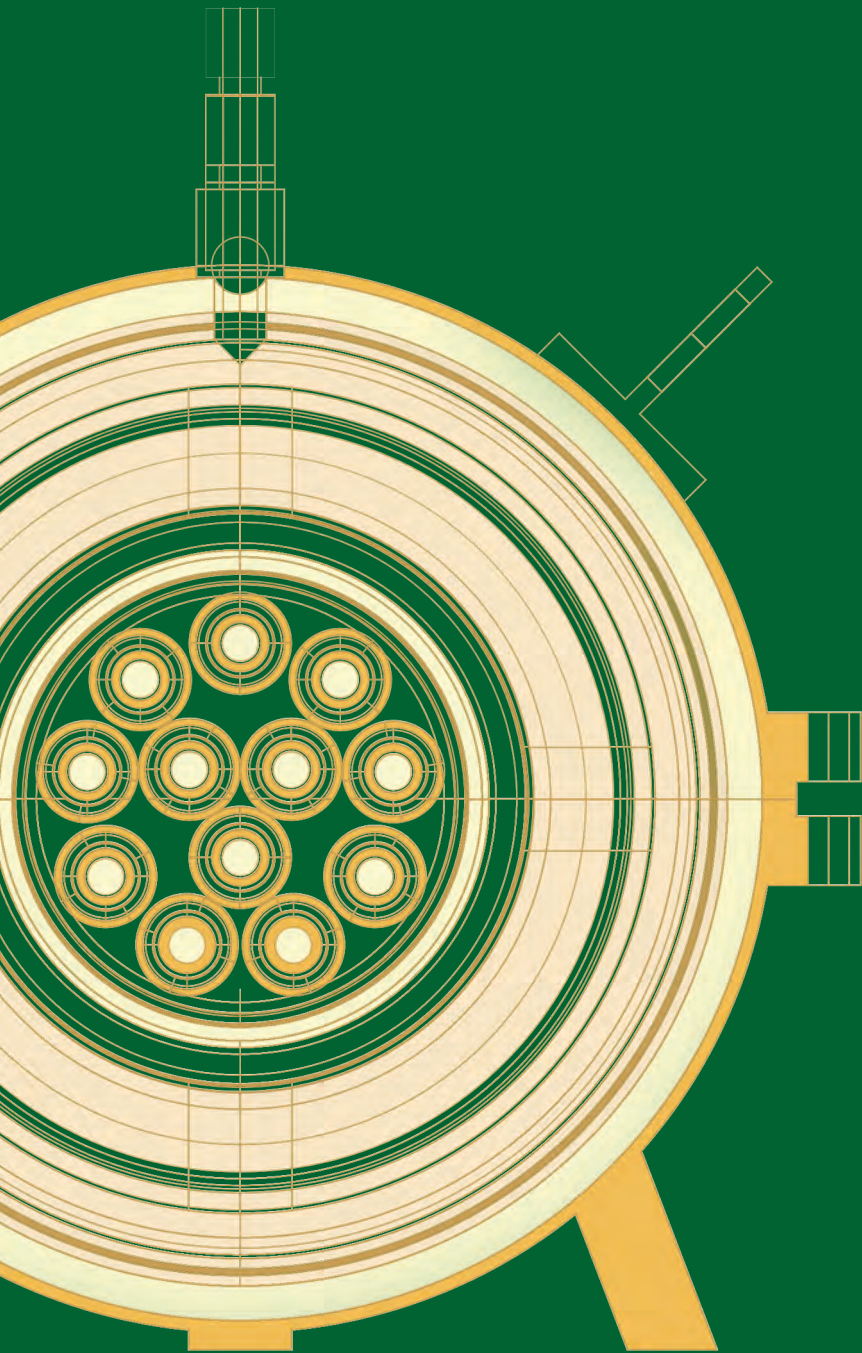


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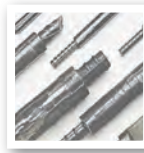
Art & Engineering
in Bridges





Structural Design

Prestressed Concrete, Concrete-Steel Composites Bridges. Buildings, Silos & Tanks. Value and Construction Engineering.



Rebar Splicing

With cold-swaged Couplers, #4 to #18 rebar sizes.

DEL



Post-tensioning

Multistrand with tendon capacities up to 10 000 KN. Monostrand, Bar, flat Multistrand.

