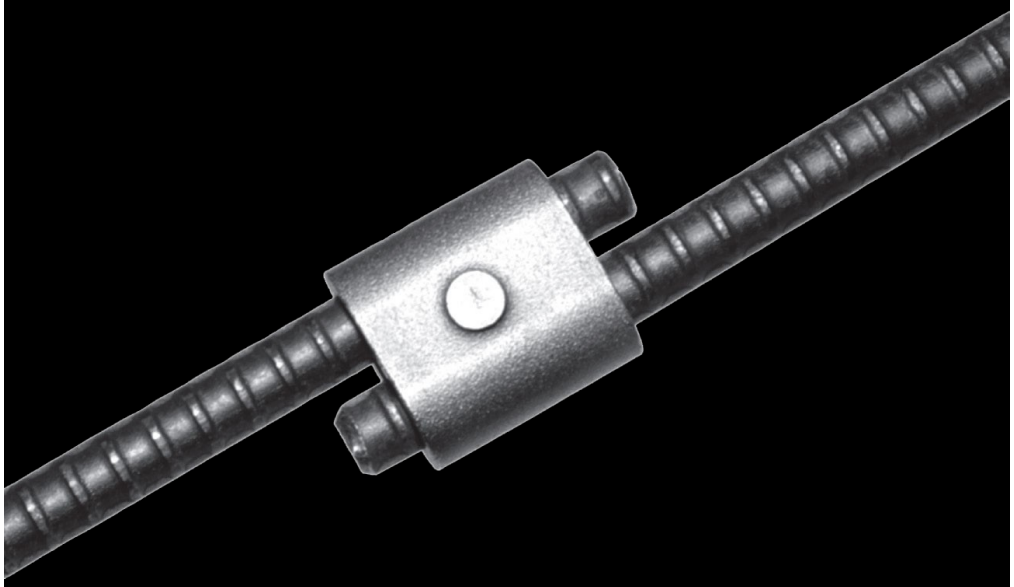
OCM

100 YEARS OF STRENGTH

MECHANICAL LAP SPLICING FOR REBARS

OS SPLICE CLIPS



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OS SPLICE CLIPS

PORTABLE, HYDRAULIC WEDGE-DRIVERS

OS Splice Clip Consists of

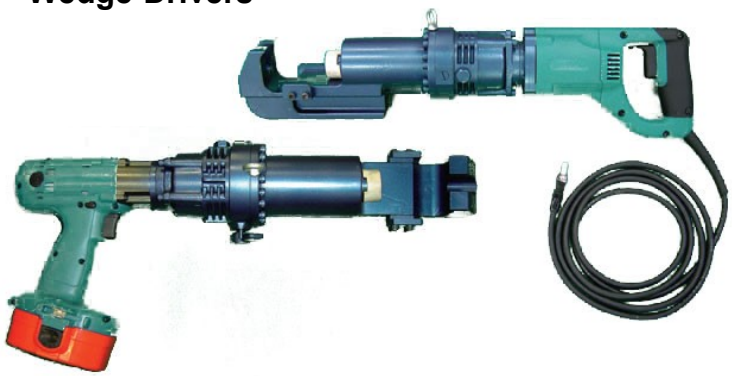
- An oval shaped steel sleeve with a wedge-hole
- A wedge pin

OS Clip Joint

Connection for Small Diameter Rebar

- The sleeve is positioned around two overlapping rebars.
- The wedge pin is driven into a wedge-hole with a portable hydraulic wedge-driver, and between the rebars.

