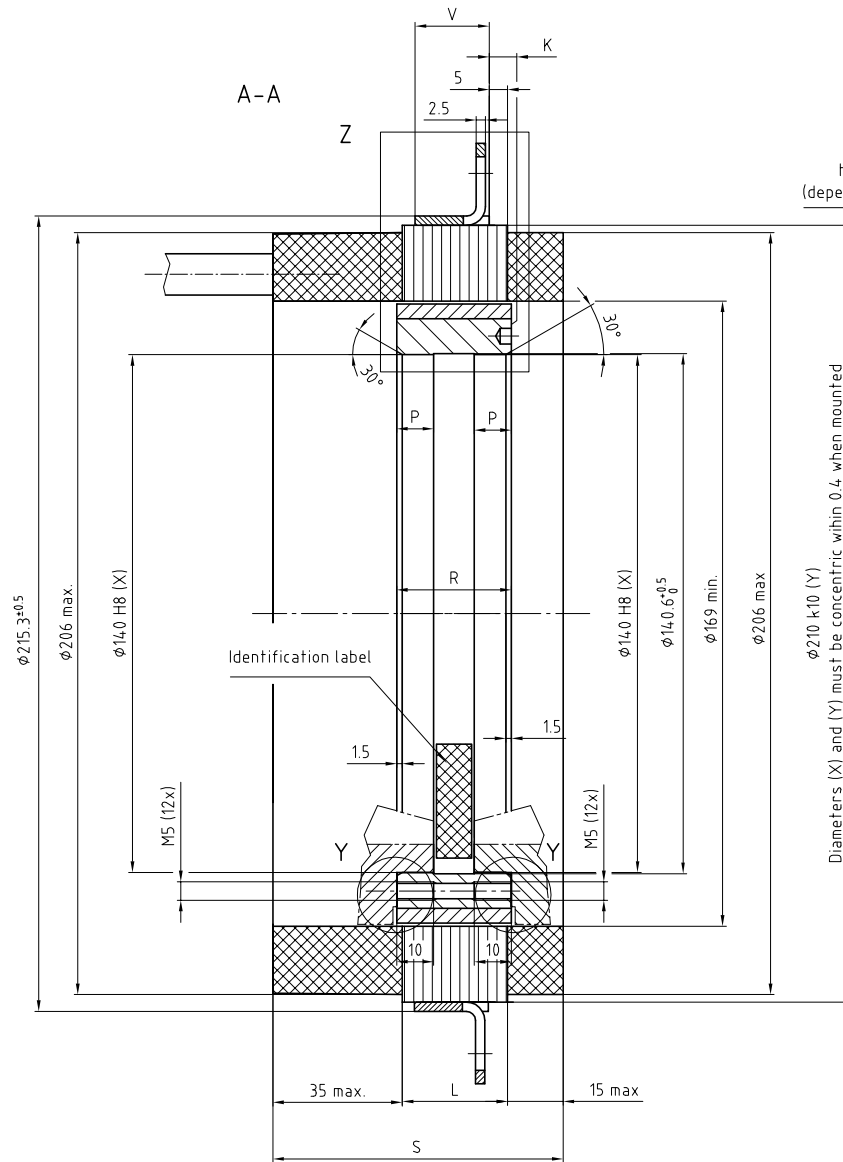


Torque Motors

TML INTERFACE DRAWINGS

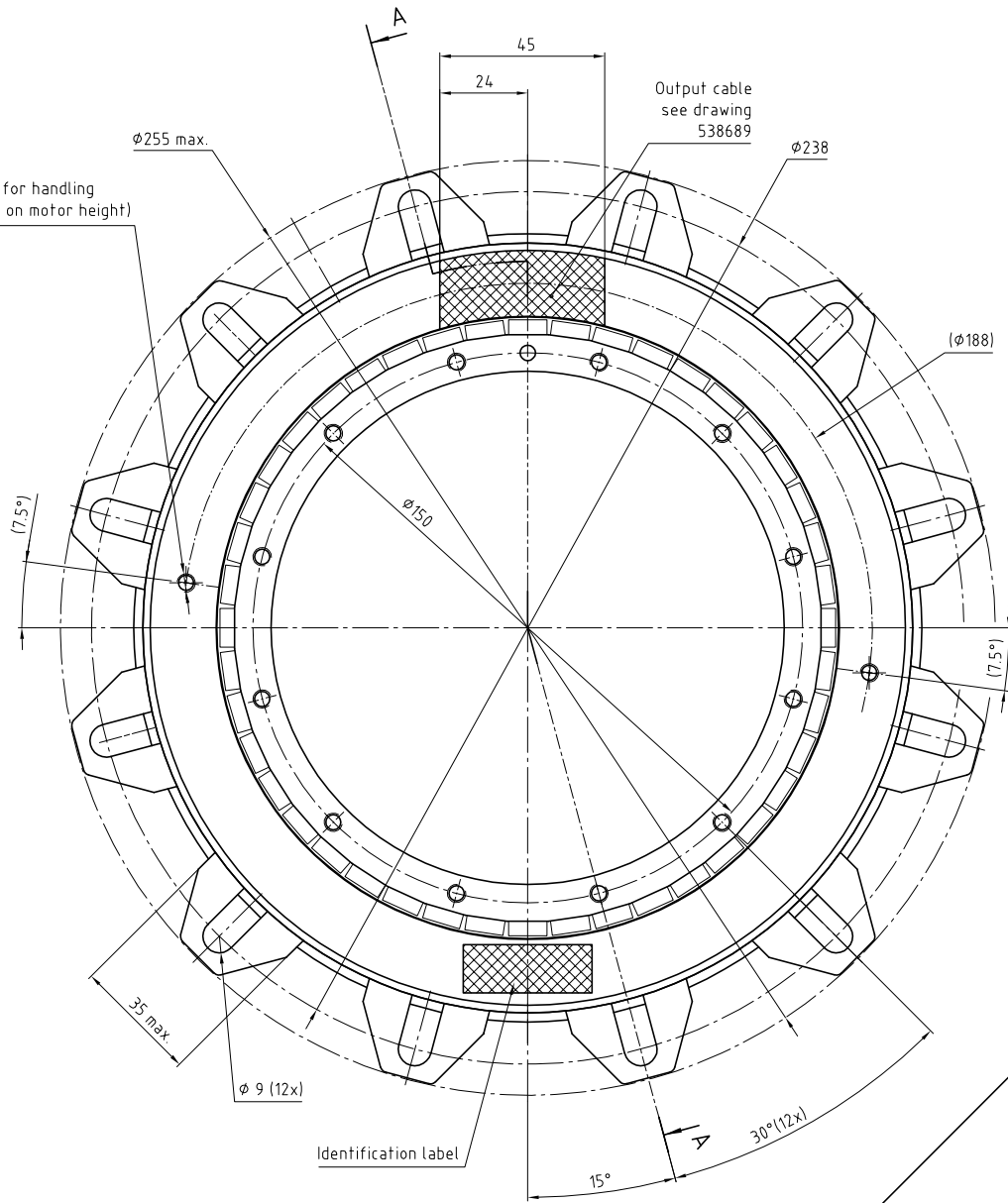
ETEL

TML0210-###-3###-###
Lug at the opposite side of output cables

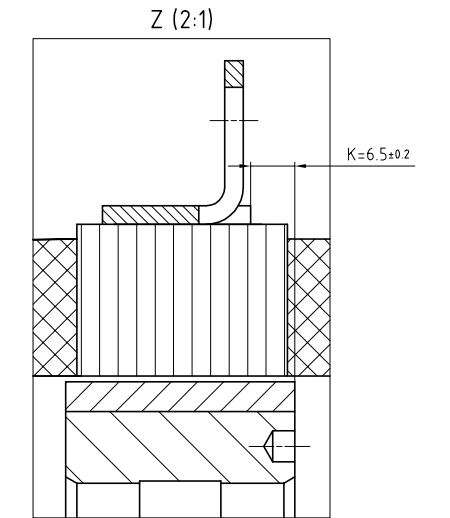


holes for handling
(depending on motor height)

