

HYDRAULIC SIDE-ACTING GRIPS

DuraSync

Instron® hydraulic side-acting grips provide an innovative solution for high-capacity testing and deliver enhanced gripping performance, usability, and operator safety over traditional grip designs. These advanced grips maintain a constant clamping force on the specimen that acts perpendicular to the direction of testing and is independent of tensile loading.

DURASYNC TECHNOLOGY

Instron's dual side-acting grips incorporate our latest DuraSync technology. This self-centering mechanical synchronizer (patent pending) provides many improvements over hydraulic or mechanical rack and pinion designs commonly found in the marketplace.

- Side-load dampening reduces the risk of grip damage when testing slightly bent or irregularly shaped specimens such as rebar or wire rod
- Opposing jaw faces repeatedly self-center during specimen clamping reducing testing time and eliminating the need to resynchronize the grip faces between tests
- The synchronizer is located outside the gripping pocket preventing mechanical failure due to contamination

FEATURES AND BENEFITS

- Adjustable clamping force alleviates specimen slippage and grip breaks
- Operator safety is improved through the use of low-pressure (131 bar) external supply lines
- Hydraulic power is provided by the machine's main power supply reducing the cost and floor space associated with a secondary grip pumping unit¹
- Fully open-front design provides easy specimen insertion increasing testing efficiency and safety
- DuraSync 2 offers semi-open back design which facilitates testing of short gauge specimen when using an automatic extensometer
- Jaw faces are easily installed from the front side of grips and require no maintenance beyond simple cleaning
- Ergonomic control handset includes user-friendly, 3-position switches for upper and lower grip operation, and a magnetic back adding to operator convenience and productivity
- Grips are field-serviceable reducing down time and eliminating the cost of sending the grips back to the factory for service



OPTIONAL ACCESSORIES

- Wire strand holders and inserts designed specifically for testing 3- and 7-wire strand
- Secondary load string adapter plates for attachment of compression accessories and/or secondary tensile load strings
- Thru-zero support and jaw faces add the ability to perform low-frequency cyclic tests

Note: For static electromechanical systems, a low-pressure, standalone pump is required.

APPLICATION RANGE

- Tensile tests on a wide range of materials including: steel rod and plate, machined rounds and flats, reinforcement bar, 3- and 7-wire strand, conveyor belt, and wood products
- Tension-tension cyclic tests
- Compression testing using optional secondary load string adapter
- Low-frequency, thru-zero cyclic testing with thru-zero support option

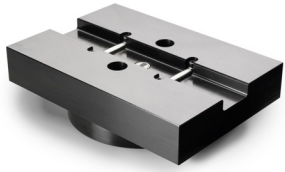
SPECIFICATIONS

		W-5450	W-5410	W-5420	W-5460	W-5430	W-5440	
Capacity	kN	250	600	600	1,000	1,500	2,000	
	lbf	56,200	135,000	135,000	225,000	337,000	450,000	
Operation		Dual Side-Acting	Dual Side-Acting (Basic)	Dual Side-Acting (Premium)	Dual Side-Acting	Dual Side-Acting	Dual Side-Acting	
Dimensions (H × W × D)	mm	374 × 546 × 236	376 × 705 × 334	446 × 718 × 360	501 × 902 × 425	536 × 1003 × 527	610 × 1130 × 591	
	in	14.7 × 21.5 × 9.3	14.8 × 27.8 × 13.2	17.5 × 28.3 × 14.2	19.7 × 35.5 × 16.7	21.1 × 39.5 × 20.7	44.5 × 24.0 × 23.3	
Weight (per grip)	kgs	184	385	535	837	1,295	1985	
	lbs	405	850	1,180	1845	2,850	4380	
Upper and Lower Fittings for Static Hydraulic Systems		Type IIA (M72 × 3P RHf)	Type IIA (M72 × 3P RHf) or Bolt Flange	Type IIA (M72 × 3P RHf) or Bolt Flange	Bolt Flange	Bolt Flange	Bolt Flange	
Upper and Lower Fittings for Static Electromechanical Systems		Type II (M48 × 2 LH) Type I (M30 × 2 LH) Type D (1.25" connection with 1/2" clevis pin)	-	-	-	-	-	
Specimen	Rounds	mm	3 - 60	3 - 60	3 - 60	3 - 85	3 - 85	3 - 100
		in	0.12 - 2.36	0.12 - 2.36	0.12 - 2.36	0.12 - 3.35	0.12 - 3.35	0.12 - 3.94
	Flats	mm	0 - 60	0 - 100	0 - 100	0 - 120	0 - 120	0 - 120
		in	0 - 2.36	0 - 3.94	0 - 3.94	0 - 4.72	0 - 4.72	0 - 4.72
Cable	mm	-	-	4.8 - 25.4	4.8 - 25.4	4.8 - 25.4	4.8 - 25.4	
	in	-	-	0.1875 - 1.00	0.1875 - 1.00	0.1875 - 1.00	0.1875 - 1.00	
Version		1	1	1	2	1	1	