DEL



Ground Anchors

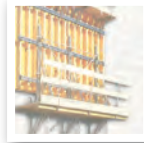
Bar & Strand. Temporary & Permanent. Self-drilling & traditional.

DEL



Stay & Suspension Cables **DEL** for Bridges, Domes & Roofs

With bare, galvanized, polyester and epoxy coated Strand.



Climbing Forms

Manual & Automatic.

doka



Incrementally Launched Bridges

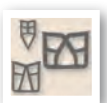
Engineering & Systems.

DEL



Preformed Seals

For concrete Slabs.



Form Travelers

For Balanced Cantilever Bridges.

DEL



Expansion Joints

Modular, Transflex, & Asphaltic.



Advancing Shoring

For Bridge in-situ Construction.

DEL



Bridge Bearings

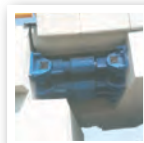
Pot, Spherical & Elastomeric Pads.



Beam & Segments Launchers

Hydraulic-Electrically operated.

DEL



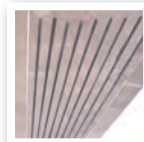
Seismic Protection Devices

Shock Transmission Units. Dampers for Bridges & Stays.



Precast-Prestressed Beams

DEL



Carbon Fibers

FYFE

Engineering & Installation.



Jacking Systems

Lifting, Lowering, Shifting, Pile driving, Pipe Jacking.

DEL



Structure repair & upgrade

With listed Techniques.



Moveable Bridges

Engineering & Systems.


















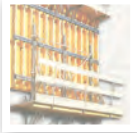



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4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|--|---|------------------------------|------|
| Linea III Subway | Gic Ingenieria Y Construccion, S.A. C.V. | Monterrey, Nuevo León | 2015 |
| Platanar II Km 113+270 Bridge | Jaguar Ingenieros Constructores, S.A. De C.V. | Guadalajara, Jalisco | 2015 |
| Hornos III Flyover | Impulsora d Desarrollo Integral, S.A. C.V. | Michoacán | 2015 |
| Nemesio Diez Stadium | Ingenieros Civiles Asociados, S.A. C.V. | Toluca, Edo de México | 2015 |
| 2do. Perif. Gómez Palacio Flyover | COCONAL SAPI de C.V. | Gómez Palacio, Durango | 2014 |
| Arroyo Lachiguiri Bridge | Constructora MT de Oaxaca S.A. de C.V. | Mitla-Tehuantepec II Hway | 2014 |
| Torres Eólicas | Desarrollo y Proyectos de las Huastecas, S.A. de C.V. | General Escobedo, Nuevo León | 2014 |
| Distribuidor León | Construcciones ALDESEM, S.A. de C.V. | León, Guanajuato | 2014 |
| las Curces Bus Terminal "Acabus" | Cemex Concretos, S.A de C.V. | Acapulco, Guerrero | 2013 |
| Nuevo Necaxa-Avila-Camacho-Tihuatlan Highway | Constructora Nuevo Necaxa Tihuatlan, S.A. De C.V. | Puebla-Veracruz | 2013 |
| Vía Poetas, Túnel 2, Desierto de los Leones | Muro Milán, S.A. de.C.V. | Mexico City | 2012 |
| D.V. de la Autopista Mexico-Puebla con Carr. Santa Ana Chiautempan | Ingenieros Civiles Asociados, S.A. de.C.v | México-Puebla Hway | 2012 |
| Validad elevada "Luis Cabrera" | Copri /Constructora de Proyectos Viales de México, S.A. de C.V. | Mexico City | 2012 |