Diameters [X] and [Y] must be concentric within 0.4, when mounted



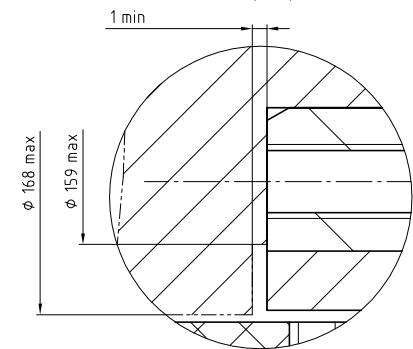
Mounting condition



Detail:Y

Magnets safety clearance

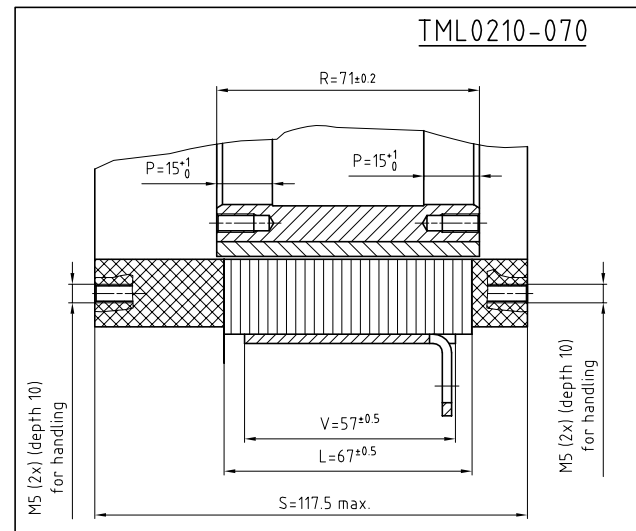
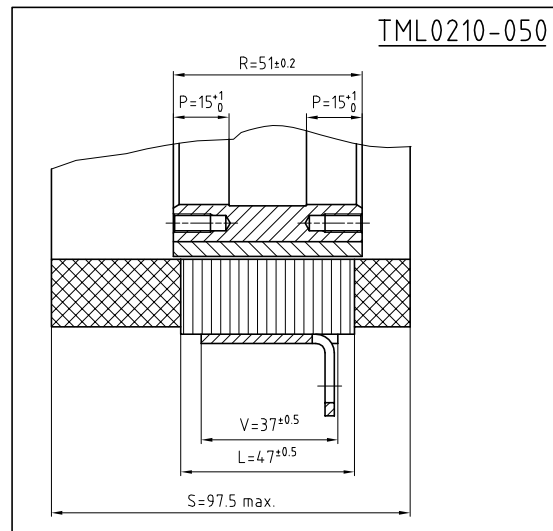
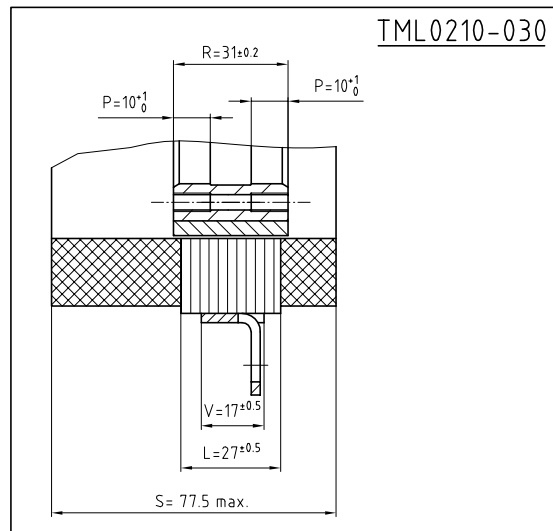
Y (4:1)



Power cable connection

- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

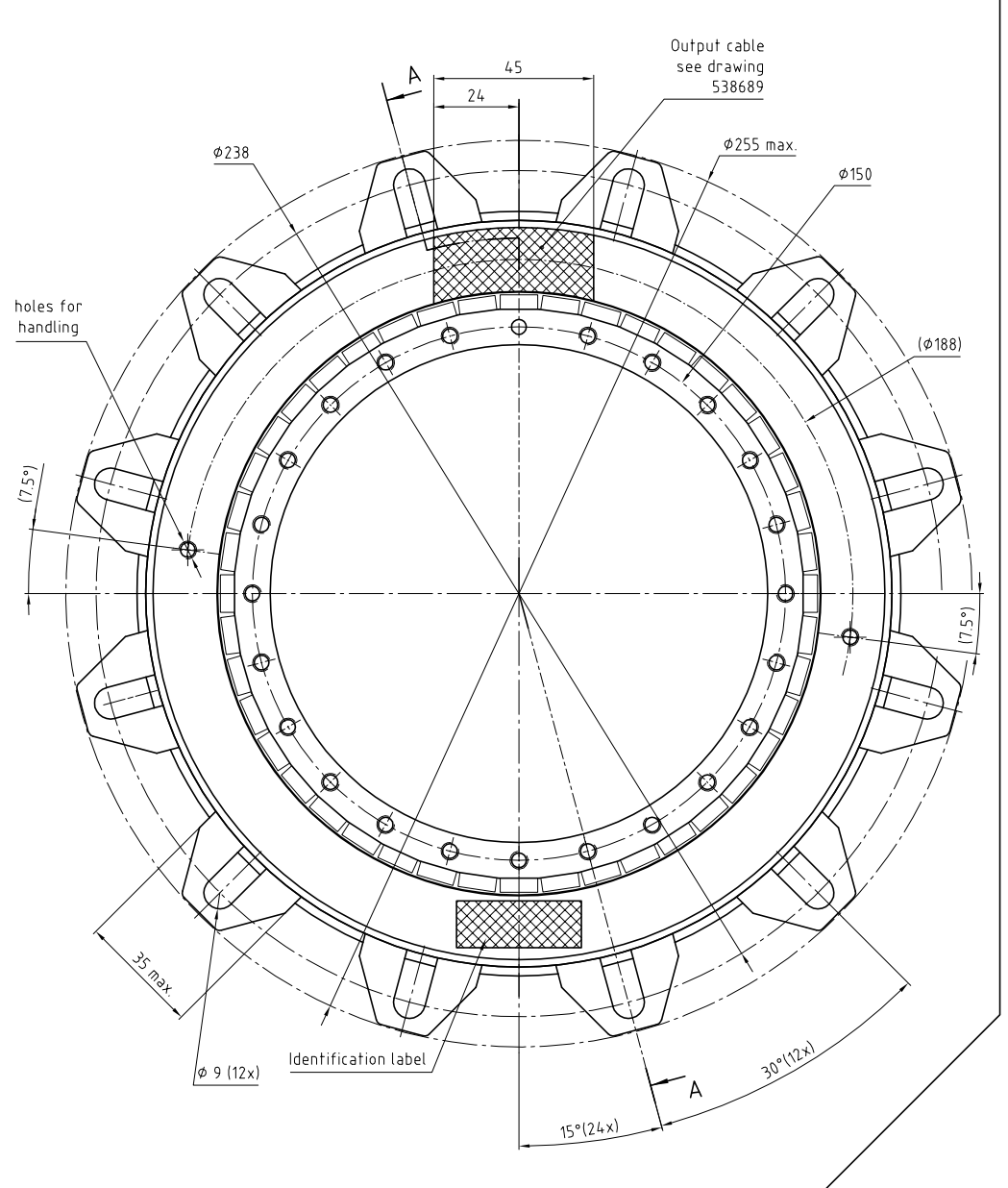
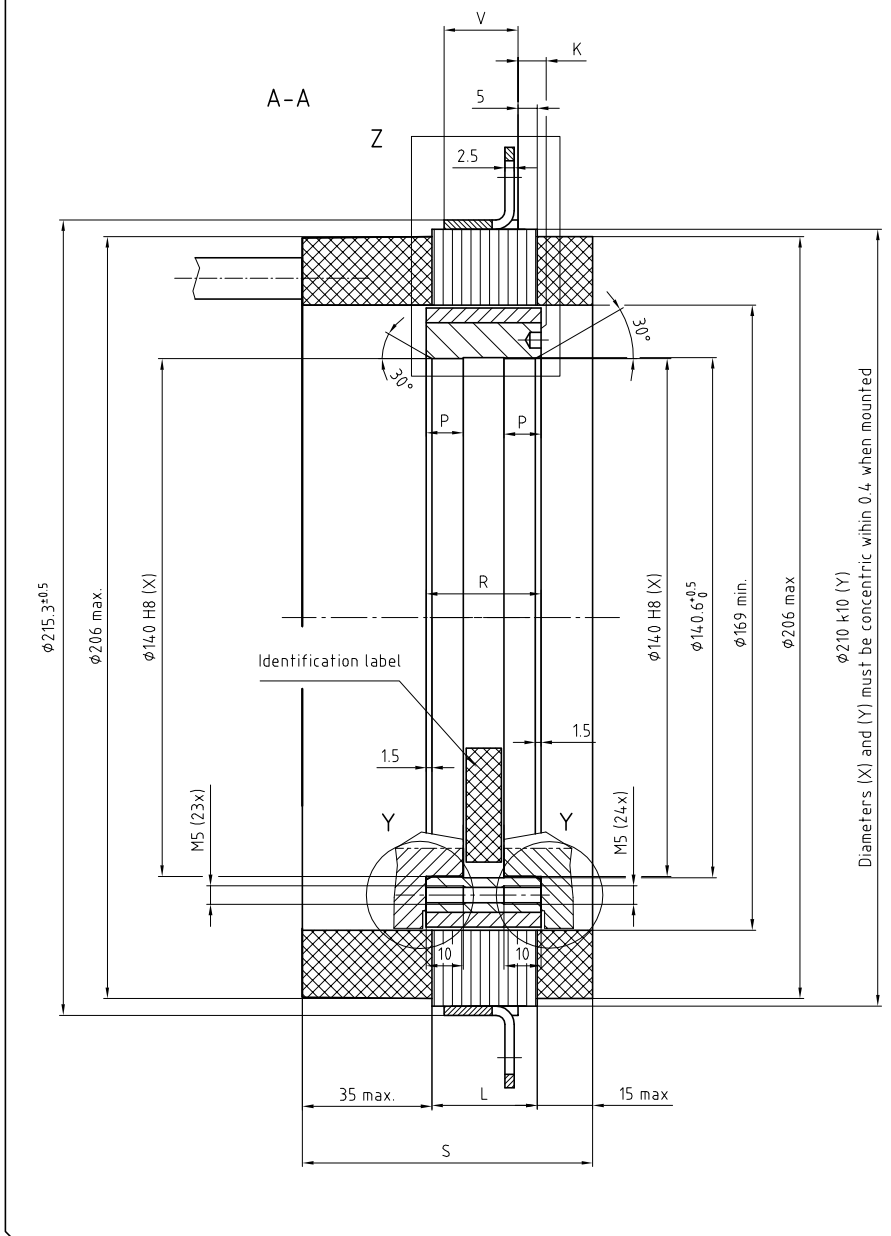