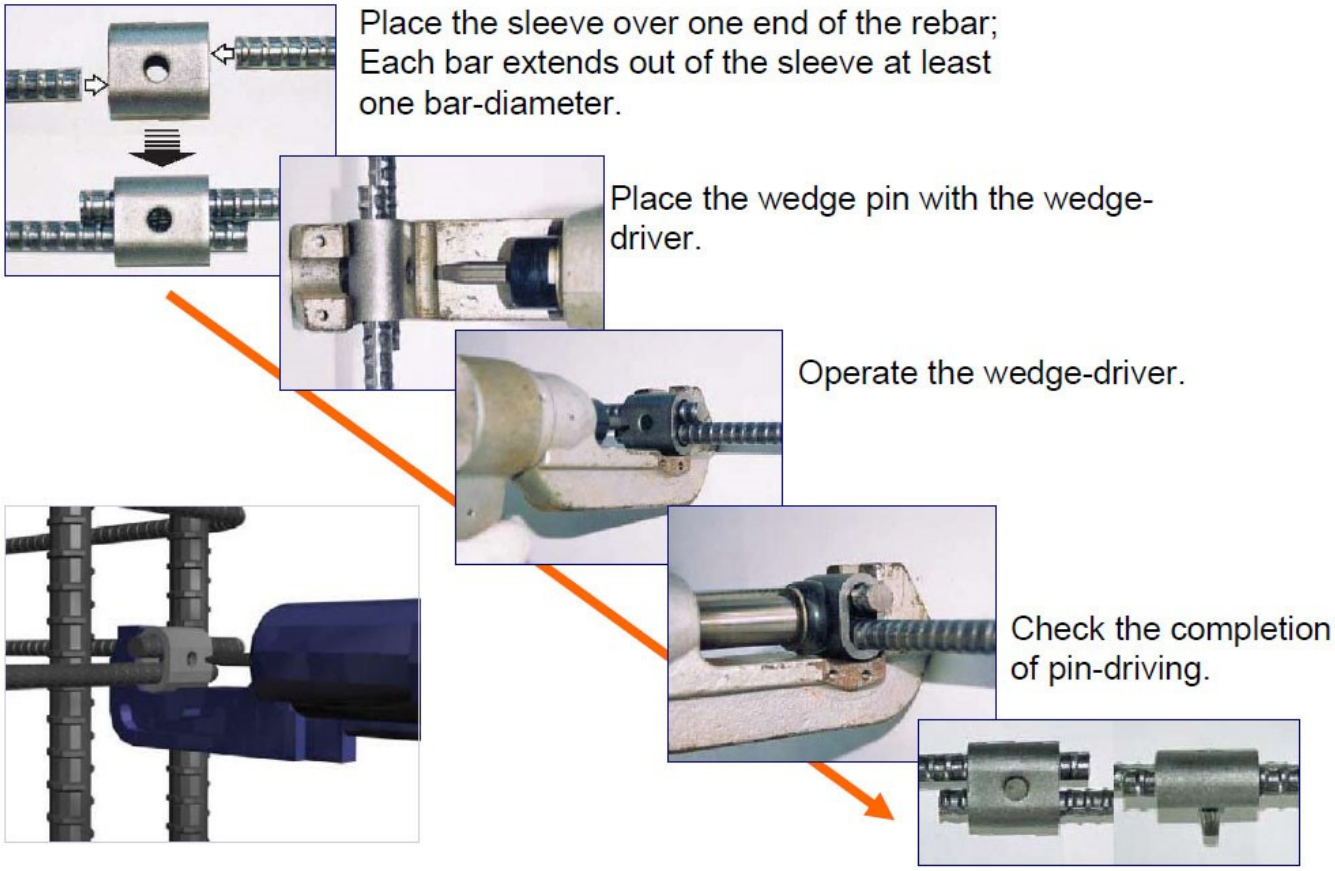
Wedge-Drivers



Features

- **Caltrans Approved WT-17-01**
- Simple and Quick
- Skilled workers not required (Please be sure to follow instructions)
- The connections can be made quickly, at a rate of up to 400 per man-day.
- High reliability
- The integrity of the connection may be quickly determined by visual inspection.
- The connection can be made outdoors under any weather condition.
- A reliable connection is secured, exceeding 135% of the nominal yield point of the steel.
- Relatively quiet operation.
- Low Cost

OS Splice Clip - Installation Procedures



OS Splice Clip - Dimensions

■Sleeve

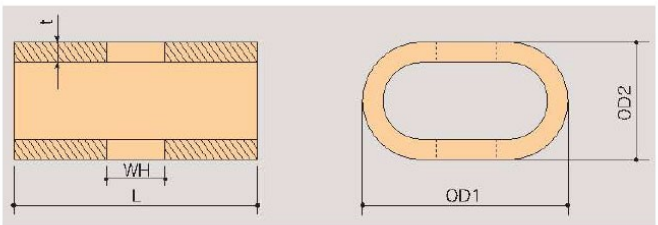
Unit: mm

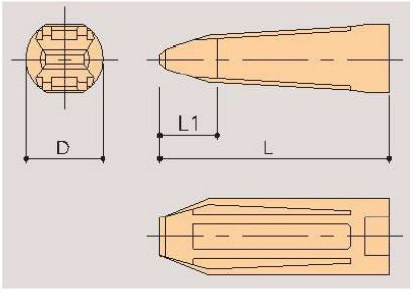
Rebar size	Length "L"	Outer "OD1"	Outer "OD2"	Thickness "t"	Hole Dia. "WH"
D10	35	30	18.2	3.1	10.2
D13	40	39	24.6	4.5	10.2
D16	60	46.3	29	5	14.8
D19	70	56.5	34	6	16.8
D22	80	64.5	39	7	16.8