Forum Buenavista, Mexico City



Bicentennial Viaduct, Edo. de México



"Río Grande" Bridge, México



Subway, Mexico City

4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|--|--|-----------------------------------|------|
| Subway line 12, Mixcoac Station | Ingenieros Civiles Asociados, S.A. de C.V. | Mexico City | 2011 |
| Río de los Remedios Highway, Ecatepec | Prefabricados y Transportes, S.A. de C.V. | Ecatepec, Edo. de México | 2011 |
| Bicentennial Footbridge Tabasco | Grupo Orhnos, S.A. de C.V. | Villahermosa, Tabasco | 2011 |
| Presa El Zapotillo Bridge | Constructores el Zapotillo, S.A. de C.V. | Guadalajara, Jalisco | 2010 |
| Subway line 12, Mexicaltzingo Station | Ingenieros Civiles Asociados, S.A. de C.V. | Mexico City | 2010 |
| Leoneras Bridge(127+666) Verde Bridge (128+100) Magueyal Bridge (137+750) Cantil Bridge142+440 | Construcciones Aldesem, s.a. de c.v. | Durango-Mazatlán Hwy | 2010 |
| Alvarado Bridge | Construcciones y Montajes Industriales del Sur, S.A. de C.V. | Alvarado, Veracruz | 2010 |
| Plaza Cristal Bridge | Diseño e Ingenieria en Construccion, S.A. de C.V. | Jalapa, Veracruz, México. | 2009 |
| Paso de Barriles Bridge | Inmobiliaria Solarium, S.A. De C.V. | Gutiérrez Zamora, Mich. | 2008 |
| Alvarado Bridge | Desarrollo Urbano Integral, S.A. De C.V. | Alvarado, Veracruz | 2008 |
| Bridge in Guanajuato | Constructora Y Pavimentadora Vise, S.A. De C.V. | Silao, Guanajuato | 2008 |
| Bicentenario Viaduct | Constructora De Proyectos Viales De Mexico, S.A. De C.V. | Toreo-Tepozotlán | 2008 |
| La Marquesa Bridge | Coconal, S.A. De C.V. | Autopista México-Toluca | 2008 |
| Canal Fundidora Bridge | Constructora Maiz Mier, S.A. de C.V. | Monterrey, N.L. | 2007 |
| "Rio Grande" Bridge | Desarrollo Urbano Integral, Sa de Cv | Carr. Oaxaca-Istmo de Tehuantepec | 2007 |
| Forum Buenavista | Industrial Prefabricadora, S.A. De C.V. | Centro Com. Buenavista | 2007 |
| Cuetzalilla Bridge | Grupo Constructor Lirago, S.A. De C.V. | Puebla, México | 2007 |
| Cd. de Las Artes I & II Bridge | Triturados Y Concretos Asfalticos, S.A. De Cv | Querétaro, Querétaro | 2007 |
| Peatonal Bridge | Corporativo Edificador H. Y H. S.A. C.V. | Tlaxcala, Tlaxcala | 2007 |



"Santa Lucía" Channel Bridge, Monterrey, N.L.



El Caracol Dam, Guerrero.

4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|---|--|---|------|
| El Palmar Bridge Supply of Post-tensioning mat. for Beams | Construcciones y Diseños, S.A. de C.V. | Veracruz. | 2006 |
| Ajalpalan Bridge Post-tensioning materials for Beams | Construcciones y Diseños, S.A. de C.V. | Lázaro Cárdenas-Chumatlán. Hwy | 2006 |
| PIN y PIF Bridge Beam Post-tensioning | Consortio Constructor ECO, S.A. de C.V. | Silao, Guabajuato. | 2006 |
| Eje 3 Oriente. Ermita-Iztapalapa Flyover Beam and Column Post-tensioning | Impulsora Tlaxcalteca de Industrias, S.A. de C.V. (ITISA) | Mexico City | 2005 |
| Oriente Delegación Cuauhtemoc Building Beam Post-tensioning | Pretencreto, S.A. de C.V. | Mexico City | 2005 |
| Flyover Km. 84+860 Beam Post-tensioning | Presforza, S.A. de C.V. | Puebla | 2005 |
| El Salto Bridge | Desarrollo Urbano Integral, S.A. de C.V. | Durango-Mazatlan Hwy | 2005 |
| San Marcos Bridge P.I.V. Av. Juárez. | Construobras de la Garza, S.A. de C.V. | Cd. Victoria, Tamaulipas. | 2005 |
| Moralillo Bridge repairing | Construcciones y Servicios Integrales SIGMA S.A. de C.V. | Tampico, Tamaulipas. | 2005 |
| Delegación Oriente Cuauhtemoc Building | Pretencreto, S.A. de C.V. | Mexico City | 2005 |
| Flyover on the México-Puebla Highway | Presforza, S.A. de C.V. | México-Puebla hwy | 2005 |
| Silo Cementos Apasco | Fuerza Tectónica, S.A. de C.V. | Macuspana, Tabasco. | 2005 |
| El Caracol Dam 2nd phase. | Comisión Federal de Electricidad | Vía Teloloapan Apaxtla de Castrejón, Guerrero. | 2004 |
| Puerto Quetzal Bridge | Copreca, LTDA. | Guatemala. | 2004 |
| Bridge in Puerto Rico. | Polymer Industries INC. | San Juan, Puerto Rico. | 2004 |
| Eugenio Garza Sada Luis Elizondo Flyover. | Constructora Maiz Mier, S.A. de C.V. | Monterrey, Nuevo León. | 2004 |
| La Gota de Plata Auditorium. | Impulsora Tlaxcalteca de Industrias, S.A. de C.V. (ITISA) | Pachuca, Hidalgo. | 2004 |
| López Mateos Flyover. | Contrissa Asfaltos, S.A. de C.V. | Ciudad Victoria, Tamaulipas. | 2004 |