φ210	k10	+0.185 0	210.185 210
φ140	H8	+0.063 0	14.0.063 14.0
Cote		Ajustement	

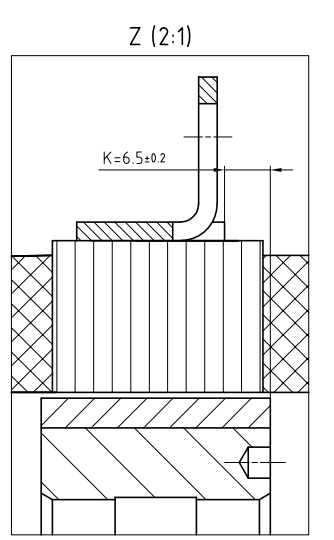
ECO N°	Nom	Date	Description
C002158-21	GRO	05.04.2014	
Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mK			
Dimension nominale	Linéaire	Rayon	Châtré
0.5 - 3	+0.1	+0.2	
3 - 6	+0.1	+0.5	
6 - 30	+0.2	±1	
30 - 120	+0.3	±2	
120 - 400	+0.5	±4	
400 - 1000	+0.8		
1000 - 2000	+1.2		
Dimension nominale	0.05	0.4	0.6
10 - 30	0.1	0.4	0.6
30 - 100	0.2	0.4	0.6
100 - 300	0.4	0.6	0.8
300 - 1000	0.6	0.8	0.8
1000 - 3000	0.8	1	1
Arêtes de formes ISO 13715			
0.3	0.3		
Interface drawing			
Torque motor TML0210-030 / 050 / 070			
Auteur	Vérificateur	Libérateur	
S. Iervolino			
18.07.05			

Projection	Format	Echelle	Ancien n°	Version	Revisión	Feuille	Page
1st angle	A1	1:1	577588 - 05-	A-01		1	1

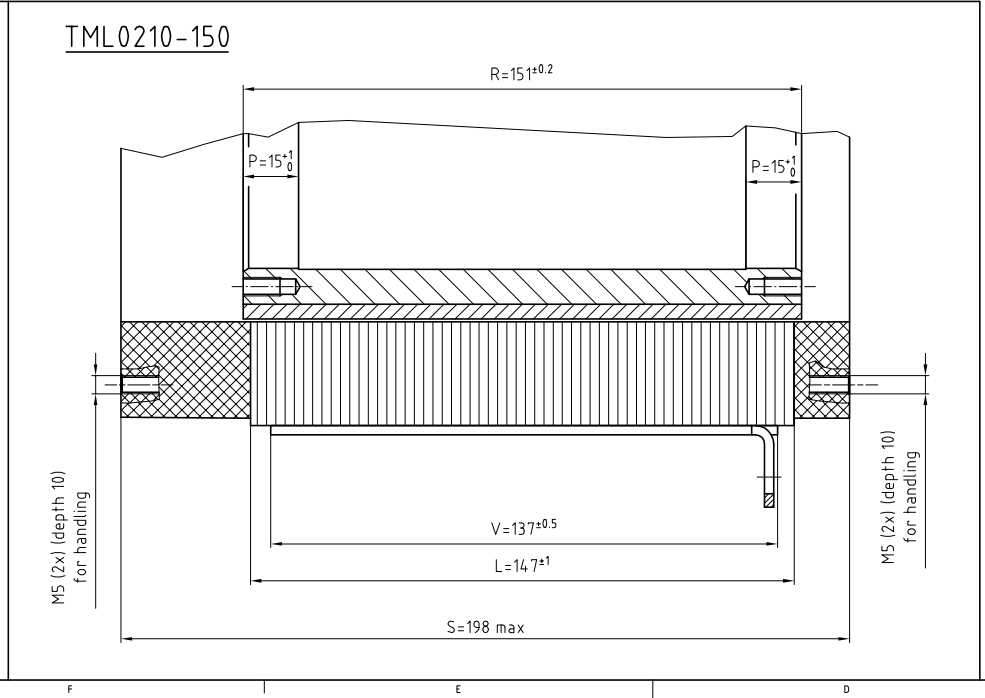
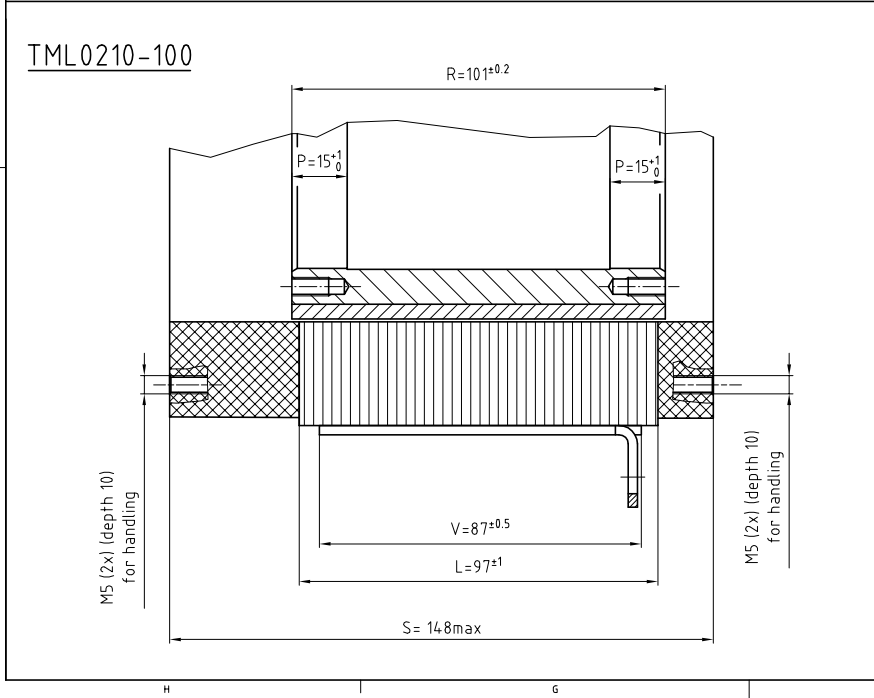
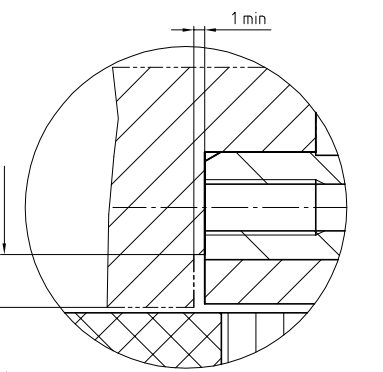
TML0210-###-3###-###
Lug at the opposite side of output cables



Mounting condition



Detail:Y
Magnets safety clearance
Y (3:1)



