

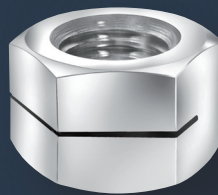
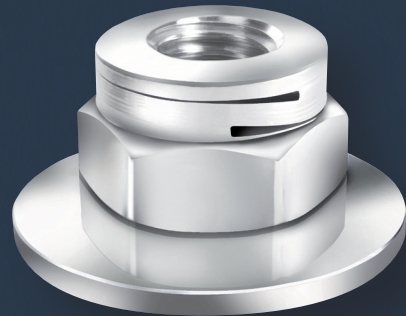
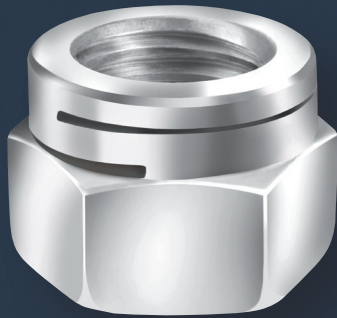


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TECHNICAL SHEETS



J. LANFRANCO & C^{IE}

MANUFACTURER



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FOREWORD OF THE MANUFACTURER

To ensure a safe male / female clamping condition, it is important to consider a combination of the following parameters when designing controlled bolt joint assemblies using self locking nuts (HFR):

1. SELECTION OF THE CORRECT GRADE OF RAW MATERIAL
2. TIGHTENING TORQUE (Nm)
3. TENSION IN THE BOLT (KN)
4. PREVAILING TORQUE (Nm)
5. COEFFICIENT OF FRICTION
6. SURFACE TREATMENT

In order to achieve a security fastening in conformity with industry standards, the 6 points above must be respected.

The following technical sheets will aid you in the selection of the self-locking nut adapted to your requirements.



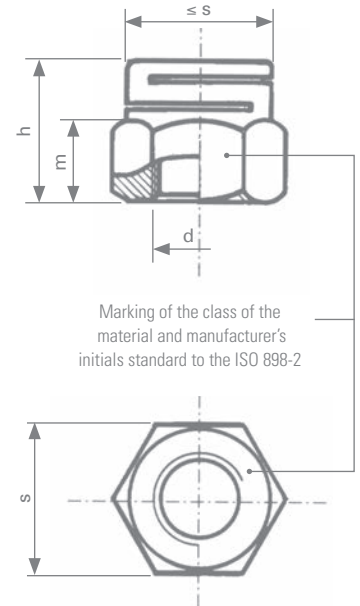
ESL
HFR NUT
ALL METALS – METRIC

Definition: all metals reusable slotted self-locking hexagon nut standard to the NFE 25 411 and SNCF ST 001-002 FPN6

Threading: standard to ISO 965-2

Characteristic and performance test: steel ISO 898-2 / NF EN ISO 2320

| d | pitch | s | h | m |
|-------|-------|-------|-------|-------|
| M 2 | 0,40 | 4,00 | 4,50 | 2,30 |
| M 2,5 | 0,45 | 5,00 | 4,50 | 2,30 |
| M 3 | 0,50 | 5,50 | 4,50 | 2,50 |
| M 4 | 0,70 | 7,00 | 5,30 | 2,60 |
| M 5 | 0,80 | 8,00 | 6,30 | 3,00 |
| M 6 | 1,00 | 10,00 | 7,00 | 3,60 |
| M 7 | 1,00 | 11,00 | 8,10 | 4,80 |
| M 8 | 1,25 | 13,00 | 8,80 | 4,80 |
| M 10 | 1,50 | 16,00 | 11,00 | 6,00 |
| M 12 | 1,75 | 18,00 | 13,00 | 7,20 |
| M 14 | 2,00 | 21,00 | 15,00 | 8,40 |
| M 16 | 2,00 | 24,00 | 18,70 | 11,50 |
| M 18 | 2,50 | 27,00 | 20,00 | 11,50 |
| M 20 | 2,50 | 30,00 | 21,00 | 12,00 |
| M 22 | 2,50 | 34,00 | 21,50 | 12,50 |
| M 24 | 3,00 | 36,00 | 25,50 | 15,40 |
| M 27 | 3,00 | 41,00 | 28,00 | 17,00 |
| M 30 | 3,50 | 46,00 | 31,50 | 18,50 |
| M 33 | 3,50 | 50,00 | 32,00 | 18,70 |
| M 36 | 4,00 | 55,00 | 34,50 | 19,50 |
| M 39 | 4,00 | 60,00 | 37,00 | 20,50 |
| M 42 | 4,50 | 65,00 | 39,50 | 23,00 |
| M 45 | 4,50 | 70,00 | 43,00 | 24,00 |
| M 48 | 5,00 | 75,00 | 46,00 | 25,00 |



| Quality class | Classification | Range of application |
|----------------|----------------|--|
| Class 8 steel | QV | Self-color -50° C + 300° C ⁽¹⁾ |
| Class 10 steel | QK | |
| Class 12 steel | QL | |

Others: Brass - Bronze - Light alloy - Titanium...

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|-----------------|----|
| classification | ESL | 100150 | QV | ZL | 00 |
| wording | ESL | M10 X 1,50 | 8 | Zinc Lanthane ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

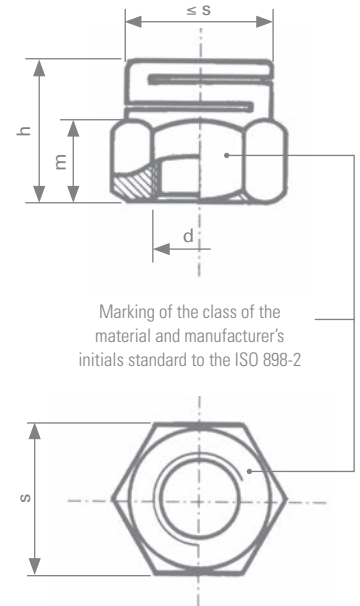
ESL
HFR NUT
STAINLESS STEEL

Definition: all metals reusable slotted self-locking hexagon nut standard to the NFE 25 411 and SNCF ST 001-002 FPn6

Threading: standard to ISO 965-2

Characteristic and performance test: stainless steel NF EN ISO 3506-2 / NF E 25035

| d | pitch | s | h | m |
|-------|-------|-------|-------|-------|
| M 2 | 0,40 | 4,00 | 4,50 | 2,30 |
| M 2,5 | 0,45 | 5,00 | 4,50 | 2,30 |
| M 3 | 0,50 | 5,50 | 4,50 | 2,50 |
| M 4 | 0,70 | 7,00 | 5,30 | 2,60 |
| M 5 | 0,80 | 8,00 | 6,30 | 3,00 |
| M 6 | 1,00 | 10,00 | 7,00 | 3,60 |
| M 7 | 1,00 | 11,00 | 8,10 | 4,80 |
| M 8 | 1,25 | 13,00 | 8,80 | 4,80 |
| M 10 | 1,50 | 16,00 | 11,00 | 6,00 |
| M 12 | 1,75 | 18,00 | 13,00 | 7,20 |
| M 14 | 2,00 | 21,00 | 15,00 | 8,40 |
| M 16 | 2,00 | 24,00 | 17,00 | 9,50 |
| M 18 | 2,50 | 27,00 | 19,50 | 11,50 |
| M 20 | 2,50 | 30,00 | 21,00 | 12,00 |
| M 22 | 2,50 | 34,00 | 21,50 | 12,50 |
| M 24 | 3,00 | 36,00 | 25,50 | 15,40 |
| M 27 | 3,00 | 41,00 | 28,00 | 17,00 |
| M 30 | 3,50 | 46,00 | 31,50 | 18,50 |
| M 33 | 3,50 | 50,00 | 32,00 | 18,70 |
| M 36 | 4,00 | 55,00 | 34,50 | 19,50 |
| M 39 | 4,00 | 60,00 | 37,00 | 20,50 |
| M 42 | 4,50 | 65,00 | 39,50 | 23,00 |
| M 45 | 4,50 | 70,00 | 43,00 | 24,00 |
| M 48 | 5,00 | 75,00 | 46,00 | 25,00 |



| Quality class | Classification | Range of application |
|-----------------------|----------------|---|
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C + 400° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| Surface treatment | Classification |
|-------------------|------------------------------|
| Passivation | PA |
| Antigalling | Stanal ® 400 |
| | Sherardisation (NF EN 13811) |
| Self color | BT |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|--------------|----|
| classification | ESL | 100150 | ZH | ST | 00 |
| wording | ESL | M10 X 1,50 | A4 80 | Stanal ® 400 | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