AVAILABLE OPTIONS

Thru-Zero Support				•	•	•	•
Secondary Load String Adapters		•	•	•	•	•	•
Specimen Locating		•	•	•	•	•	•
Pedestals			•	•			
Wire Strand Insert				•	•	•	•
Semi-Open Back		*	*	*	•	*	*

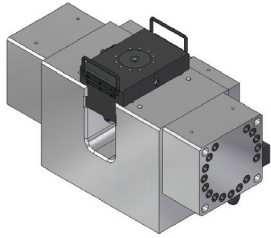
* Available as custom only



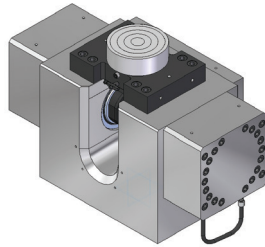
Wire Strand Insert Holder



Specimen Locating Stop



600 kN (135,000 lbf)
Secondary Load String Adapter



1500 kN (337,000 lbf)
Secondary Load String Adapter



600 kN (135,000 lbf) DuraSync
Grips

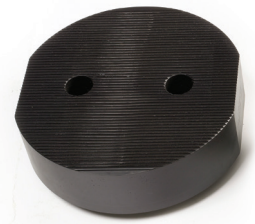


250 kN (56,200 lbf) DuraSync Grips
on 5985 Electromechanical System

GRIP FACES - TENSILE

Catalog Number	Description	Dimensions (w × l)		Specimen Thickness		Specimen Diameter	
		mm	in	mm	in	mm	in
For W-5450 250 kN							
W-5451-A	Flat Surfalloy	80 × 86	3.15 × 3.375	0 - 60	0 - 2.36	-	-
W-5451-B	Flat Serrated (1mm)	80 × 86	3.15 × 3.375	0 - 60	0 - 2.36	-	-
W-5451-C	Flat Serrated (2mm)	80 × 86	3.15 × 3.375	0 - 60	0 - 2.36	-	-
W-5452-A	Vee Serrated	80 × 86	3.15 × 3.375	-	-	3 - 10	0.12 - 0.39
W-5452-B	Vee Serrated	80 × 86	3.15 × 3.375	-	-	10 - 35	0.39 - 1.38
W-5452-C	Vee Serrated	80 × 86	3.15 × 3.375	-	-	35 - 60	1.38 - 2.36
For W-5410 and W-5420 600kN							
W-5411-A	Flat Serrated	110 × 120	4.33 × 4.72	0 - 55	0 - 2.17	-	-
W-5411-B	Flat Serrated	110 × 120	4.33 × 4.72	50 - 100	1.97 - 3.94	-	-
W-5412-A	Vee Serrated	110 × 120	4.33 × 4.72	-	-	3 - 10	0.12 - 0.39
W-5412-B	Vee Serrated	110 × 120	4.33 × 4.72	-	-	10 - 35	0.39 - 1.38
W-5412-C	Vee Serrated	110 × 120	4.33 × 4.72	-	-	35 - 60	1.38 - 2.36
For W-5460 1000 kN							
W-5431-A	Flat Serrated	140 × 152.4	5.512 × 6.0	0 - 60	0 - 2.36	-	-