Power cable connection

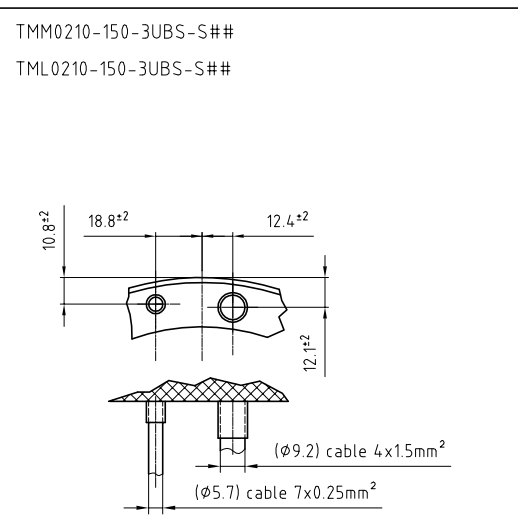
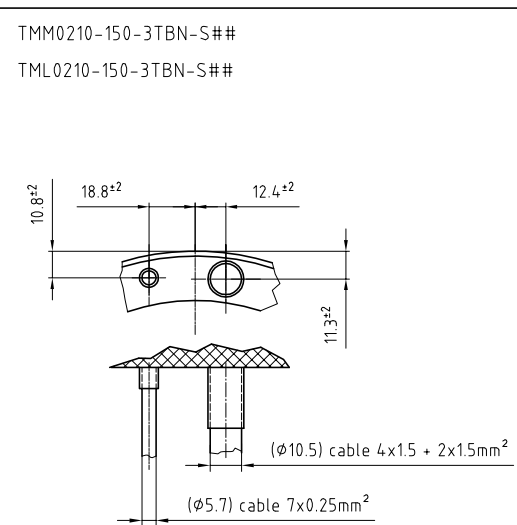
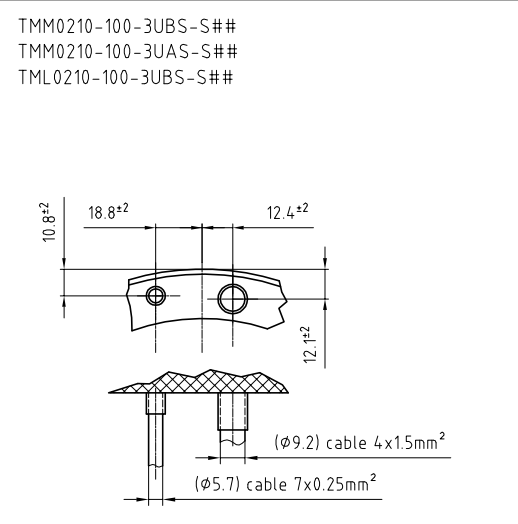
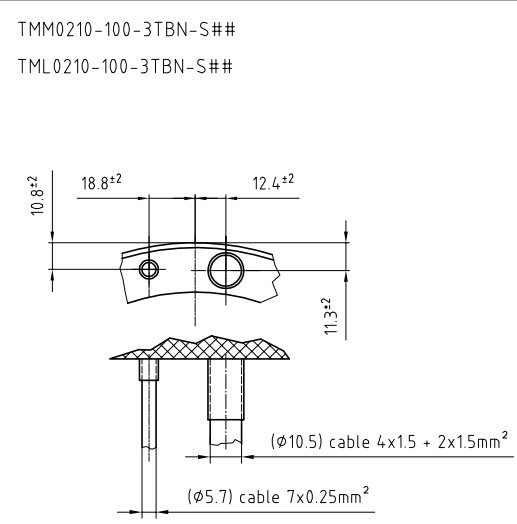
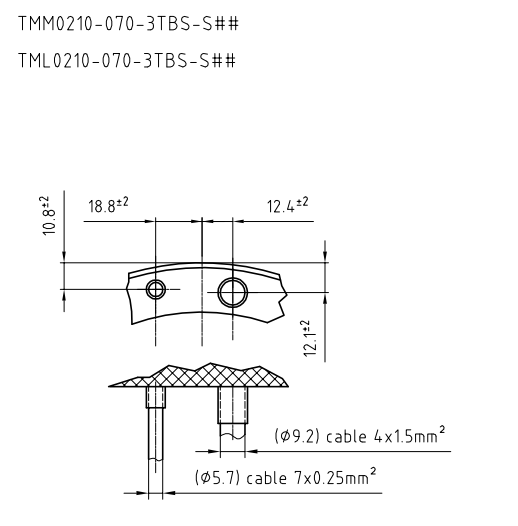
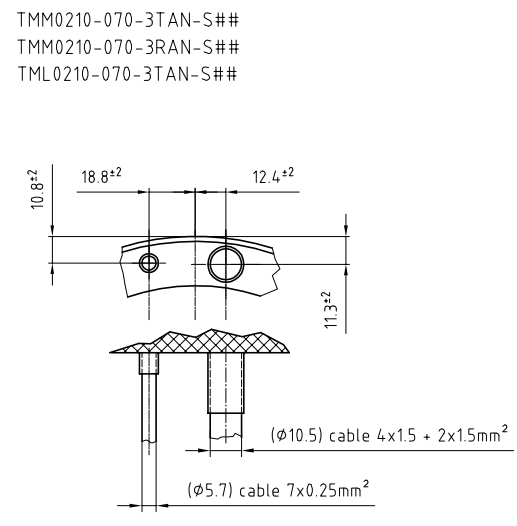
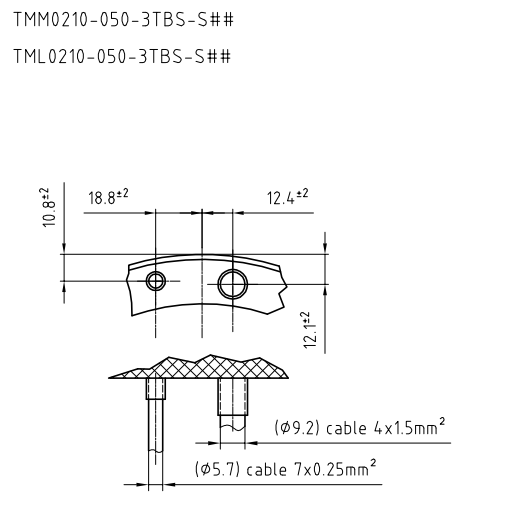
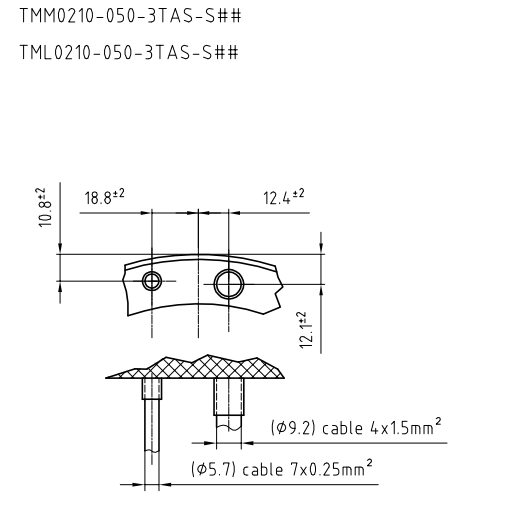
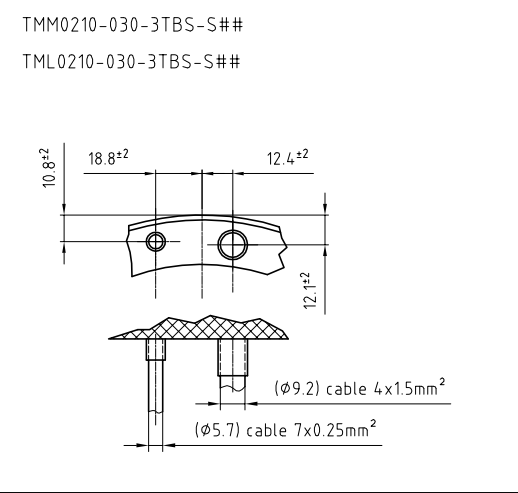
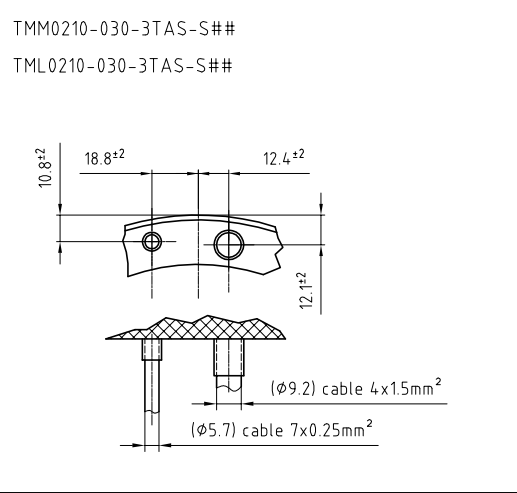
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