ESL
HFR NUT
ALL METALS – UNC / UNF

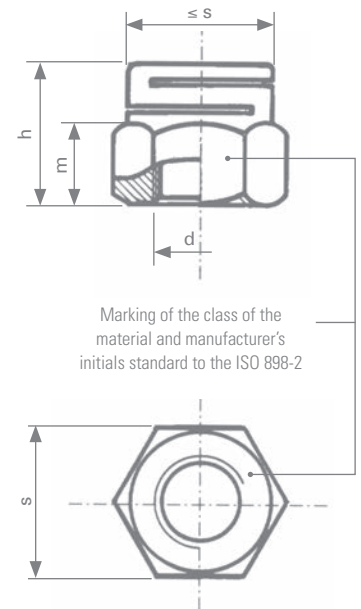
Definition: all metals reusable slotted self-locking hexagon nut standard to the NFE 25 411 and SNCF ST 001-002 FPN6

Threading: series UNC / UNF ANSI B1.1 and BS 1580 - BSF / BSW on request

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035



| d / inches | d / mm | pitch / UNC | pitch / UNF | s / mm | h / mm | m / mm | Codes |
|------------|--------|-------------|-------------|------------|--------|--------|-------|
| N°8 | 4,16 | 32 | 36 | 8,00 | 5,30 | 2,60 | H |
| N°10 | 4,82 | 24 | 32 | 9,00 | 6,30 | 3,00 | I |
| 1/4 | 6,35 | 20 | 28 | 11,00 | 7,50 | 4,00 | K |
| 5/16 | 7,94 | 18 | 24 | 13,00 | 8,80 | 4,80 | L |
| 3/8 | 9,52 | 16 | 24 | 14,00 | 8,80 | 4,80 | M |
| 7/16 | 11,11 | 14 | 20 | 17,00 | 11,00 | 6,00 | N |
| 1/2 | 12,70 | 13 | 20 | 18,00 | 13,00 | 7,20 | O |
| 9/16 | 14,29 | 12 | 18 | 22,00 | 15,00 | 8,00 | P |
| 5/8 | 15,87 | 11 | 18 | 24,00 | 17,00 | 9,50 | Q |
| 3/4 | 19,05 | 10 | 16 | 28,00 | 21,00 | 12,00 | R |
| 7/8 | 22,22 | 9 | 14 | 33,00 | 22,00 | 12,50 | S |
| 1 | 25,40 | 8 | 12 | 41,00 | 24,00 | 13,50 | T |
| 1 1/4 | 31,75 | 7 | 12 | 46,00 | 29,50 | 16,00 | V |
| 1 1/2 | 38,10 | 6 | 12 | 55,00 | 32,00 | 17,50 | X |
| 1 3/4 | 44,45 | 5 | - | on request | | | Z |
| 2 | 50,80 | 4 | - | 75,00 | 46,00 | 25,50 | Y |



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | |

Others: Brass - Bronze - Light alloy - Titanium...

⁽¹⁾ Values are only given as indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|----------------|----|
| classification | ESL | N00UNC | QV | ZL | 00 |
| wording | ESL | ø 7/16" UNC | 8 | Zinc Lanthane® | * |

*Standard size

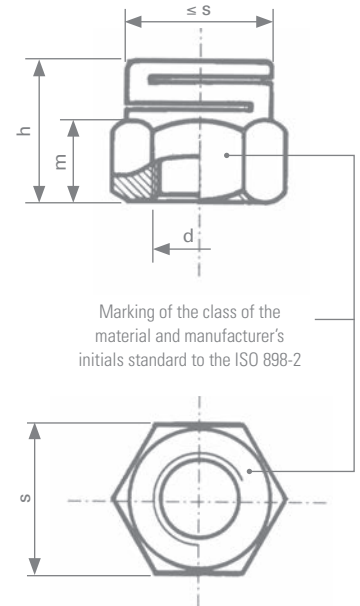
On request: other materials, plating, sizes, imperial thread

ESL
HFR NUT
ALL METALS – UNC / UNF – BS STANDARD
Definition: all metals reusable slotted self-locking hexagon nut

Threading: series UNC / UNF ANSI B1.1 and BS 1580 - BSF / BSW on request

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035


| d / inches | d / mm | pitch / UNC | pitch / UNF | s / min. | s / max. | h | m | codes |
|------------|--------|-------------|-------------|----------|----------|-------|-------|-------|
| N°1 | 1,854 | 64 | 72 | 6,172 | 6,375 | 5,30 | 2,60 | B |
| N°2 | 2,184 | 56 | 64 | 6,172 | 6,375 | 5,30 | 2,60 | C |
| N°3 | 2,515 | 48 | 56 | 6,172 | 6,375 | 5,30 | 2,60 | D |
| N°4 | 2,845 | 40 | 48 | 6,172 | 6,375 | 5,30 | 2,60 | E |
| N°5 | 3,175 | 40 | 44 | 6,172 | 6,375 | 5,30 | 2,60 | F |
| N°6 | 3,505 | 32 | 40 | 7,747 | 7,950 | 6,30 | 3,00 | G |
| N°8 | 4,166 | 32 | 36 | 8,534 | 8,763 | 6,30 | 3,00 | H |
| N°10 | 4,826 | 24 | 32 | 9,321 | 9,550 | 6,30 | 3,00 | I |
| N°12 | 5,486 | 24 | 28 | 10,871 | 11,125 | 7,50 | 4,50 | J |
| 1/4 | 6,350 | 20 | 28 | 10,871 | 11,125 | 7,50 | 4,50 | K |
| 5/16 | 7,938 | 18 | 24 | 12,420 | 12,700 | 8,80 | 4,80 | L |
| 3/8 | 9,525 | 16 | 24 | 13,995 | 14,274 | 8,80 | 4,80 | M |
| 7/16 | 11,113 | 14 | 20 | 17,145 | 17,475 | 11,00 | 6,00 | N |
| 1/2 | 12,700 | 13 | 20 | 18,694 | 19,050 | 13,00 | 7,20 | O |
| 9/16 | 12,032 | 12 | 18 | 21,869 | 22,225 | 15,00 | 8,00 | P |
| 5/8 | 15,875 | 11 | 18 | 23,418 | 23,825 | 17,00 | 9,50 | Q |
| 3/4 | 19,050 | 10 | 16 | 27,635 | 28,575 | 21,00 | 12,00 | R |
| 7/8 | 22,225 | 9 | 14 | 32,232 | 33,324 | 22,00 | 12,50 | S |
| 1 | 25,400 | 8 | 12 | 36,830 | 38,100 | 24,00 | 13,50 | T |
| 1 1/8 | 28,575 | 7 | 12 | 41,427 | 42,875 | 25,00 | 14,00 | U |
| 1 1/4 | 31,750 | 7 | 12 | 46,024 | 47,701 | 29,50 | 16,00 | V |
| 1 3/8 | 34,925 | 6 | 12 | 50,647 | 52,374 | 32,00 | 17,00 | W |
| 1 1/2 | 38,100 | 6 | 12 | 55,245 | 57,150 | 35,00 | 18,50 | X |



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

Others: Brass - Bronze - Light alloy - Titanium...