■Wedge pin

Unit: mm

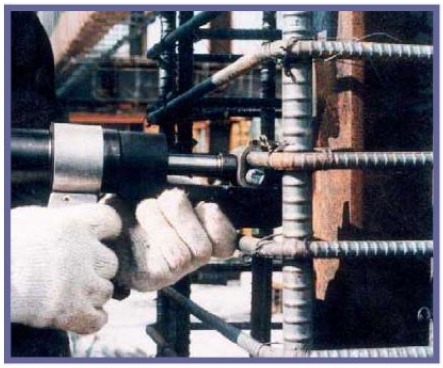
Rebar size	Length "L"	Diameter "D"	"L1"
D10 D13	37	10	12
D16	43	14	10
D19 D22	48	16	10





Scope of rebars to be spliced; JIS G 3112
Grade : SD295A,SD295B,SD345
Nominal size. : D10,D13,D16,D19
Deformation : specified in JIS G 3112

OS Splice Clip - Typical Applications

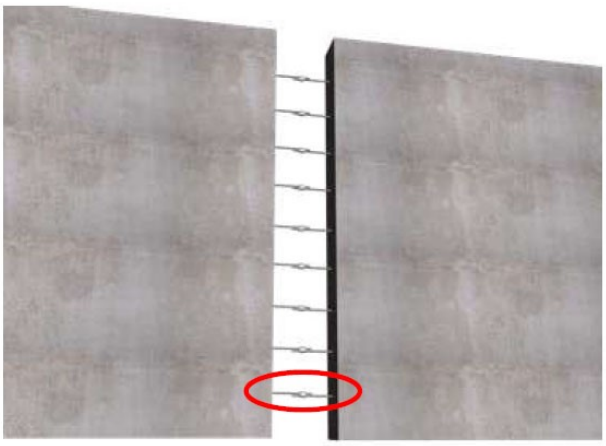


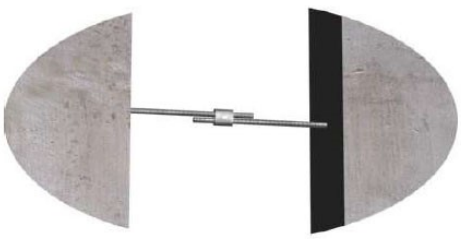
Hoops for RC Column

Reinforcements for SRC beam-Column joint

Rebar-Cage for Cast-in-place concrete pile

Seismic reinforcement





Connection for Precast-concrete walls

Connection for Precast-concrete slabs

Performance of OS Splice Clip (1 of 3)

Monotonic tensile test of OS Clip joint in air

As the results of tensile test **in air**,

- Ultimate strength of OS Clip joint is higher than 135% of the specified yield strength of the rebar.
- Failure case is a rupture of the rebar.
- Under applied stress of about 100MPa, there tends to be softened splice-system caused by the rotation of the splice.

Specimens after tensile test

Main results of tensile test

	Specified Value	Specimen *		
		No.1	No.2	No.3
Yield strength of rebar *fy*	295MPa	373MPa		
Tensile strength of rebar *fu*	440MPa	522MPa		
Ultimate strength of splice *fus*	---	512MPa	509MPa	517MPa
Ratio *fus* / *fy*(specified)	---	1.74	1.73	1.75
Ratio *fus* / *fu*(specified)	---	1.16	1.16	1.18
Ratio fus / fu(actual)	---	0.98	0.98	0.99

Note * Rebar Grade; SD295A (JIS G3112)
Nominal size; D10

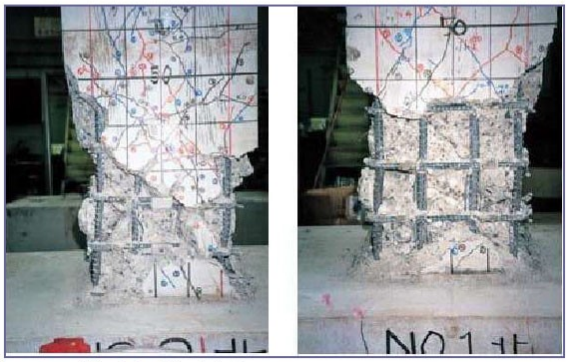
Performance of OS Splice Clip (2 of 3)