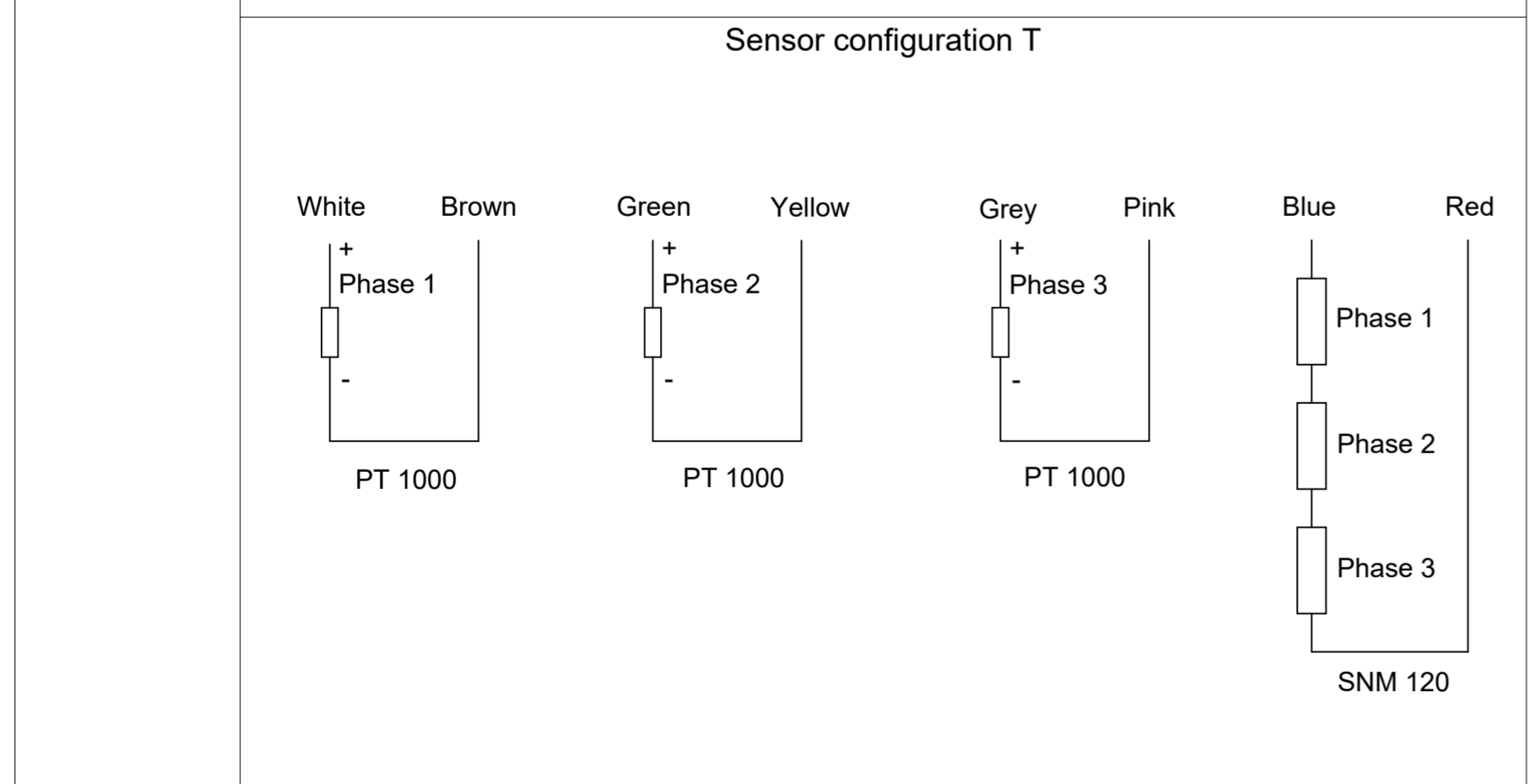
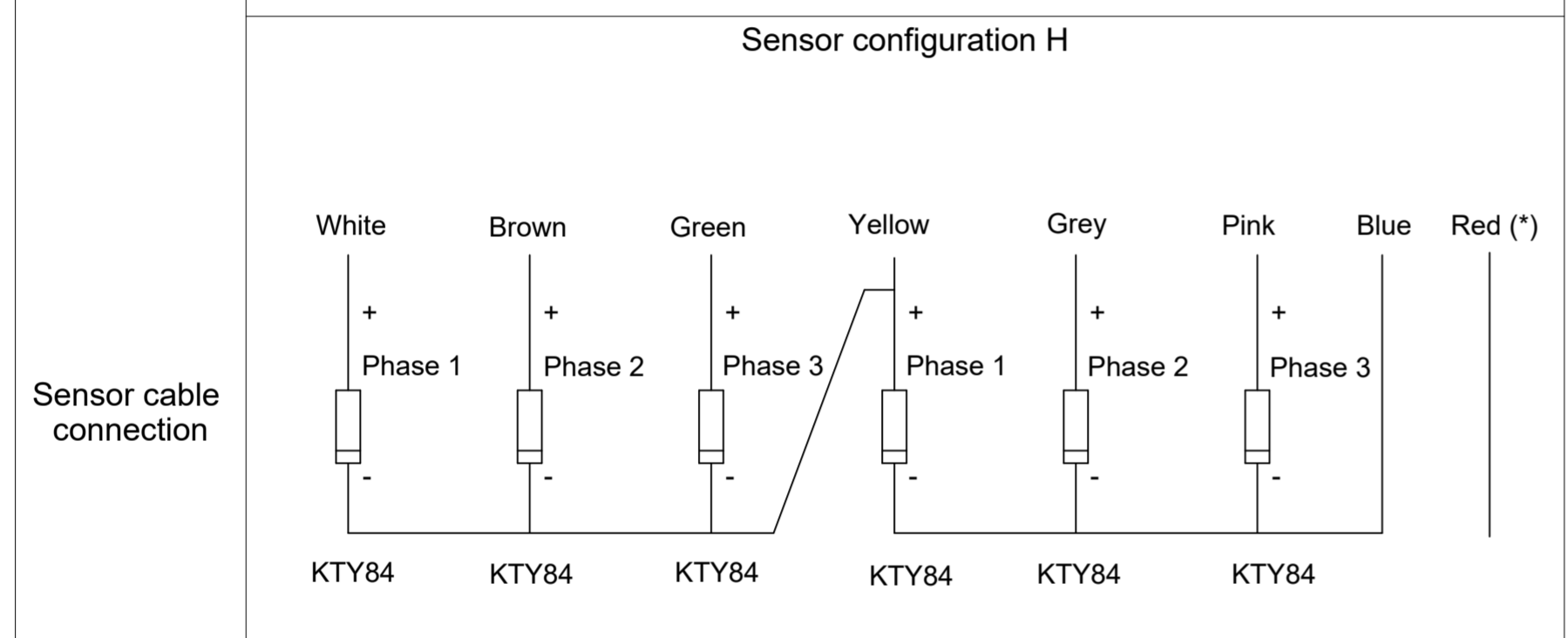
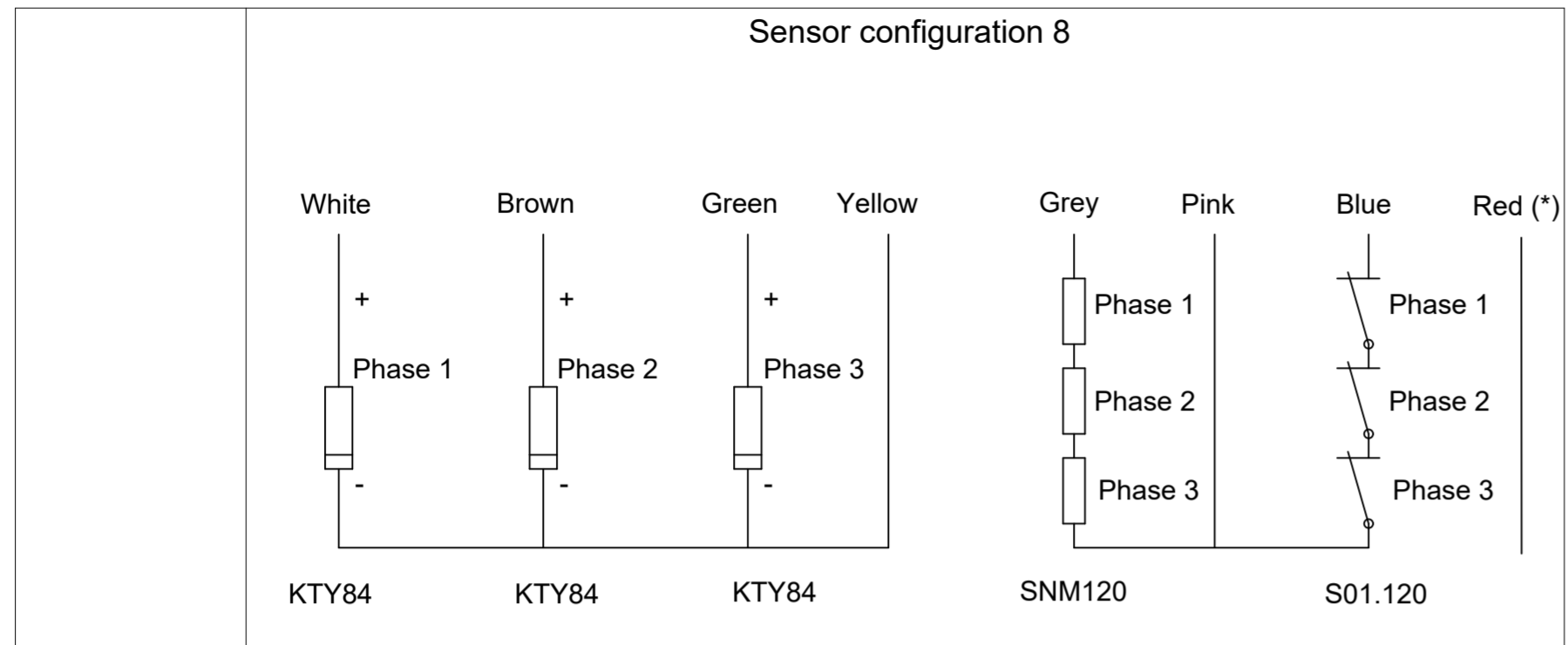
Ø210	k10	+0.185	210.185
Ø140	H8	+0.063	140.063
Cote	Ajustement		