⁽¹⁾ Values are only given as indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|---------|--------------|-------------|------------|------------------|
| classification | ESL | N00UNC | QV | ZL | 00 |
| | wording | ESL | ø 7/16" UNC | 8 | Zinc Lanthane® * |

*Standard size

On request: other materials, plating, sizes, imperial thread

ERM

HFR FLANGE NUT

WITH FREE WASHER ALL METALS – METRIC

Definition: all metals reusable slotted self-locking hexagon flange nut with free washer

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

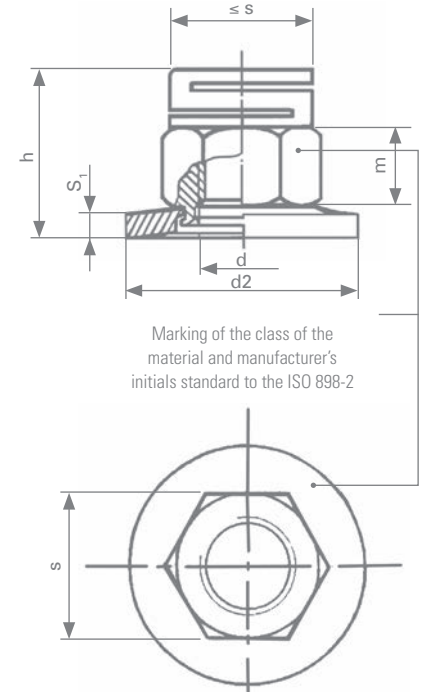
| d | pitch | s | h | m | d ₂ * | s ₁ |
|------|-------|-------|-------|------|------------------|----------------|
| M 4 | 0,70 | 7,00 | 7,00 | 2,60 | 12,00 | 1,10 |
| M 5 | 0,80 | 8,00 | 8,50 | 3,00 | 14,00 | 1,30 |
| M 6 | 1,00 | 10,00 | 9,00 | 4,50 | 18,00 | 1,40 |
| M 8 | 1,25 | 13,00 | 11,00 | 4,80 | 22,00 | 1,60 |
| M 10 | 1,50 | 16,00 | 13,40 | 6,00 | 22,00 / 27,00 | 1,80 |
| M 12 | 1,75 | 18,00 | 15,80 | 7,20 | 27,00 | 1,80 |
| M 14 | 2,00 | 21,00 | 17,80 | 8,40 | 30,00 | 2,40 |
| M 16 | 2,00 | 24,00 | 19,80 | 9,50 | 40,00 | 3,20 |

Sizes: * Only given as an indication. On request for other type and other diameter of washers

| Quality class | Classification | Range of application |
|--------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | |

Others: Brass - Bronze - Light alloy - Titanium...

⁽¹⁾ Values are only given as indication



Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | ERM | 100150 | ZH | ST | 01 |
| wording | ERM | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

ERM
HFR FLANGE NUT
WITH FREE WASHER ALL METALS – UNC / UNF

Definition: all metals reusable slotted self-locking hexagon flange nut with free washer

Threading: series UNC / UNF ANSI B.1.1 and BS 1580 - BSF / BSW on request

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

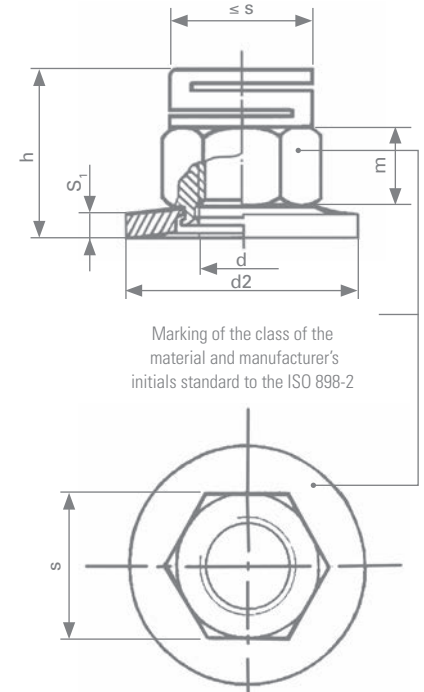


| d nominal | pitch / UNC | pitch / UNF | s | h | m | d ₂ * | s ₁ | codes |
|-----------|-------------|-------------|-------|-------|-------|------------------|----------------|-------|
| N°10 | 24 | 32 | 9,00 | 8,00 | 3,00 | 14,00 | 1,30 | I |
| 1/4 | 20 | 28 | 11,00 | 9,50 | 4,00 | 18,00 | 1,40 | K |
| 5/16 | 18 | 24 | 13,00 | 10,80 | 4,80 | 22,00 | 1,60 | L |
| 3/8 | 16 | 24 | 14,00 | 10,80 | 4,80 | 22,00 | 1,60 | M |
| 7/16 | 14 | 20 | 17,00 | 13,50 | 6,00 | 27,00 | 1,80 | N |
| 1/2 | 13 | 20 | 18,00 | 15,80 | 7,20 | 30,00 | 2,40 | O |
| 5/8 | 11 | 18 | 24,00 | 21,00 | 9,50 | 40,00 | 3,20 | Q |
| 3/4 | 10 | 16 | 28,00 | 25,00 | 12,00 | 40,00 | 3,20 | R |

* Different type and diameter of washers can be supplied on request

| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication



| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

| Example of ordering code | | | | | |
|--------------------------|------|--------------|-------|----------------|----|
| | Type | Diam X pitch | Class | Protection | |
| classification | ERM | N00UNF | QV | ZL | 01 |
| wording | ERM | ø 7/16" UNF | 8 | Zinc Lanthane® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

THM

HFR NUT

THIN TYPE

Definition: all metals reusable two slotted self-locking hexagon nut

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

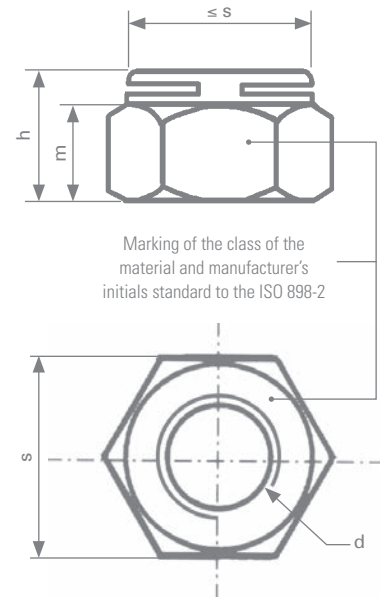
Range of operations: from diameter M4 to M45



| d nominal | pitch | h | m | s |
|-----------|-------|-------|-------|-------|
| M 4 | 0,70 | 4,50 | 2,50 | 7,00 |
| M 5 | 0,80 | 4,80 | 2,60 | 8,00 |
| M 6 | 1,00 | 5,20 | 2,70 | 10,00 |
| M 8 | 1,25 | 6,00 | 3,50 | 13,00 |
| M 10 | 1,50 | 7,50 | 4,50 | 17,00 |
| M 12 | 1,75 | 9,00 | 5,50 | 19,00 |
| M 14 | 2,00 | 11,00 | 7,00 | 22,00 |
| M 16 | 2,00 | 12,00 | 8,00 | 24,00 |
| M 18 | 2,50 | 14,00 | 9,50 | 27,00 |
| M 20 | 2,50 | 15,00 | 10,50 | 30,00 |
| M 22 | 2,50 | 17,00 | 12,00 | 32,00 |
| M 24 | 3,00 | 19,00 | 13,00 | 36,00 |
| M 27 | 3,00 | 20,00 | 14,00 | 41,00 |
| M 30 | 3,50 | 21,50 | 15,00 | 46,00 |
| M 33 | 3,50 | 23,00 | 16,50 | 50,00 |
| M 36 | 4,00 | 25,00 | 18,00 | 55,00 |
| M 39 | 4,00 | 26,00 | 19,00 | 60,00 |
| M 42 | 4,50 | 30,00 | 22,00 | 65,00 |
| M 45 | 4,50 | 32,00 | 24,00 | 70,00 |

| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication



| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | THM | 100150 | ZH | ST | 00 |
| wording | THM | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

THU

HFR NUT

STANDARD TYPE

Definition: all metals reusable two slotted self-locking hexagon nut

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

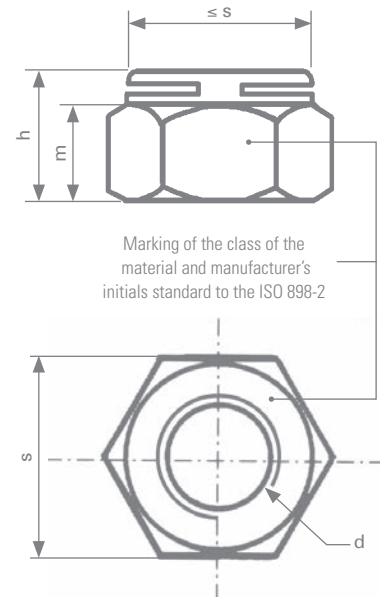
Range of operations: from diameter M4 to M45



| d nominal | pitch | h | m | s |
|-----------|-------|-------|-------|-------|
| M 4 | 0,70 | 5,50 | 3,50 | 7,00 |
| M 5 | 0,80 | 6,50 | 4,30 | 8,00 |
| M 6 | 1,00 | 7,50 | 5,00 | 10,00 |
| M 8 | 1,25 | 8,50 | 6,00 | 13,00 |
| M 10 | 1,50 | 11,00 | 8,00 | 17,00 |
| M 12 | 1,75 | 13,00 | 9,50 | 19,00 |
| M 14 | 2,00 | 15,00 | 11,00 | 22,00 |
| M 16 | 2,00 | 17,00 | 13,00 | 24,00 |
| M 18 | 2,50 | 20,00 | 15,50 | 27,00 |
| M 20 | 2,50 | 22,00 | 17,50 | 30,00 |
| M 22 | 2,50 | 23,00 | 18,00 | 32,00 |
| M 24 | 3,00 | 25,00 | 19,00 | 36,00 |
| M 27 | 3,00 | 27,00 | 21,00 | 41,00 |
| M 30 | 3,50 | 30,00 | 23,50 | 46,00 |
| M 33 | 3,50 | 33,00 | 26,50 | 50,00 |
| M 36 | 4,00 | 36,00 | 29,00 | 55,00 |
| M 39 | 4,00 | 38,00 | 31,00 | 60,00 |
| M 42 | 4,50 | 42,00 | 34,00 | 65,00 |
| M 45 | 4,50 | 45,00 | 37,00 | 70,00 |

| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication



| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

| Example of ordering code | | | | | |
|--------------------------|------|--------------|-------|------------|----|
| | Type | Diam X pitch | Class | Protection | |
| classification | THU | 100150 | ZH | ST | 00 |
| wording | THU | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

