INSTRON®

The difference is measurable®

PNEUMATIC SIDE-ACTION GRIPS

2712-04x Series

Instron® 2712-04x Series Pneumatic grips are packed with features to enhance gripping performance, usability, and operator safety.

PRINCIPLE OF OPERATION

Pneumatic side-action grips offer a versatile gripping solution for a wide range of materials. The gripping force is controlled by adjusting the inlet air pressure and remains constant even if the specimen thickness changes significantly during the test. The quick and easy operation of the grips improves productivity and usability compared to other types of gripping techniques.

A pneumatic cylinder in the grip body actuates dual-lever arms that move the jaw faces together symmetrically in a self-centering action to clamp the specimen.

The 1 and 2 kN models feature jaw face adjustment to minimize the opening to the thickness of the specimen to further reduce the risk of pinching.

The 5 and 10 kN models feature adjustable jaw face offset for irregular specimens, such as lap-shear or components.

Grips are attached to the system by a simple clevis pin. The ergonomically designed locknuts eliminate backlash.

Jaw faces can be changed single-handedly in seconds without the use of tools or pins. The grips can be left on the system and there are no loose items to misplace.

APPLICATION RANGE

- Static tensile tests on a wide range of materials and specimen types including plastics, metals, textiles, paper, thin sheet, foil, and wire.
- Type of loading: Tensile, static and tension-tension cyclic tests. Not suitable for high-cycle dynamic fatigue tests.
- Specimen shapes: Round (wires) and flat specimens with or without shoulder.

FEATURES AND BENEFITS

- 1, 2, 5, and 10 kN options
- Robust design
- Dual-action gripping ensures the specimen self-centers. The 5 and 10 kN models feature adjustable offset for lap-shear and other asymmetrical specimens
- Each grip features an air valve to open and close the grips or there is an optional footswitch
- Rotatable air inlet with air flow control improves hose runs and provides adjustable closing speed
- Unique locknut design removes backlash in the loadstring without the need for tools
- Jaw faces can be changed in seconds without the use of tools or pins
- Large space between the jaw faces and the grip body eases specimen insertion and reduces the risk of pinched fingers
- Jaw face shields add another layer of protection for the operator, as well as having markings that help you to maintain good specimen alignment
- Excellent, repeatable gripping performance is assured by the robust, fully enclosed self-centering mechanism
- Enclosed design resists dirt and debris
- High quality, low maintenance components provide reliability and low cost of ownership
- Wide opening for thicker specimens
- Variety of jaw face sizes and surfaces
- Specimen Alignment Device ensures accurate specimen placement (optional accessory)




SPECIFICATIONS

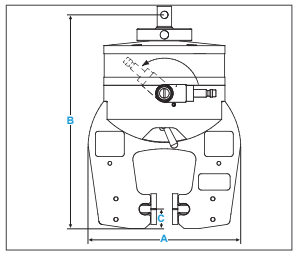
Catalog Number	2712-041	2712-042	2712-045	2712-046
Maximum Force Capacity	1 kN	2 kN	5 kN	10 kN
Maximum Specimen Thickness [2]	13 mm	20 mm	26 mm	26 mm
Maximum Jaw Face Travel (per face)	13 mm	20 mm	8 mm	8 mm
Upper Fitting	6 mm clevis (Type Om)	6 mm clevis (Type Om)	1/2 in clevis (Type Dm)	1/2 in clevis (Type Dm)
Lower Fitting	6 mm clevis (Type Om)	6 mm clevis (Type Om)	1/2 in clevis (Type Dm)	1/2 in clevis (Type Dm)
Overall Width (A)	126 mm	152 mm	199 mm	208 mm
Effective Length (B)	176 mm	186 mm	236 mm	239 mm
Jaw Center to Grip Edge (C)	16 mm	16 mm	19 mm	19 mm
Single Grip Weight (less faces)	2.5 kg	4.1 kg	6.8 kg	9.7 kg
Temperature Range	-20 to +100 °C -4 to +212 °F	-20 to +100 °C -4 to +212 °F	-20 to +100 °C -4 to +212 °F	-20 to +100 °C -4 to +212 °F
Maximum Air Pressure	6 bar 90 psi	6 bar 90 psi	6 bar 90 psi	6 bar 90 psi
Gripping Force at 60/90 psi (4/6 bar) Air Pressure Mid Stroke	1.5/2.3 kN	3.4/5.0 kN	8.5/12.6 kN	15.9/23.9 kN

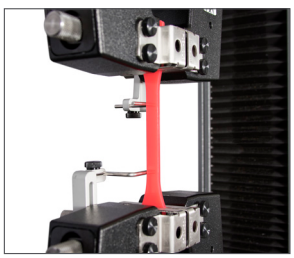
Notes:
1. Air supply should be clean and dry. Regulator to allow gripping force adjustment highly recommended.
2. Maximum specimen thickness may depend on jaw face selection. See Jaw Faces table on page 4.
3. 2712-045/-046 feature adjustable jaw face offset of up to 8 mm.