ECO N°	002758-21	Nom	GRO	Date	05.04.2014	Description	Interface drawing TML0210-100 / 150																																																																	
<p>Principe de tolérencement de base ISO 8015 et tolérence générale selon ISO 2768-mK</p> <table border="1"> <thead> <tr> <th>Dimension nominale</th> <th>Linéaire</th> <th>Rayon</th> <th>Châtré</th> <th>Equivalence rugosité</th> </tr> </thead> <tbody> <tr> <td>0.5 - 3</td> <td>±0.1</td> <td>±0.2</td> <td></td> <td>50 N12</td> </tr> <tr> <td>3 - 6</td> <td>±0.1</td> <td>±0.5</td> <td></td> <td>25 N11</td> </tr> <tr> <td>6 - 30</td> <td>±0.2</td> <td>±1</td> <td></td> <td>12.5 N10</td> </tr> <tr> <td>30 - 120</td> <td>±0.3</td> <td>±2</td> <td></td> <td>6.3 N9</td> </tr> <tr> <td>120 - 400</td> <td>±0.5</td> <td>±4</td> <td></td> <td>3.2 N8</td> </tr> <tr> <td>400 - 1000</td> <td>±0.8</td> <td></td> <td></td> <td>1.6 N7</td> </tr> <tr> <td>1000 - 2000</td> <td>±1.2</td> <td></td> <td></td> <td>0.8 N6</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>0.4 N5</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>0.2 N4</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>0.1 N3</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>0.05 N2</td> </tr> <tr> <td></td> <td></td> <td></td> <td></td> <td>0.025 N1</td> </tr> </tbody> </table>								Dimension nominale	Linéaire	Rayon	Châtré	Equivalence rugosité	0.5 - 3	±0.1	±0.2		50 N12	3 - 6	±0.1	±0.5		25 N11	6 - 30	±0.2	±1		12.5 N10	30 - 120	±0.3	±2		6.3 N9	120 - 400	±0.5	±4		3.2 N8	400 - 1000	±0.8			1.6 N7	1000 - 2000	±1.2			0.8 N6					0.4 N5					0.2 N4					0.1 N3					0.05 N2					0.025 N1
Dimension nominale	Linéaire	Rayon	Châtré	Equivalence rugosité																																																																				
0.5 - 3	±0.1	±0.2		50 N12																																																																				
3 - 6	±0.1	±0.5		25 N11																																																																				
6 - 30	±0.2	±1		12.5 N10																																																																				
30 - 120	±0.3	±2		6.3 N9																																																																				
120 - 400	±0.5	±4		3.2 N8																																																																				
400 - 1000	±0.8			1.6 N7																																																																				
1000 - 2000	±1.2			0.8 N6																																																																				
				0.4 N5																																																																				
				0.2 N4																																																																				
				0.1 N3																																																																				
				0.05 N2																																																																				
				0.025 N1																																																																				
<p>Arêtes de formes ISO 13715</p> <table border="1"> <tr> <td>r0.3</td> <td>±0.3</td> </tr> </table>								r0.3	±0.3																																																															
r0.3	±0.3																																																																							
<p>Torque motor</p> <table border="1"> <tr> <td>Auteur</td> <td>Vérificateur</td> <td>Libérateur</td> </tr> <tr> <td>S. Perrot</td> <td></td> <td></td> </tr> </table>								Auteur	Vérificateur	Libérateur	S. Perrot																																																													
Auteur	Vérificateur	Libérateur																																																																						
S. Perrot																																																																								
<p>Interface drawing TML0210-100 / 150</p>																																																																								
<p>Projetion: A1, Echelle: 1:1, Ancien n°: 0511m-14.0-09a (Version) Revision: 11.04.2006</p>																																																																								
<p>ETEL S.A. CH-2112 Mülheim, SWITZERLAND. Ces plans sont notre propriété. Ils ne doivent pas être réutilisés sans notre autorisation écrite. Toute réimpression, reproduction ou utilisation non autorisée est formellement interdite. Leur utilisation est strictement réservée à ETEL S.A.</p>																																																																								
<p>587820 - 04 - A-01 / 1</p>																																																																								

08
A



FSM N°	Nom	Date	Description: Elbowed output cable removed	
C064986-5	JGU	04.10.17		
Matière:				Equivalence rugosité
Remarque:				Ra µm Classe
Annexe:				50 N12
				25 N11
				12.5 N10
				6.3 N9
				3.2 N8
				1.6 N7
				0.8 N6
				0.4 N5
				0.2 N4
				0.1 N3
				0.05 N2
				0.025 N1
Arêtes de formes ISO 13715	Torque motor TMM & TML 210 cables outputs		Auteur	Vérificateur
↙ -0.3 ↘ +0.3	Moteur coupleur fer TMM & TML 0210 sorties de câbles		S. Perrot	-
ETEL S.A. CH-2102 Mülheim SWITZERLAND		Ces plans sont notre propriété. Ils ne doivent pas, sans notre autorisation écrite, être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.	18.07.2005	-
Projection	Format	Echelle	Ancien n°	Version
↖ ↗	A1		0511m-14.0-03	Revision
			538689	-08-A-1
			Feuille	
			1/1	



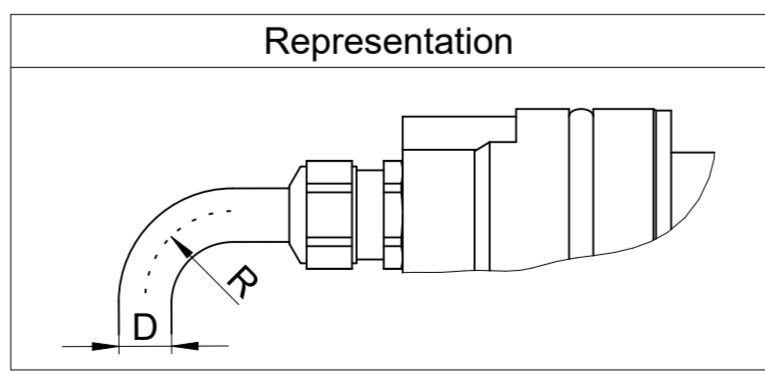
Power cable connection

Color and wire number	Function	Drawing
Black wire with number 1 or U	Phase 1 (PH1)	
Black wire with number 2 or V	Phase 2 (PH2)	
Black wire with number 3 or W	Phase 3 (PH3)	
Yellow and green wire	Ground (GND)	
Black wire with number Br1 or 5 or white cable	Neutral point wire (present only on some motor types)	
Black wire with number Br2 or 6 or black wire without label	None(**)	

(**): This wire is automatically present when the neutral point wire (which is an option) is added in the motor as it is a 2 x 1.5 mm² cable.