HCB

HFR NUT

HEIGHT (h) = 0,8d

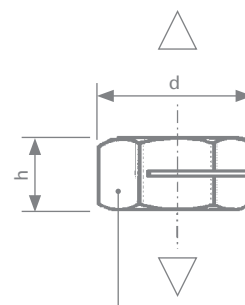
Definition: all metals self-locking hexagon nut with one slot

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

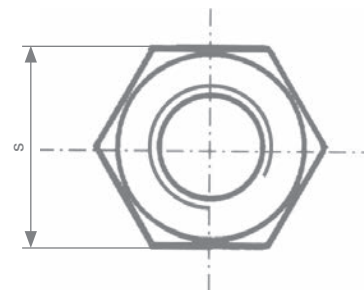
Range of operations: from diameter M5 to M48

| d | pitch | h - min. | h - max. | s |
|------|-------|----------|----------|-------|
| M 5 | 0,80 | 3,70 | 4,70 | 8,00 |
| M 6 | 1,00 | 4,70 | 5,20 | 10,00 |
| M 8 | 1,25 | 6,14 | 6,80 | 13,00 |
| M 10 | 1,50 | 7,64 | 8,40 | 16,00 |
| M 12 | 1,75 | 9,50 | 10,80 | 18,00 |
| M 14 | 2,00 | 10,30 | 12,80 | 21,00 |
| M 16 | 2,00 | 12,30 | 14,80 | 24,00 |
| M 18 | 2,50 | 14,20 | 15,80 | 27,00 |
| M 20 | 2,50 | 14,90 | 18,00 | 30,00 |
| M 22 | 2,50 | 16,90 | 19,40 | 34,00 |
| M 24 | 3,00 | 17,70 | 21,50 | 36,00 |
| M 27 | 3,00 | 20,70 | 23,80 | 41,00 |
| M 30 | 3,50 | 22,70 | 25,60 | 46,00 |
| M 33 | 3,50 | 24,70 | 28,70 | 50,00 |
| M 36 | 4,00 | 27,40 | 31,00 | 55,00 |
| M 39 | 4,00 | 29,40 | 33,40 | 60,00 |
| M 42 | 4,50 | 32,40 | 34,00 | 65,00 |
| M 45 | 4,50 | 34,40 | 36,30 | 70,00 |
| M 48 | 5,00 | 36,40 | 38,70 | 75,00 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2

△ Assembly direction



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | HCB | M10 X 1,50 | ZH | ST | 00 |
| wording | HCB | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

HCE

HFR NUT

HEIGHT (h) = d

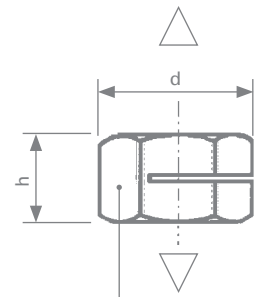
Definition: all metals self-locking hexagon nut with one slot

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

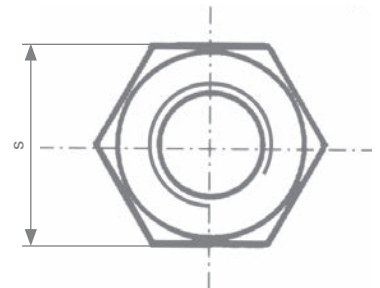
Range of operations: from diameter M4 to M48

| d | pitch | h - min. | h - max. | s |
|------|-------|----------|----------|-------|
| M 4 | 0,70 | 3,90 | 4,10 | 7,00 |
| M 5 | 0,80 | 4,80 | 5,10 | 8,00 |
| M 6 | 1,00 | 5,40 | 6,00 | 10,00 |
| M 8 | 1,25 | 7,14 | 8,00 | 13,00 |
| M 10 | 1,50 | 8,94 | 10,00 | 16,00 |
| M 12 | 1,75 | 11,57 | 12,00 | 18,00 |
| M 14 | 2,00 | 13,40 | 14,10 | 21,00 |
| M 16 | 2,00 | 15,70 | 16,40 | 24,00 |
| M 18 | 2,50 | 16,90 | 18,00 | 27,00 |
| M 20 | 2,50 | 19,00 | 20,30 | 30,00 |
| M 22 | 2,50 | 20,50 | 22,00 | 34,00 |
| M 24 | 3,00 | 22,60 | 24,00 | 36,00 |
| M 27 | 3,00 | 25,40 | 27,00 | 41,00 |
| M 30 | 3,50 | 27,30 | 30,00 | 46,00 |
| M 33 | 3,50 | 30,90 | 33,00 | 50,00 |
| M 36 | 4,00 | 33,10 | 36,00 | 55,00 |
| M 39 | 4,00 | 35,90 | 40,40 | 60,00 |
| M 42 | 4,50 | 36,60 | 43,40 | 65,00 |
| M 45 | 4,50 | 38,90 | 46,40 | 70,00 |
| M 48 | 5,00 | 41,20 | 49,40 | 75,00 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2

△ Assembly direction



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | HCE | 100150 | ZH | ST | 00 |
| winding | HCE | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

HCT

HFR NUT

HEIGHT (h) = 1,3d

Definition: all metals self-locking hexagon nut with one slot

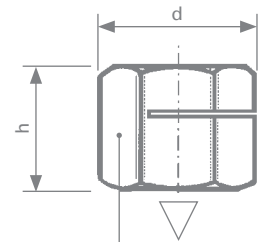
Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

Range of operations: from diameter M3 to M48

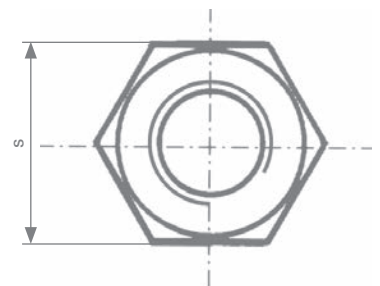


| d | pitch | h - min. | h - max. | s |
|------|-------|----------|----------|-------|
| M 3 | 0,50 | 3,80 | 4,00 | 5,50 |
| M 4 | 0,70 | 5,10 | 5,30 | 7,00 |
| M 5 | 0,80 | 6,20 | 6,70 | 8,00 |
| M 6 | 1,00 | 7,60 | 8,00 | 10,00 |
| M 8 | 1,25 | 10,20 | 10,60 | 13,00 |
| M 10 | 1,50 | 12,75 | 13,25 | 16,00 |
| M 12 | 1,75 | 15,35 | 15,85 | 18,00 |
| M 14 | 2,00 | 18,00 | 18,40 | 21,00 |
| M 16 | 2,00 | 20,60 | 21,00 | 24,00 |
| M 18 | 2,50 | 23,20 | 23,60 | 27,00 |
| M 20 | 2,50 | 25,80 | 26,20 | 30,00 |
| M 22 | 2,50 | 28,40 | 28,80 | 34,00 |
| M 24 | 3,00 | 31,00 | 31,40 | 36,00 |
| M 27 | 3,00 | 34,90 | 35,30 | 41,00 |
| M 30 | 3,50 | 36,80 | 39,20 | 46,00 |
| M 33 | 3,50 | 42,70 | 43,10 | 50,00 |
| M 36 | 4,00 | 46,50 | 47,10 | 55,00 |
| M 39 | 4,00 | 50,40 | 51,00 | 60,00 |
| M 42 | 4,50 | 54,30 | 54,90 | 65,00 |
| M 45 | 4,50 | 58,20 | 58,80 | 70,00 |
| M 48 | 5,00 | 62,10 | 62,70 | 75,00 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2