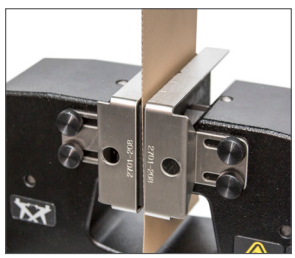

Rotatable air inlet allows tidy hose runs and also features air flow adjustment.

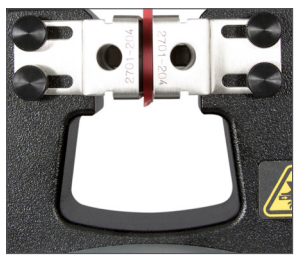

Integral air valve allows use without footswitch if desired.

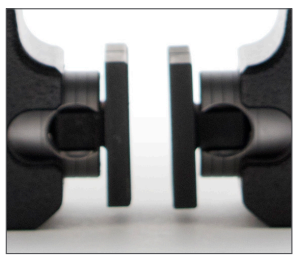
Unique check-nut design is quick and comfortable to use.


Grip Dimensions.


Specimen Alignment Device helps to get the best repeatability from your system.


Jaw Face Shields reduce pinch hazards and have useful specimen alignment features.


Large throat size allows for easy specimen insertion.


Jaw face changes require no tools or pins.

Optional Accessories for Improved Productivity, Ease of Use, and Repeatability

2701-220 Specimen Alignment Device

Ensuring that each specimen is subjected to the same axial loading has an important influence on the repeatability of the testing system. The optional specimen alignment device ensures that the specimen is loaded vertically every time. It can be used with rigid and semi-rigid materials where the specimen can be pressed lightly against the backstop for rapid loading, or with flexible materials, such as tapes and foils, where the backstop provides a visual cue. It can be mounted above or below the jaw faces depending on the specimen design. Repeatable, quick, and simple to adjust.

2701-20x Jaw Face Shields

Jaw face shields reduce the possibility of getting fingers pinched during grip closure. They can be adjusted horizontally to suit the specimen thickness, which helps to centralize the specimen prior to grip closure. Each shield has graduations to assist in aligning the specimen vertically and a central notch that can be used to align wires and other small diameter specimens. Each grip is supplied with two sizes of jaw face shields.

OPTIONAL ITEMS FOR USE WITH 2712-04X SERIES

2701-201	Jaw face shields for faces 38 W × 25 H on 1 and 2 kN grips 2712-041/-042[1]
2701-202	Jaw face shields for faces 50 W × 38 H on 1 and 2 kN grips 2712-041/-042[1]
2701-203	Jaw face shields for faces 75 W × 25 H on 1 and 2 kN grips 2712-041/-042
2701-204	Jaw face shields for faces 50 W × 25 H on 5 kN grips 2712-045[1]
2701-205	Jaw face shields for faces 75 W × 50 H on 5 kN grips 2712-045[1]
2701-206	Jaw face shields for faces 75 W × 25 H on 5 kN grips 2712-045
2701-207	Jaw face shields for faces 50 W × 25 H on 10 kN grips 2712-046[1]
2701-208	Jaw face shields for faces 75 W × 50 H on 10 kN grips 2712-046[1]
2701-209	Jaw face shields for faces 75 W × 25 H on 10 kN grips 2712-046
2701-221	Specimen holders with integral specimen alignment device for 2712-041 and 2712-042 Pneumatic Grips.
2701-222	Specimen holders with integral specimen alignment device for 2712-045 and 2712-046 Pneumatic Grips.
2701-042	Air Distribution Kit
2701-004	Pneumatic Footswitch [2]
2701-065	Automatic Air Control Kit [3]
2701-095	Smart Close Air Kit

Notes:
1. Included with grip catalog number
2. Not compatible with 3400 or 6800 systems
3. Compatible with 3300, 4400 (except 4411), 5500, 5800, 5900 series load frames and UPDATE Retrofits (excluding 4400/5500 retrofits to 113X Series, 4500 Series, and 6000 Series).