Revolución Interchange, Torreón, Coahuila



Apasco Silos, Tabasco

4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|---|--|--------------------------------------|---------------|
| Eugenio Garza Sada Flyover. (South track). | MG Unidad Técnica, S.A. de C.V. | Monterrey, Nuevo León. | 2004 |
| Av. del Taller Bridge. Installation of post- tensioning materials. | AMI Ingeniería Instalaciones S.A. de CV. | Mexico City | 2004 |
| Zaragoza Interchange. Installation of post- tensioning materials. | GUTSA Inmobiliaria, S.A. de C.V. | Mexico City | 2003 |
| Mosquetito I y II Bridge. | CostruObras de la Garza, S.A. de C.V. | Matamoros, Tamaulipas. | 2003 |
| San Antonio Interchange. Column post- tensioning. | Gutsa Inmobiliaria S.A. de C.V., Gami S.A. de C.V., Tradeco, S.A. de C.V. / Gob del D.F. | Mexico City | 2002- 2003 |
| Victoria Jaumave Bridge. | Grupo Constructor y Fabricador S.A. de C.V. | Cd. Victoria , Tamaulipas. | 2003 |
| El Caracol Dam. Repair and Construction of a post-tensioning system for the existing cables. | Comisión Federal de Electricidad | Vía Tololoapan Apaxtla, Guerrero. | 2003 |
| Zaragoza Interchange. | Impulsora de Desarrollo Integral S.A. de C.V. | Mexico City | 2002 |
| Vial Revolución Interchange. | Grupo Acolsa, S.A. de C.V. | Torreón , Coahuila. | 2002 |
| Laurel, San Francisco & Uxpanapa Bridges. | Construcciones y Diseños S.A. C.V. | Edo. de Veracruz | 2002 |
| El Rico Bridge. | COPRECA S.A. de C.V. | Guatemala | 2002 |
| Lázaro Cárdenas Bridge over the Santa Catarina river. Post-tensioning of 16 AASHTO Type VI beams. | Pico, Infraestructura Urbana S.A. C.V. | Guadalupe, Nuevo León. | 2002 |
| Cementos Moctezuma Cerritos. Supply of post-tensioning materials. | Cementos Moctezuma, S.A. de C.V. | Pozarica, Veracruz. | 2002 |
| Reconstruction of the Cola de la Presa Bridge. | Constructora QUID, S.A. de C.V. | San Luis Potosí - Guadalajara Hwy | 2002 |
| Access bridge to the Monclova Technological Institute. (Post-tensioning of 26 AASHTO Type III beam)s. | Desarrollo Iberoamericano, S.A. de C.V. | Monclova, Coahuila. | 2001 |