△ Assembly direction



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | HCT | 100150 | ZH | ST | 00 |
| wording | HCT | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

ESF

HFR NUT

RIVETING

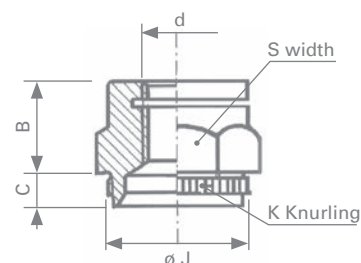
Definition: all metals self-locking riveting nut, with locking slot

Threading: standard to ISO 965-2

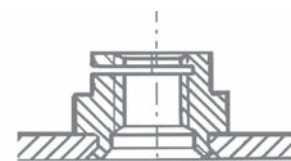
Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

| d | s | Jo + 0,05 | B | C | sheet thickness | ø Boring |
|-----|-------|-----------|------|------|-----------------|----------|
| M 4 | 8,00 | 6,74 | 5,30 | 1,60 | 1,50 | 6,55 |
| | | | | 2,20 | 2,00 | à |
| | | | | 2,60 | 2,50 | 6,65 |
| M 6 | 11,00 | 8,90 | 7,00 | 2,20 | 2,00 | 8,70 |
| | | | | 2,60 | 2,50 | à |
| | | | | 3,40 | 3,00 | 8,80 |
| M 8 | 14,00 | 10,50 | 9,80 | 2,60 | 2,50 | 10,30 |
| | | | | 3,40 | 3,00 | à |
| | | | | 4,20 | 4,00 | 10,40 |

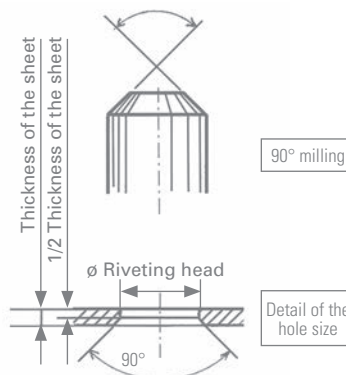
Sizes: The sheet thicknesses were given as examples, please contact us for other thicknesses



Assembly instruction



ESF riveting nut



| Quality class | Classification | Range of application |
|-------------------------|----------------|---|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|-----------------|------|
| classification | ESF | 060100 | QV | ZL | 26 |
| wording | ESF | M6 X 1,00 | 8 | White Lanthane® | 2,6* |

*Sheet thickness

On request: other materials, plating, sizes, imperial thread

HMP

HFR NUT

NYLON INSERT ISO 10511

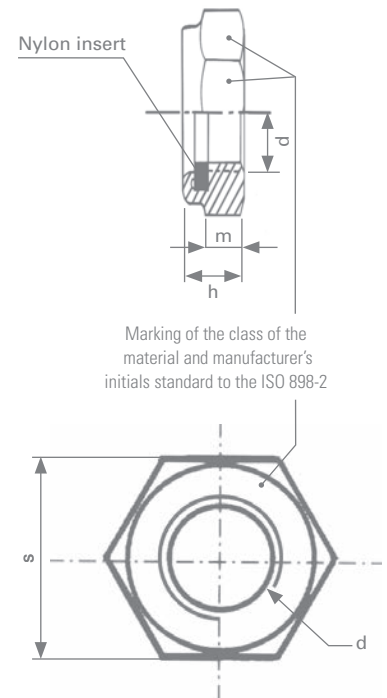
Definition: self-locking nut with nylon insert

Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

Range of operations: from diameter M3 to M36

| d | pitch | h - min. | h - max. | m - min. | s |
|------|-------|----------|----------|----------|-------|
| M 3 | 0,50 | 3,42 | 3,90 | 1,55 | 5,50 |
| M 4 | 0,70 | 4,52 | 5,00 | 1,95 | 7,00 |
| M 5 | 0,80 | 4,52 | 5,00 | 2,45 | 8,00 |
| M 6 | 1,00 | 5,52 | 6,00 | 2,90 | 10,00 |
| M 8 | 1,25 | 6,18 | 6,76 | 3,70 | 13,00 |
| M 10 | 1,50 | 7,98 | 8,56 | 4,70 | 16,00 |
| M 12 | 1,75 | 9,53 | 10,23 | 5,70 | 18,00 |
| M 14 | 2,00 | 10,22 | 11,32 | 6,42 | 21,00 |
| M 16 | 2,00 | 11,32 | 12,42 | 7,42 | 24,00 |
| M 18 | 2,50 | 14,40 | 15,50 | 9,00 | 27,00 |
| M 20 | 2,50 | 13,10 | 14,90 | 9,10 | 30,00 |
| M 24 | 3,00 | 16,00 | 17,80 | 10,90 | 36,00 |
| M 27 | 3,00 | 20,40 | 22,20 | 13,50 | 41,00 |
| M 30 | 3,50 | 20,10 | 22,20 | 13,90 | 46,00 |
| M 36 | 4,00 | 23,40 | 25,50 | 16,90 | 55,00 |



| Quality class | Classification | Range of application | |
|-----------------------|----------------|-------------------------------|-------------------------------|
| Class 04 steel | QN | Usual ring | Brown ring |
| Class 05 steel | QS | | |
| Stainless steel A2-70 | ZE | | |
| Stainless steel A4-70 | ZK | -40° C +120° C ⁽¹⁾ | -40° C +230° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | | |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | HMP | 100150 | ZH | ST | 00 |
| wording | HMP | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

HUP

HFR NUT

NYLON INSERT ISO 7040

Definition: self-locking nut with nylon insert

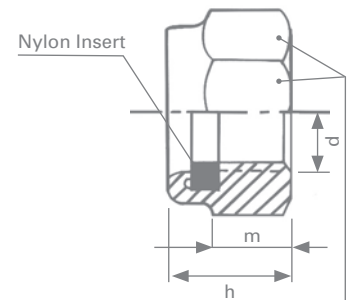
Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

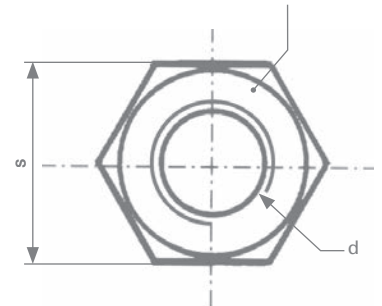
Range of operations: from diameter M3 to M36



| d | pitch | h - min. | h - max. | m - min. | s |
|------|-------|----------|----------|----------|-------|
| M 3 | 0,50 | 4,02 | 4,50 | 2,15 | 5,50 |
| M 4 | 0,70 | 5,52 | 6,00 | 2,90 | 7,00 |
| M 5 | 0,80 | 6,22 | 6,80 | 4,40 | 8,00 |
| M 6 | 1,00 | 7,42 | 8,00 | 4,90 | 10,00 |
| M 8 | 1,25 | 8,92 | 9,50 | 6,44 | 13,00 |
| M 10 | 1,50 | 11,20 | 11,90 | 8,04 | 16,00 |
| M 12 | 1,75 | 14,20 | 14,90 | 10,37 | 18,00 |
| M 14 | 2,00 | 15,90 | 17,00 | 12,10 | 21,00 |
| M 16 | 2,00 | 17,80 | 19,10 | 14,10 | 24,00 |
| M 18 | 2,50 | 21,00 | 22,30 | 15,10 | 27,00 |
| M 20 | 2,50 | 20,70 | 22,80 | 16,90 | 30,00 |
| M 24 | 3,00 | 25,00 | 27,10 | 20,20 | 36,00 |
| M 27 | 3,00 | 30,40 | 32,50 | 22,50 | 41,00 |
| M 30 | 3,50 | 30,10 | 32,60 | 24,30 | 46,00 |
| M 36 | 4,00 | 36,40 | 38,90 | 29,40 | 55,00 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2



| Quality class | Classification | Range of application | |
|--------------------------|----------------|-------------------------------|-------------------------------|
| Class 8 steel / Grade 5 | QV | Usual ring | Brown ring |
| Class 10 steel / Grade 8 | QK | -40° C +120° C ⁽¹⁾ | -40° C +230° C ⁽¹⁾ |
| Stainless steel A2-70 | ZE | | |
| Stainless steel A4-70 | ZK | | |
| Stainless steel A4-80 | ZH | | |