W-5431-B	Flat Serrated	140 × 152.4	5.512 × 6.0	60 - 120	2.36 - 4.72	-	-
W-5432-A	Vee Serrated	140 × 152.4	5.512 × 6.0	-	-	3 - 17	0.12 - 0.67
W-5432-B	Vee Serrated	140 × 152.4	5.512 × 6.0	-	-	17 - 65	0.67 - 2.56
W-5432-C	Vee Serrated	140 × 152.4	5.512 × 6.0	-	-	35 - 85	1.38 - 3.35
For W-5430 1500 kN							
W-5431-A	Flat Serrated	150 × 160	5.91 × 6.30	0 - 60	0 - 2.36	-	-
W-5431-B	Flat Serrated	150 × 160	5.91 × 6.30	60 - 120	2.36 - 4.72	-	-
W-5432-A	Vee Serrated	150 × 160	5.91 × 6.30	-	-	3 - 17	0.12 - 0.67
W-5432-B	Vee Serrated	150 × 160	5.91 × 6.30	-	-	17 - 65	0.67 - 2.56
W-5432-C	Vee Serrated	150 × 160	5.91 × 6.30	-	-	35 - 85	1.38 - 3.35
For W-5440 2000 kN							
W-5441-A	Flat Serrated	182 × 190	7.17 × 7.48	0 - 60	0 - 2.36	-	-
W-5441-B	Flat Serrated	182 × 190	7.17 × 7.48	60 - 120	2.36 - 4.72	-	-
W-5442-A	Vee Serrated	182 × 190	7.17 × 7.48	-	-	3 - 17	0.12 - 0.67
W-5442-B	Vee Serrated	182 × 190	7.17 × 7.48	-	-	17 - 65	0.67 - 2.56
W-5442-C	Vee Serrated	182 × 190	7.17 × 7.48	-	-	35 - 85	1.38 - 3.35

Note:
For Vee Serrated faces,
Dimensions (l) refers to
maximum gripped length
per grip.



W-5431-A



W-5432-A

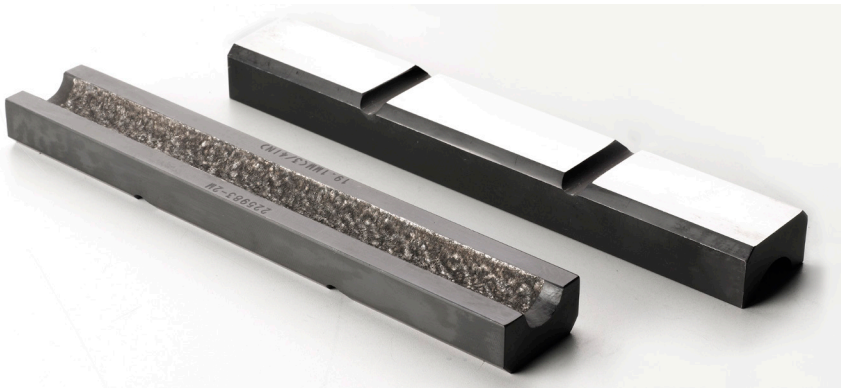


W-5432-B

WIRE STRAND INSERTS FOR W-5400, W-5420, W-5430, W-5440, AND W-5460

Catalog Number	Diameter	
	mm	in
W-5404-A	4.8	0.1875
W-5404-B	5.6	0.2188
W-5404-C	6.4	0.25
W-5404-D	7.1	0.2813
W-5404-E	7.9	0.3125
W-5404-F	9.5	0.375
W-5404-G	11.1	0.4375
W-5404-H	12.7	0.50
W-5404-J	14.3	0.5625
W-5404-K	15.2	0.5938
W-5404-L	15.7	0.625
W-5404-M	19.1	0.75

Note:
Specimen diameter tolerance ± 0.25 mm (0.010 in)



W-5404-H

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