Multi-cyclic bending test for RC columns

As the result of multi-cyclic bending test of RC columns;
specimen A: **hoops using OS Clip joints**
specimen B: **hoops using flare-welding splices**

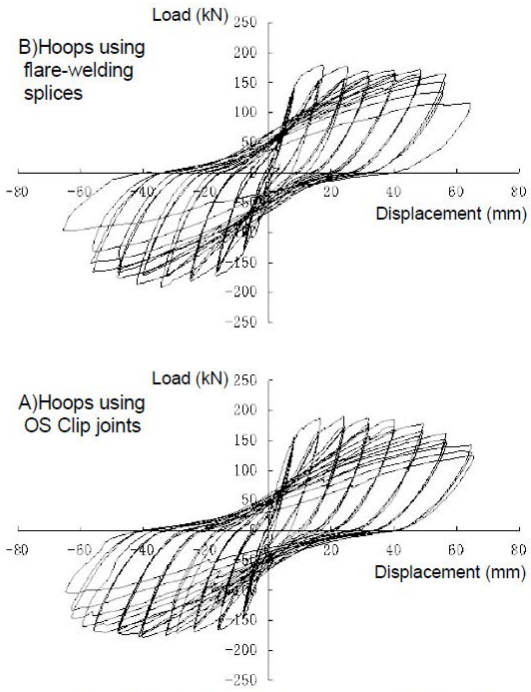
- OS clip joint eith almost equal performance with buckling-constraint of longitudinal rebars and confined
-effect of core-concrete compared with hoops using flare
-welding splices.

It is expected that hoops using OS Splice Clip show effective performance in plastic hinge area.



A) Hoops with OS Clip joints B) Hoops with flare-welding splices

Photo) Plastic hinge area after loading



Bending load – displacement relationship

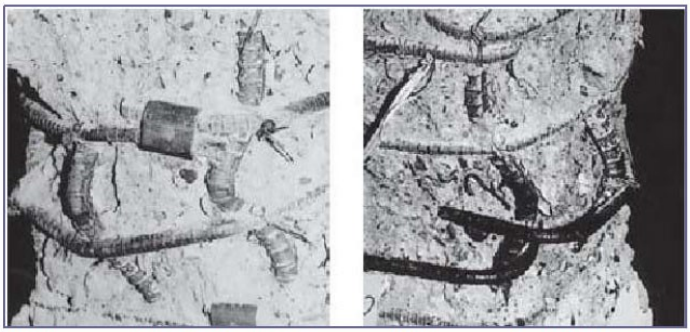
Performance of OS Splice Clip (3 of 3)

Compressive loading test for RC short-columns

As the result of compressive loading test; Hoops of column are fabricated as follows;
specimen A: **hoops using OS Clip joints,** specimen B: **hoops using 135deg.hooks**

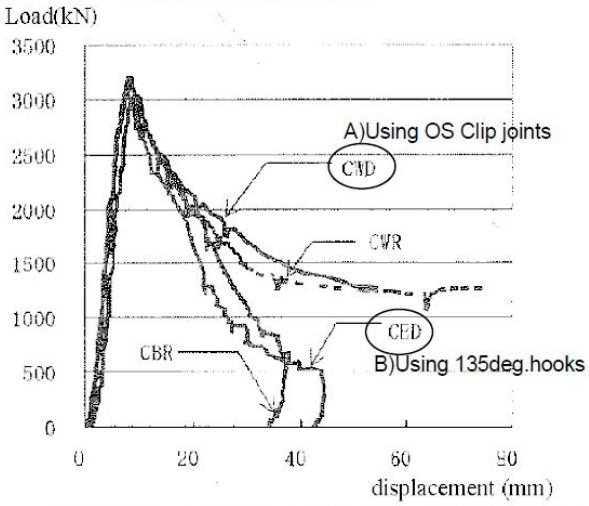
- Both specimens have approximately the same maximum-strength.
- After reaching the maximum load, load-decrease of specimen A is smaller than that of specimen B, and specimen A maintained about 40% of the maximum load.
- At specimen B, 135deg.hooks were pulled out form core-concrete of the column.

Hoops with OS Clip joints show more effective performance in the confinement of core-concrete and buckling-constraint of longitudinal rebars compared with hoops using 135deg.hooks.



A)Hoops with OS Clip joints B)Hoops with 135deg.hooks
*135deg.hooks were pulled out from core-concrete

Photo) Hoops and longitudinal rebars after loading



Compressive load – displacement relationship

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