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | HUP | 100150 | ZH | ST | 00 |
| | HUP | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

EUM

HFR FLANGE NUT

NYLON INSERT WITH FREE WASHER

Definition: all metals reusable slotted self-locking nut, with nylon insert

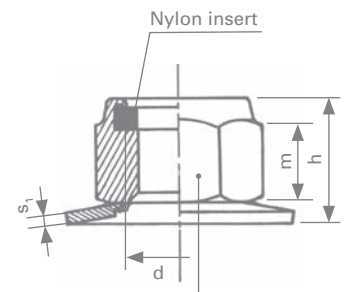
Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

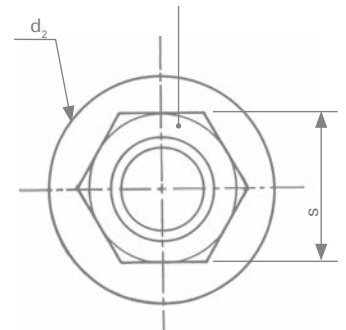
| d | pitch | s | h | m | d ₂ * | s ₁ |
|------|-------|-------|-------|-------|------------------|----------------|
| M 4 | 0,70 | 7,00 | 7,70 | 3,30 | 12,00 | 1,10 |
| M 5 | 0,80 | 8,00 | 8,70 | 4,50 | 14,00 | 1,30 |
| M 6 | 1,00 | 10,00 | 10,10 | 5,60 | 18,00 | 1,40 |
| M 8 | 1,25 | 13,00 | 12,00 | 7,30 | 22,00 | 1,60 |
| M 10 | 1,50 | 16,00 | 14,80 | 8,40 | 27,00 | 1,80 |
| M 12 | 1,75 | 18,00 | 18,40 | 11,40 | 27,00 / 30,00 ** | 1,80 |
| M 14 | 2,00 | 21,00 | 20,50 | 13,30 | 32,00 | 2,40 |
| M 16 | 2,00 | 24,00 | 23,70 | 14,20 | 40,00 | 3,20 |

Sizes: * Only given as an indication. On request for other type and other diameter of washers

** Stainless steel for diameter 27; steel for diameter 30.



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2



| Quality class | Classification | Range of application |
|--------------------------|----------------|---|
| Class 8 steel / Grade 5 | QV | Self color -40° C +120° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Stainless steel A2-70 | ZE | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | EUM | 100150 | ZH | ST | 00 |
| welding | EUM | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

Definition: all metals self-locking hexagon nut, with marking on the top of the nut

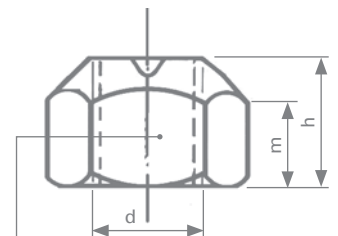
Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

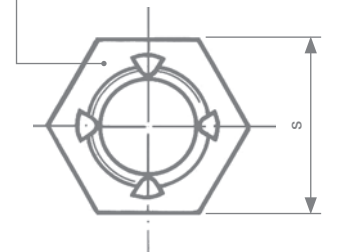
Range of operations: from diameter M5 to M36



| d | pitch | h - min. | h - max. | m - min. | s |
|------|-------|------------|----------|----------|-------|
| M 5 | 0,80 | 4,80 | 5,10 | 3,52 | 8,00 |
| M 6 | 1,00 | 5,40 | 6,00 | 3,92 | 10,00 |
| M 8 | 1,25 | 7,14 | 8,00 | 5,15 | 13,00 |
| M 10 | 1,50 | 8,94 | 10,00 | 6,43 | 16,00 |
| M 12 | 1,75 | 11,57 | 12,00 | 8,30 | 18,00 |
| M 14 | 2,00 | 13,40 | 14,10 | 9,68 | 21,00 |
| M 16 | 2,00 | 15,70 | 16,40 | 11,28 | 24,00 |
| M 18 | 2,50 | 15,80 | 16,20 | 12,70 | 27,00 |
| M 20 | 2,50 | 19,00 | 20,30 | 13,52 | 30,00 |
| M 24 | 3,00 | 22,60 | 23,90 | 16,16 | 36,00 |
| M 27 | 3,00 | on request | | | |
| M 30 | 3,50 | 27,30 | 30,00 | 19,44 | 46,00 |
| M 36 | 4,00 | 33,10 | 36,00 | 23,52 | 55,00 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2



| Quality class | Classification | Range of application |
|---------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Class 10 steel / Grade 8 | QK | |
| Class 12 steel / Grade 10 | QL | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|------------|----|
| classification | GSL | 100150 | ZH | ST | 01 |
| wording | GSL | M10 X 1,50 | A4 80 | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

SRF

HFR FLANGE NUT

ALL METALS

Definition: all metals self-locking hexagon flange nut
locking by deformation of the last threads given by recessions at the top of the nut

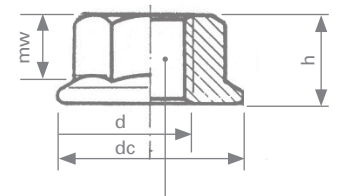
Threading: standard to ISO 965-2

Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

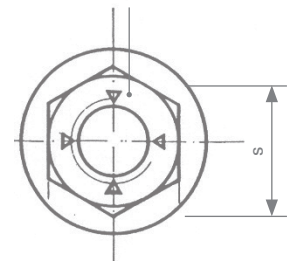
Range of operations: from diameter M5 to M20 (steel)
from diameter M5 to M12 (stainless steel)



| d | dc | s | h | mw |
|------|-------|-------|-------|-------|
| M 5 | 11,80 | 8,00 | 5,00 | 2,20 |
| M 6 | 14,20 | 10,00 | 6,00 | 3,10 |
| M 8 | 17,90 | 13,00 | 8,00 | 4,50 |
| M 10 | 21,80 | 15,00 | 10,00 | 5,50 |
| M 12 | 26,00 | 18,00 | 12,00 | 6,70 |
| M 14 | 29,90 | 21,00 | 14,00 | 7,80 |
| M 16 | 34,50 | 24,00 | 16,00 | 9,00 |
| M 20 | 42,80 | 30,00 | 20,00 | 11,10 |



Marking of the class of the material and manufacturer's initials standard to the ISO 898-2



| Quality class | Classification | Range of application |
|-------------------------|----------------|--|
| Class 8 steel / Grade 5 | QV | Self color -50° C +300° C ⁽¹⁾ |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |

Others: Brass - Bronze - Light alloy - Titanium...

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|------|--------------|-------|-----------------|----|
| classification | SRF | 100150 | QV | ZL | 00 |
| wording | SRF | M10 X 1,50 | 8 | White Lanthane® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

HHS HUS HMS

HFR NUT

STARNUTS

Definition: all metals self-locking hexagon nut locking by deformation of the last threads given by recessions at the top of the nut standard to the NF EN ISO 7719 (NFE 25401)

Threading: standard to ISO 965-2

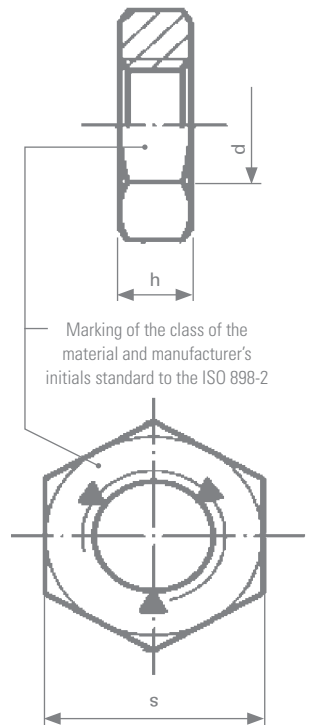
Characteristic and performance test: for steel ISO 898-2 / ISO 2320
for stainless steel ISO 3506-2 / NF E 25035

Dimensions: all forms allowed Hh H Hm: ISO 4033 Symbol Hh (high)
ISO 4032 Symbol H (regular)
ISO 4035 Symbol Hm (low)