Jaw Face Surfaces

Each jaw face has a center mark on all four sides that helps you easily align your specimen.

Brake Lining

For gripping composite tows and other hard, but easily damaged, materials.

Line Contact

For gripping paper and elasticated fabrics.

Rubber

For gripping threads, fabrics, plastic tapes, and materials where a compliant surface is beneficial.

Serrated

For gripping plastics, metals, fabric, and soft materials, such as elastomers.

Smooth

For gripping films, foils, fine wires, thin sheets, and tapes.

Vee Serrated

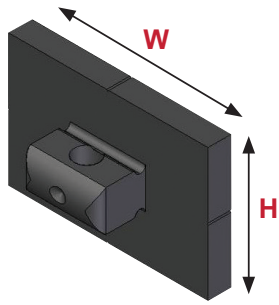
For gripping larger diameter rounds, such as thicker metal wires, tubes, and hard plastic.

Wave Profile

For gripping coated fabrics, tough foils and engineering textiles.

JAW FACES

Catalog Number	Type	W × H (mm)	Maximum Specimen Thickness (mm)		
			2712-041	2712-042	2712-045/-046
2702-300	Rubber-coated	25 × 25	11	18	24
2702-301	Rubber-coated	25 × 38	11	18	24
2702-302	Rubber-coated	25 × 50	11	18	24
2702-303	Rubber-coated	38 × 12	11	18	24
2702-304	Rubber-coated	38 × 25	11	18	24
2702-305	Rubber-coated	38 × 50	11	18	24
2702-306	Rubber-coated	50 × 25	11	18	24
2702-307	Rubber-coated	50 × 38	11	18	24
2702-308	Rubber-coated	50 × 50	6	13	19
2702-309	Rubber-coated	75 × 25	11	18	24
2702-310	Rubber-coated	75 × 50	6	13	19
2702-311	Rubber-coated	150 × 50	6	13	19
2702-315	Serrated	25 × 25	13	20	26
2702-316	Serrated	25 × 38	13	20	26
2702-357	Serrated	25 × 50	8	15	21
2702-318	Serrated	38 × 12	13	20	26
2702-319	Serrated	38 × 25	13	20	26
2702-320	Serrated	38 × 50	13	20	26
2702-321	Serrated	50 × 25	13	20	26
2702-322	Serrated	50 × 38	13	20	26
2702-323	Serrated	50 × 50	8	15	21
2702-324	Serrated	75 × 25	13	20	26
2702-325	Serrated	75 × 50	8	15	21
2702-326	Serrated	150 × 50	8	15	21
2702-330	Smooth-ground	25 × 25	13	20	26
2702-331	Smooth-ground	25 × 38	13	20	26
2702-332	Smooth-ground	25 × 50	13	20	26
2702-333	Smooth-ground	38 × 12	13	20	26
2702-334	Smooth-ground	38 × 25	13	20	26
2702-335	Smooth-ground	38 × 50	13	20	26
2702-336	Smooth-ground	50 × 25	13	20	26
2702-337	Smooth-ground	50 × 38	13	20	26
2702-338	Smooth-ground	50 × 50	8	15	21
2702-339	Smooth-ground	75 × 25	13	20	26
2702-340	Smooth-ground	75 × 50	8	15	21
2702-341	Smooth-ground	150 × 50	8	15	21
2702-345	Brake-lining (HFC)	25 × 38	10	17	23
2702-346	Brake-lining (HFC)	38 × 25	10	17	23
2702-347	Brake-lining (HFC)	50 × 38	10	17	23
2702-350	Line-contact	25	13	20	26
2702-351	Line-contact	75	13	20	26
2702-352	Wave-profile	50 × 50	Not Compatible	6.5	12.5
2702-353	Wave-profile	75 × 50	Not Compatible	6.5	12.5
2702-354	Vee-serrated	3 - 6.5 × 25	6.5	6.5	6.5
2702-355	Vee-serrated	6 - 18.5 × 25	7	14	18.5



Notes:
1. Catalog number provides four faces
2. Surfaces are hardened to 50 to 55 Rc (excluding rubber and brake lining surfaces)
3. Line contact faces are provide with a smooth-ground opposing face

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