Wire section (mm²)

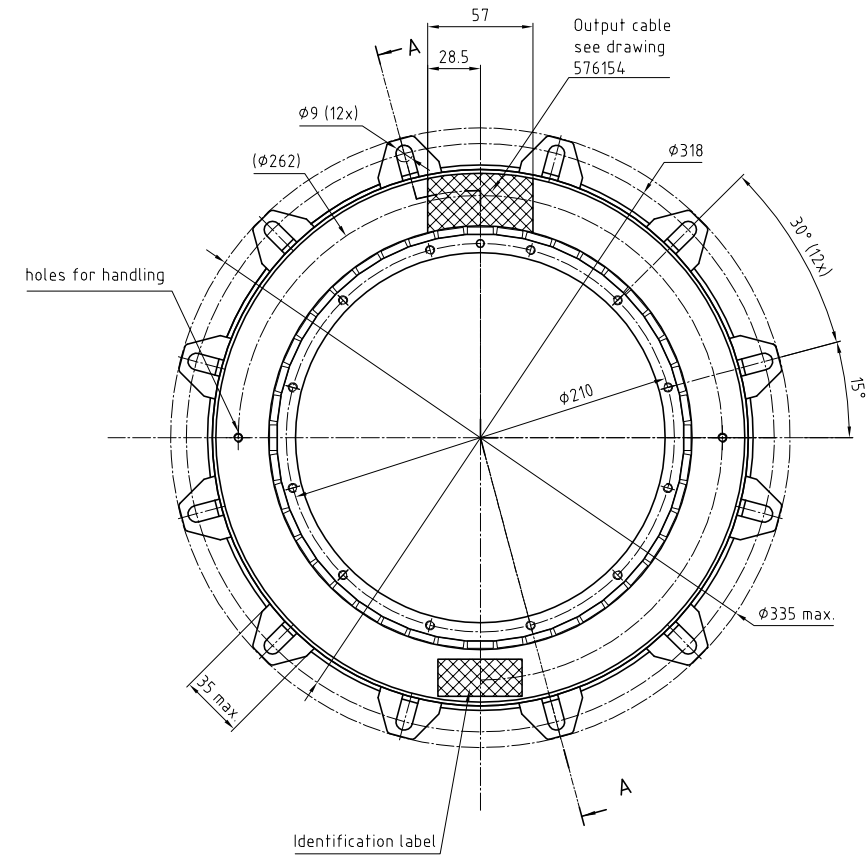
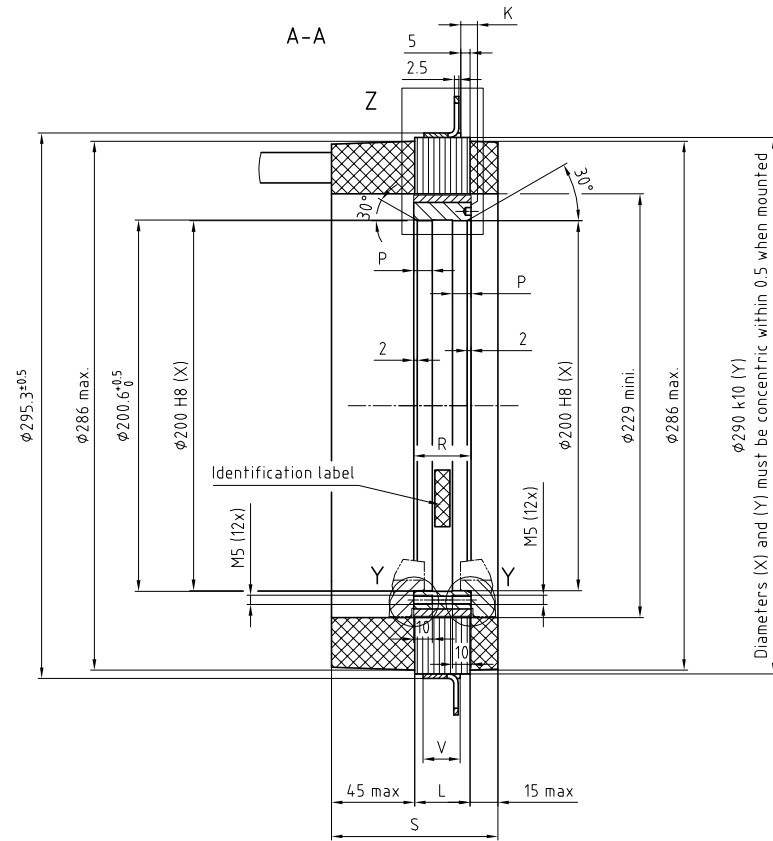
Characteristics	4 x 1.5	4 x 1.5 + 2 x 1.5	4 x 2.5	4 x 2.5 + 2 x 1.5	4 x 4	4 x 4 + 2 x 1.5	4 x 10	4 x 10 + 2 x 1.5	Sensor cable
Applicable motors: TMM / TML	0140 0175 0210 0291 0360 0450	0175 0210 0291 0360 0450 0530	0291 0360	0360 0530	0360 0450 0530	0360 0450 0530	0450 0530	0530	All TMM / TML
Minimum bend radius for fixed cable	R = 4 X D	R = 5 X D	R = 4 X D	R = 5 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 6 X D
Minimum bend radius for moving cable	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 12 X D



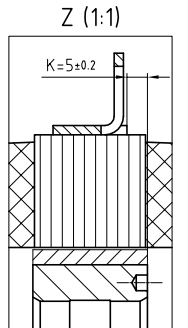
(*): Red wire (if present) is not connected on the motor side and cutted flush on cable extremity.

Text:		ID number:
Original drawing		Change No. C145178-05
Scale		Released: 20-Sep-22
Format		Tolerances as per ISO 8015 : 2011
Dimensions in mm		Tolerances selon ISO 8015 : 2011
1:1	A2	Dimensions without tolerance ± 0,2
Mating Dimensions / Cotes d'encombrement		Dimensions sans tolérances
The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)		
ETEL ETEL S.A. 2112 Môtiers SWITZERLAND		Version Revision Sheet Page
1389869-00 - A-01		1 of 1
Document number		

TML0291-###-3###-###
Lug at the opposite side of output cables

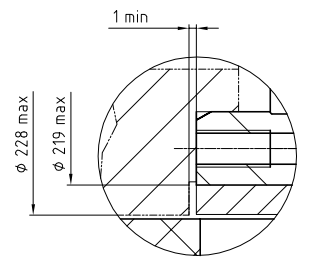


Mounting condition



Detail: Y
Magnets safety clearance

Y (2:1)

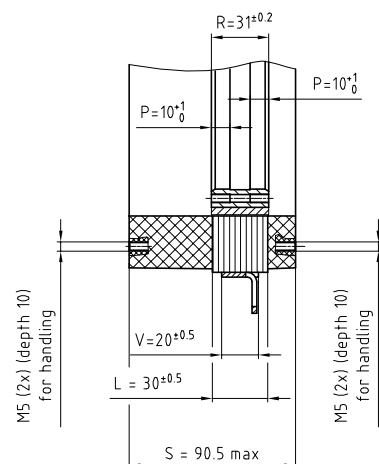


Power cable connection

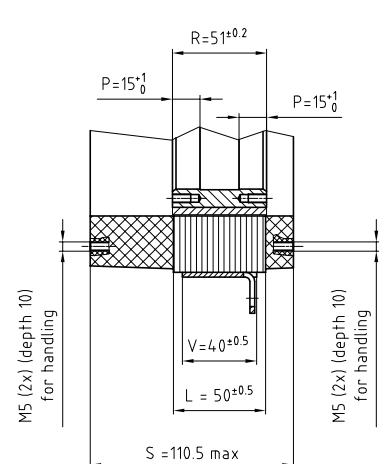
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