Diameter: M3 to M36



| d | pitch | s | h HMS | | h HUS | | h HHS | |
|------|-------|-------|-------|-------|-------|-------|-------|-------|
| | | | min. | max. | min. | max. | min. | max. |
| M 3 | 0,50 | 5,50 | 1,55 | 1,80 | 2,15 | 2,40 | - | - |
| M 4 | 0,70 | 7,00 | 1,95 | 2,20 | 2,90 | 3,20 | - | - |
| M 5 | 0,80 | 8,00 | 2,45 | 2,70 | 4,40 | 4,70 | 4,80 | 5,10 |
| M 6 | 1,00 | 10,00 | 2,90 | 3,20 | 4,90 | 5,20 | 5,40 | 5,70 |
| M 8 | 1,25 | 13,00 | 3,70 | 4,00 | 6,44 | 6,80 | 7,14 | 7,50 |
| M 10 | 1,50 | 16,00 | 4,70 | 5,00 | 8,04 | 8,40 | 8,94 | 9,30 |
| M 12 | 1,75 | 18,00 | 5,70 | 6,00 | 10,37 | 10,80 | 11,57 | 12,00 |
| M 14 | 2,00 | 21,00 | 6,45 | 7,00 | 12,10 | 12,80 | 13,40 | 14,10 |
| M 16 | 2,00 | 24,00 | 7,42 | 8,00 | 14,10 | 14,80 | 15,70 | 16,40 |
| M 18 | 2,50 | 27,00 | 8,42 | 9,00 | 15,10 | 15,80 | 16,90 | 17,60 |
| M 20 | 2,50 | 30,00 | 9,10 | 10,00 | 16,90 | 18,00 | 19,00 | 20,30 |
| M 22 | 2,50 | 34,00 | 9,90 | 11,00 | 18,10 | 19,40 | 20,50 | 21,80 |
| M 24 | 3,00 | 36,00 | 10,90 | 12,00 | 20,20 | 21,50 | 22,60 | 23,90 |
| M 27 | 3,00 | 41,00 | 12,40 | 13,50 | 22,50 | 23,80 | 25,40 | 26,70 |
| M 30 | 3,50 | 46,00 | 13,90 | 15,00 | 24,30 | 25,60 | 27,30 | 28,60 |
| M 33 | 3,50 | 50,00 | 15,40 | 16,50 | 27,40 | 28,70 | 30,90 | 32,50 |
| M 36 | 4,00 | 55,00 | 16,90 | 18,00 | 29,40 | 31,00 | 33,10 | 34,70 |



| Quality class | Classification | Range of application |
|--------------------------|----------------|--|
| Class 04 steel | QN | Self color -50° C +300° C ⁽¹⁾ |
| Class 05 steel | QS | |
| Class 8 steel / Grade 5 | QV | |
| Class 10 steel / Grade 8 | QK | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-70 | ZK | |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

| Surface treatment (standard to ROHS requirements) | | | |
|---|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

| Example of ordering code | | | | | |
|--------------------------|------|--------------|-------|-----------------|----|
| | Type | Diam X pitch | Class | Protection | |
| classification | HUS | 100150 | QV | ZL | 00 |
| woding | HUS | M10 X 1,50 | 8 | White Lanthane® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

MODULAR FIXTURES

STAINLESS STEEL CHANNEL

January 2013

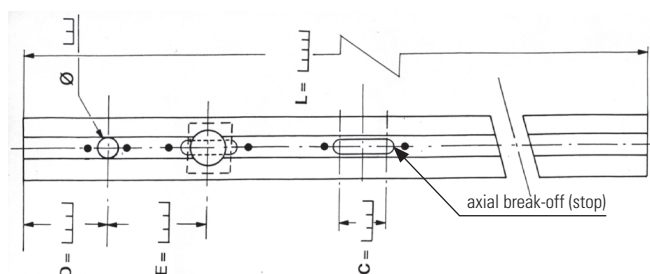
Threading: standard to ISO 262 / ISO 965-2

Characteristic and performance tests: ISO 2320 / ISO 3506-2

Material: stainless steel A2-70

Surface treatment: stainless steel - Antigalling : - Stanal ® 400
 (Standard to ROHS requirements) - Sherardisation
 - Passivation

Field of application: contact us



| | | | | |
|--|-----------|--------------------------|-----------|-----------|
| <p>Ref. 201144</p> <p>Material: AISI 304 Z6 CN 1809</p> | M3 to M5 | M3 to M5 deflections | M3 to M5 | M3 to M6 |
| <p>Ref. 203010</p> <p>Material: AISI 304L Z2 CN 1810</p> | M3 to M8 | M3 to M8 deflections | M3 to M8 | M3 to M8 |
| <p>Ref. 203326</p> <p>Material: AISI 304L Z2 CN 1810</p> | M6 to M12 | M6 to M12 deflections | M6 to M10 | M8 to M12 |
| <p>Ref. 203048</p> <p>Material: AISI 304L Z2 CN 1810</p> | M6 to M10 | M6 to M10 deflections | M6 to M8 | M6 to M12 |



Ease of use:

- From 25 mm to 6 meters long
- Unlimited quantity of nuts and / or screws can be positioned within the channel
- Range of diameter for nuts and / or screws
- Range of type of nuts and/or screws (possible combination)
- Equidistance between products
- Internal technical setup (oval holes, lights, spring mounts, prepunched rivet holes)
- Channels may be manufactured straight, bent and / or curved.

For special applications and inserts, please do not hesitate to **contact us**

MODULAR FIXTURES

LIGHT ALLOY CHANNEL

January 2013

Threading: standard to ISO 262 / ISO 965-2

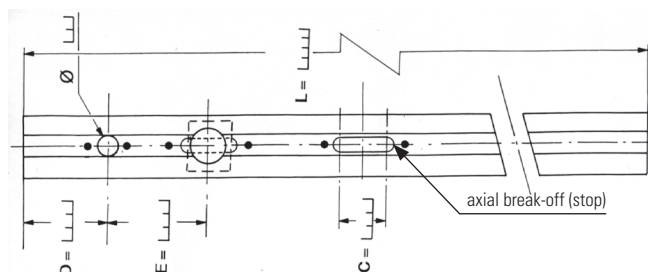
Characteristic and performance tests: ISO 2320

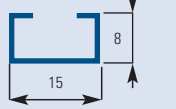

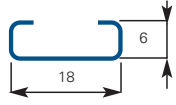

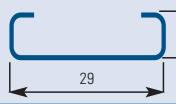

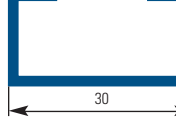

Material: light alloy

Surface treatment: all treatments

(Standards to ROHS requirements)

Field of application: contact us



| | |
|---|--|
| <p>Ref. 101000</p>  <p>Material: AISI 6060 A GS T5</p> | <p>M3 to M5 M3 to M5 M3 to M5 M3 to M6</p>  <p>deflections</p> |
| <p>Ref. 403010</p>  <p>Material: AISI 1050 A A5</p> | <p>M3 to M8 M3 to M8 M3 to M8 M3 to M8</p>  <p>deflections</p> |
| <p>Ref. 403048</p>  <p>Material: AISI 1050 A A5</p> | <p>M6 to M10 M6 to M10 M6 to M10 M6 to M12</p>  <p>deflections</p> |
| <p>Ref. 501000</p>  <p>Material: AISI 6060 A GS T5</p> | <p>M6 to M10 M6 to M10 M6 to M10 M6 to M12</p>  <p>deflections</p> |



Ease of use:

- From 25 mm to 6 meters long
- Unlimited quantity of nuts and / or screws can be positioned within the channel
- Range of diameter for nuts and / or screws
- Range of type of nuts and / or screws (possible combination)
- Equidistance between products
- Internal technical setup (oval holes, lights, spring mounts, prepunched rivet holes)
- Channels may be manufactured straight, bent and / or curved.