Venustiano Carranza Interchange, Saltillo, Coahuila



Venustiano Carranza Interchange, Saltillo, Coahuila

4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|---|--|--|------|
| Venustiano Carranza Interchange. | Cotrisa Asfaltos, S.A. de C.V. | Saltillo , Coahuila. | 2001 |
| Río Playas & Remolinos Bridges. | Construcciones y Diseños S.A. de C.V. | Municipio de Choapas, Veracruz. | 2001 |
| Industrial Facilities Tepeji del Río. | Prefabricados especiales y construcciones S.A. De C.V. | Tepeji del Río , Querétaro. | 2001 |
| Buenavista Bridge. Post-tensioning of 15 AASHTO beams. | Impulsora de Desarrollo Industrial S.A. de C.V. | Atzalan, Tatahuicapan e Hidalgotitlán, Veracruz. | 2000 |
| Bridge in Chiapas. Installation of post- tensioning materials. | Construcciones Caminos y Pavimentos Fraybar, S.A. de C.V | Chiapas. | 2000 |
| Tecuanapa Bridge. Post-tensioning of 18 AASHTO beams. | Impulsora de Desarrollo Industrial S.A. de C.V. | Atzalan, Tatahuicapan e Hidalgotitlán, Veracruz. | 2000 |
| Otates Bridge Installation of post- tensioning materials. | Compañía de Ingeniería de Servicios. | Huamuxtitlan, Edo. de México | 2000 |
| San Cristóbal Bridge. Supply and Installation of post- tensioning materials. 56,240 Kgs. | Ingenieros Constratistas, S.A. de C.V | Tuxtla Gutiérrez - San Cristóbal de las Casas, Chiapas Hwy | 2000 |
| Emperador Bridge. | Corporación Nacional de Construcciones, S.A. de C.V. | México - Puebla Hwy | 2000 |
| Lázaro Cárdenas Bridge. Installation of post- tensioning materials. | Construcción, Caminos y Pavimentos Fraybar, S.A. de C.V. | Lázaro Cárdenas, Michoacán. | 2000 |
| Ocozocuatla Raudales Bridge Installation of post- tensioning materials. | Ingenieros Civiles Asociados. | Chiapas. | 1999 |
| Ahuatán-Tzompantle Bridge Supply of Post-tensioning equipment. | Constructora Evigro, S.A. de C.V. | Cuernavaca, Morelos. | 1999 |
| Airport crossing | Contratistas Unidos Mexicanos, S.A. de C.V. | Pachuca, Hidalgo. | 1999 |
| Culebrón Bridge. Installation of post- tensioning materials. | TICONSA. | Río Bravo, Tamaulipas. | 1998 |
| Carretera Nacional Blvd. Luis Donaldo Colosio Bridge. | Constructora Maiz Mier, S.A. de C.V. | Nuevo Laredo, Tamaulipas. | 1998 |



Zaragoza Interchange, Mexico City



San Antonio Interchange, Mexico City

4. Multistrand Post-tensioning

| Project | Constructor/Owner | Location | Year |
|---|--|--------------------------------|------|
| Post-tensioning of 5 AASHTO beams in Zamora, Michoacán. (L = 25.00 mts.) | Fabricación Especializada de Estructuras y Equipos, S.A. de C.V. | Zamora, Michoacán. | 1998 |
| Garrapatas Bridge. Post-tensioning of beams. (L= 17.00 mts.) | Intervial, S.A. de C.V. | Altamira, Tamaulipas. | 1998 |
| Alvarado Bridge. Reinforcement. | CYDSA Caminos y Puentes Federales | Alvarado-Veracruz Hwy | 1997 |
| San Juan Puerto Rico International Airport. Enlargement of the access ramp. | Autoridades del Aeropuerto Internacional de Puerto Rico. | San Juan, Puerto Rico. | 1997 |
| Quetzalapa Bridge. | TRIBASA (Concesionaria) D.G.C.F. (Propietario Final) | México - Acapulco Hwy | 1993 |
| Elevated Subway In Monterrey. | Gobierno del Estado. | Monterrey, Nuevo León. | 1989 |
| Several Bridges with Post-tensioned beams. | COCONAL (Concesionaria) D.G.C.F. (Propietario Final) | Torreón-Durango Hwy | 1988 |
| Several Bridges with Post-tensioned beams. | Constructora Maiz Mier, S.A. de C.V. (Concesionaria) | Monterrey-Nuevo Laredo, Hwy | 1988 |
| Several Bridges with Post-tensioned beams. | DEIL de GMD (Concesionaria) D.G.C.F. (Propietario Final) | México - Acapulco Hwy | 1988 |
| Cement Plant Structure post-tensioning. | La Cruz Azúl. | Lagunas, Oaxaca. | 1988 |
| Several tanks for the Water Administration (D.G.C.O.H.) | D.D.F. | Mexico City | 1988 |
| El Caracol Dam Pier Post-tensioning. | C.F.E. | Guerrero. | 1988 |
| La Marquesa Bridge. | D.G.C.F. | México-Toluca Hwy | 1987 |
| Tampico Bridge. | D.G.C.F. | Tamaulipas, Tamaulipas. | 1987 |
| Coatzacoalcos Bridge. | D.G.C.F. | Coatzacoalcos-Villahermosa Hwy | 1986 |



Tampico Bridge, Tampico, Tamaulipas



Monterrey Subway, Nuevo León.

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