For special applications and inserts, please do not hesitate to **contact us**

CLANFIX

HFR NUT

STEEL / STAINLESS STEEL

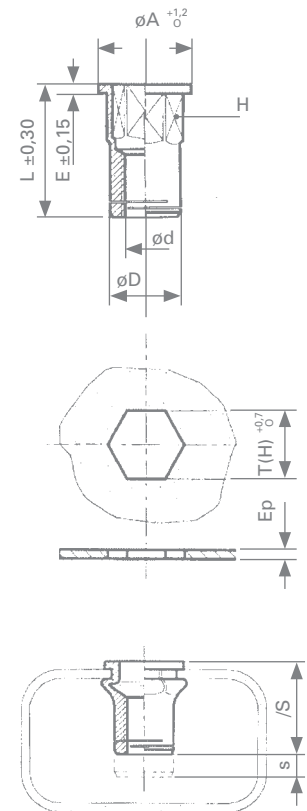
Definition: blind rivet self-lock nut

Threading: standard to ISO 262 and ISO 965-2

Characteristic and performance test: for steel standard to NF EN ISO 2320
for stainless steel standard to NF EN ISO 3506-2



| d | sheet thickness (Ep) | T | T(H) | diameter (A) | diameter (D) | L | E |
|-------------|----------------------|-------|-------|--------------|--------------|-------|------|
| M 4 x 0,70 | 1,00 -> 2,50 | 7,00 | 7,00 | 9,00 | 7,00 | 16,20 | 1,00 |
| M 5 x 0,80 | 1,50 -> 3,00 | 9,00 | 9,00 | 11,00 | 9,00 | 20,40 | 1,20 |
| M 6 x 1,00 | 1,50 -> 3,50 | 11,00 | 11,00 | 14,00 | 11,00 | 23,40 | 1,50 |
| M 8 x 1,25 | 2,00 -> 4,00 | 13,00 | 13,00 | 16,00 | 13,00 | 28,80 | 1,50 |
| M 10 x 1,50 | 2,50 -> 4,50 | 16,00 | 16,00 | 20,00 | 16,00 | 32,20 | 1,70 |
| M 12 x 1,75 | 3,00 -> 5,00 | 18,00 | 18,00 | 23,00 | 18,00 | 37,30 | 2,00 |



| Quality class | Classification | Range of application |
|-----------------------|----------------|--|
| Steel | QJ | Self color -50° C +300° C ⁽¹⁾ |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |
| Stainless steel A4-80 | ZH | |

⁽¹⁾ Values are only given as an indication

Surface treatment (standard to ROHS requirements)

| | | | |
|-------------------------------|------------------------------------|----|------------|
| Electrolytic coating (steel) | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |
| Zinc lamellar (steel) | 600 h to 1000 h salt spray | | on request |
| Antigalling (stainless steel) | Stanal ® 400 | ST | |
| | Sherardisation (NF EN 13811) | SH | |
| Self Color | | BT | |

Example of ordering code

| | Type | Diam X pitch | Class | Protection | |
|----------------|---------|--------------|----------------------|------------|----|
| classification | CLAN | 100150 | ZH | ST | 00 |
| wording | CLANFIX | M10 X 1,50 | Stainless steel 316L | Stanal ® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread

SPR

HFR NUT

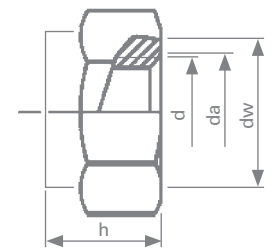
SPRING STOP NUT

Definition: all metals self-locking nut with metallic insert

Threading: standard to ISO 965-2

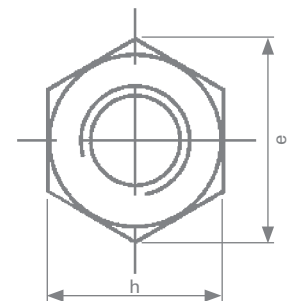


| d | pitch | da | dw - min. | h | s | E - min. |
|------|-------|---------------|-----------|---------------|---------------|----------|
| M 3 | 0,50 | 3,00 – 3,45 | 4,80 | 2,70 – 3,30 | 5,32 – 5,50 | 6,01 |
| M 4 | 0,70 | 4,00 – 4,60 | 5,90 | 3,50 – 4,10 | 6,78 – 7,00 | 7,66 |
| M 5 | 0,80 | 5,00 – 5,75 | 6,90 | 4,30 – 4,90 | 7,78 – 8,00 | 8,79 |
| M 6 | 1,00 | 6,00 – 6,75 | 8,90 | 4,60 – 5,40 | 9,78 – 10,00 | 11,05 |
| M 8 | 1,25 | 8,00 – 8,75 | 11,60 | 6,90 – 7,70 | 12,73 – 13,00 | 14,38 |
| M 10 | 1,50 | 10,00 – 10,80 | 15,60 | 7,90 – 8,70 | 16,73 – 17,00 | 18,90 |
| M 12 | 1,75 | 12,00 – 13,00 | 17,40 | 10,10 – 10,90 | 18,67 – 19,00 | 21,10 |
| M 14 | 2,00 | 14,00 – 15,10 | 20,50 | 12,00 – 13,00 | 21,67 – 22,00 | 24,49 |
| M 16 | 2,00 | 16,00 – 17,30 | 22,50 | 14,00 – 15,00 | 23,67 – 24,00 | 26,75 |
| M 18 | 2,50 | 18,00 – 19,50 | 24,90 | 15,50 – 16,50 | 26,16 – 27,00 | 29,56 |
| M 20 | 2,50 | 20,00 – 21,50 | 27,70 | 17,00 – 18,00 | 29,16 – 30,00 | 32,95 |



| Quality class | Classification | Range of application |
|-----------------------|----------------|--|
| Class 5 steel | QF | Self color -50° C +300° C ⁽¹⁾ |
| Class 6 steel | QJ | |
| Stainless steel A2-70 | ZE | Corrosive atmosphere -200° C +400° C ⁽¹⁾ |

⁽¹⁾ Values are only given as an indication



Surface treatment (standard to ROHS requirements)

| Electrolytic coating (steel) | Color | Code | Duration |
|------------------------------|------------------------------------|------|----------|
| | Yellow | ZJ | ISO 4042 |
| | White Lanthane ® Finish | ZL | 400 h |
| | White Lanthane ® Finish + Top coat | ZF | 600 h |

Example of ordering code

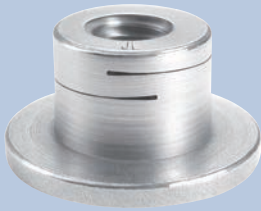
| | Type | Diam X Pitch | Class | Protection | |
|----------------|------|--------------|-------|-----------------|----|
| classification | SPR | 100150 | QF | ZL | 00 |
| wording | SPR | M10 X 150 | Steel | White Lanthane® | * |

*Standard size

On request: other materials, plating, sizes, imperial thread



SPECIAL PRODUCTS



SELF-LOCKING BUSHING NUT



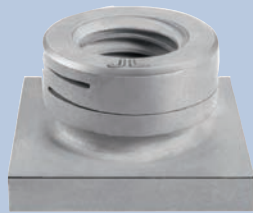
CONICAL SELF-LOCKING NUT
BY HEXAGONAL
DEFORMATION



TURRET SELF-LOCKING NUT
WITH SINGLE SLOT



SLOTTED ROUND NUT



SELF-LOCKING CHANNEL NUT
DOUBLE SLOTTED



SELF-LOCKING ACORN NUT
BY AXIAL DEFORMATION



SQUARE SELF-LOCKING NUT



SELF-LOCKING ACORN NUT
WITH NYLON INSERT



NYLON INSERT CLINCH NUT

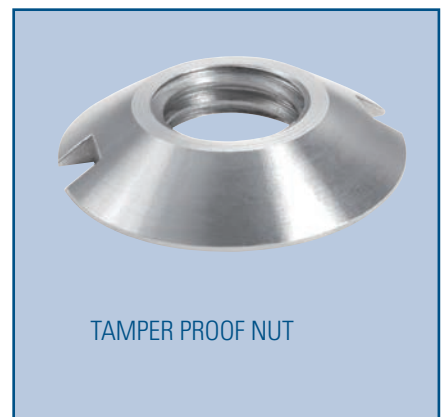
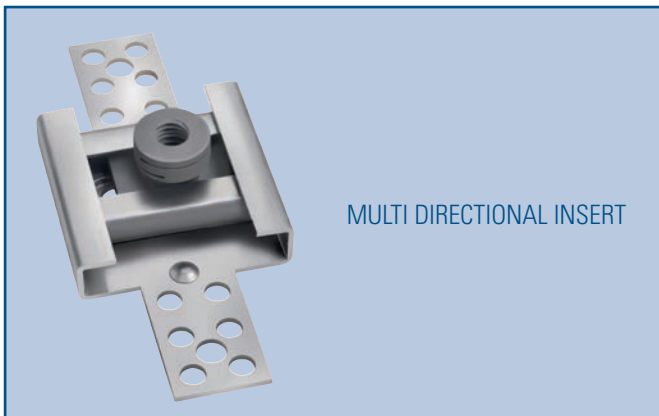


ACORN NUT WITH DISC
SPRING WASHER

On request: other materials, plating, sizes, imperial thread



SPECIAL PRODUCTS



On request: other materials, plating, sizes, imperial thread



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