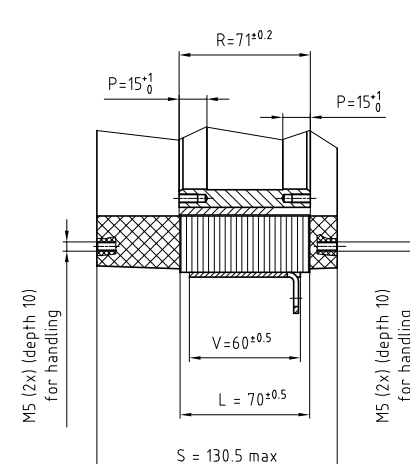
TML0291-030



TML0291-050

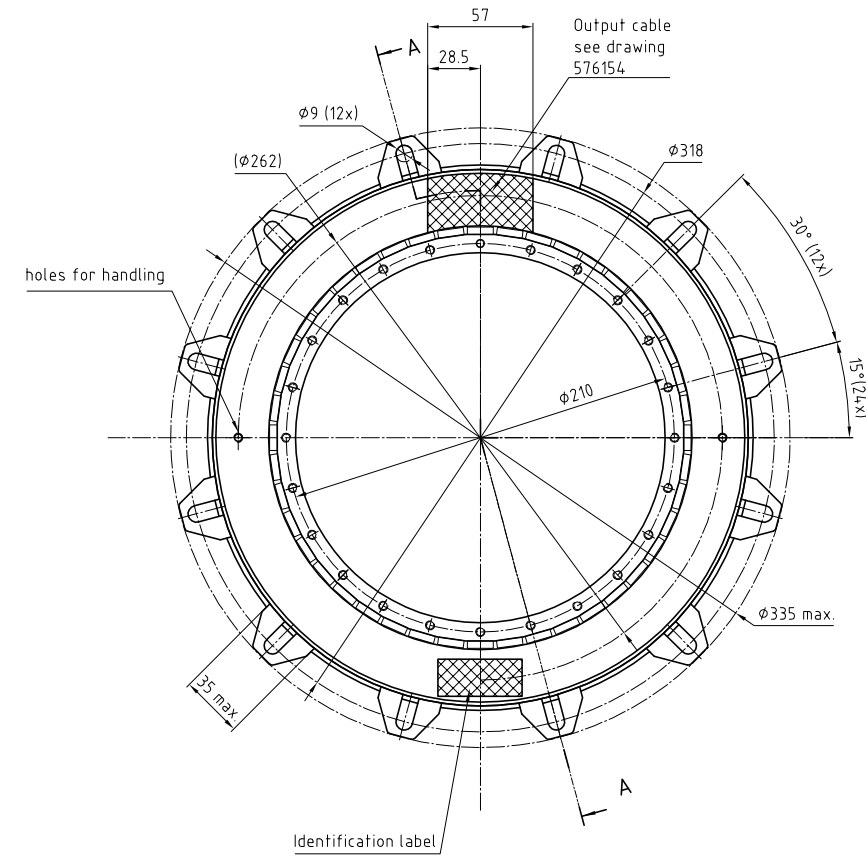
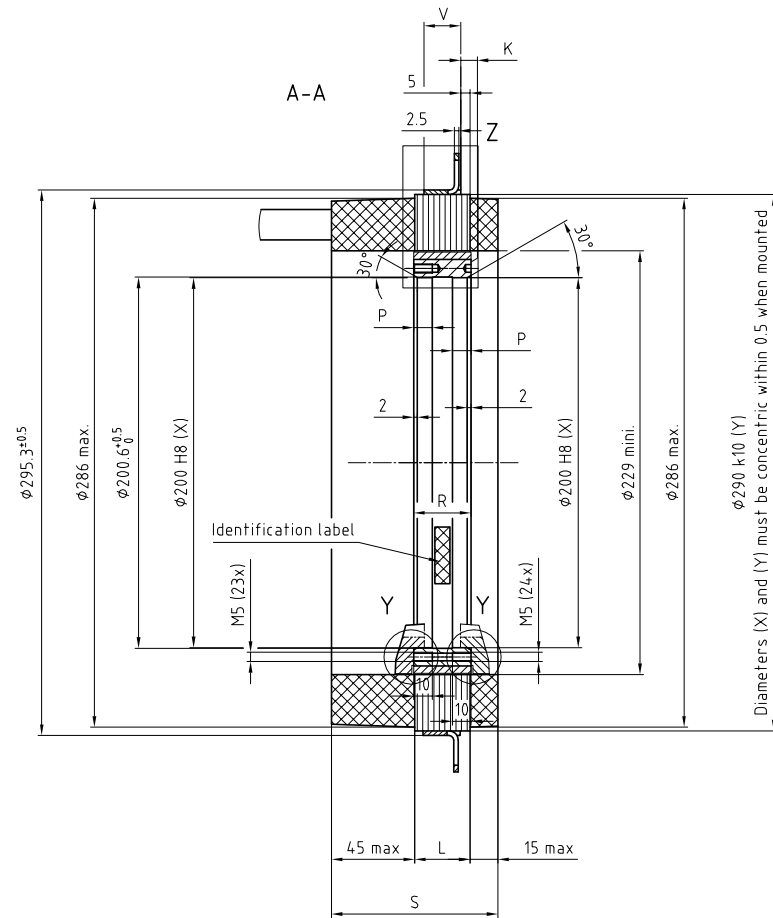


TML0291-070

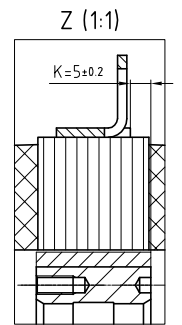


ECO N°	040258-22	Nom	GRO	Date	05.04.2014	Description	Torque motor TML0291-030 / 050 / 070																																																								
<p>Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mK</p> <table border="1"> <thead> <tr> <th>Dimension nominale</th> <th>Linéaire</th> <th>Rayon</th> <th>Châtré</th> <th>Dimension nominale</th> <th>Ra μm</th> <th>Classe</th> </tr> </thead> <tbody> <tr> <td>0.5 - 3</td> <td>± 0.1</td> <td>± 0.2</td> <td>± 0.2</td> <td>10</td> <td>0.05</td> <td>0.4</td> </tr> <tr> <td>3 - 6</td> <td>± 0.1</td> <td>± 0.5</td> <td>± 1</td> <td>30 - 100</td> <td>0.1</td> <td>0.4</td> </tr> <tr> <td>6 - 30</td> <td>± 0.2</td> <td>± 1</td> <td>± 2</td> <td>100 - 300</td> <td>0.2</td> <td>0.4</td> </tr> <tr> <td>30 - 120</td> <td>± 0.3</td> <td>± 2</td> <td>± 4</td> <td>300 - 1000</td> <td>0.4</td> <td>0.6</td> </tr> <tr> <td>120 - 400</td> <td>± 0.5</td> <td>± 4</td> <td>± 8</td> <td>1000 - 3000</td> <td>0.6</td> <td>0.8</td> </tr> <tr> <td>400 - 1000</td> <td>± 0.8</td> <td>± 8</td> <td>± 16</td> <td>1000 - 3000</td> <td>0.8</td> <td>1</td> </tr> <tr> <td>1000 - 2000</td> <td>± 1.2</td> <td>± 12</td> <td>± 25</td> <td></td> <td>1</td> <td>1</td> </tr> </tbody> </table>								Dimension nominale	Linéaire	Rayon	Châtré	Dimension nominale	Ra μm	Classe	0.5 - 3	± 0.1	± 0.2	± 0.2	10	0.05	0.4	3 - 6	± 0.1	± 0.5	± 1	30 - 100	0.1	0.4	6 - 30	± 0.2	± 1	± 2	100 - 300	0.2	0.4	30 - 120	± 0.3	± 2	± 4	300 - 1000	0.4	0.6	120 - 400	± 0.5	± 4	± 8	1000 - 3000	0.6	0.8	400 - 1000	± 0.8	± 8	± 16	1000 - 3000	0.8	1	1000 - 2000	± 1.2	± 12	± 25		1	1
Dimension nominale	Linéaire	Rayon	Châtré	Dimension nominale	Ra μm	Classe																																																									
0.5 - 3	± 0.1	± 0.2	± 0.2	10	0.05	0.4																																																									
3 - 6	± 0.1	± 0.5	± 1	30 - 100	0.1	0.4																																																									
6 - 30	± 0.2	± 1	± 2	100 - 300	0.2	0.4																																																									
30 - 120	± 0.3	± 2	± 4	300 - 1000	0.4	0.6																																																									
120 - 400	± 0.5	± 4	± 8	1000 - 3000	0.6	0.8																																																									
400 - 1000	± 0.8	± 8	± 16	1000 - 3000	0.8	1																																																									
1000 - 2000	± 1.2	± 12	± 25		1	1																																																									
<p>Arêtes de formes ISO 13715</p> <table border="1"> <thead> <tr> <th>Autheur</th> <th>Vérificateur</th> <th>Libérateur</th> </tr> </thead> <tbody> <tr> <td>S. Iervolino</td> <td></td> <td></td> </tr> <tr> <td>25.10.05</td> <td></td> <td></td> </tr> </tbody> </table>								Autheur	Vérificateur	Libérateur	S. Iervolino			25.10.05																																																	
Autheur	Vérificateur	Libérateur																																																													
S. Iervolino																																																															
25.10.05																																																															
<p>Interface drawing</p> <table border="1"> <thead> <tr> <th>Projection</th> <th>Format</th> <th>Echelle</th> <th>Anticn n°</th> <th>Version</th> <th>Revision</th> <th>Feuille</th> <th>Page</th> </tr> </thead> <tbody> <tr> <td>1</td> <td>A1</td> <td>1:2</td> <td>576156 - 04 - A-01</td> <td></td> <td></td> <td>1</td> <td>1</td> </tr> </tbody> </table>								Projection	Format	Echelle	Anticn n°	Version	Revision	Feuille	Page	1	A1	1:2	576156 - 04 - A-01			1	1																																								
Projection	Format	Echelle	Anticn n°	Version	Revision	Feuille	Page																																																								
1	A1	1:2	576156 - 04 - A-01			1	1																																																								

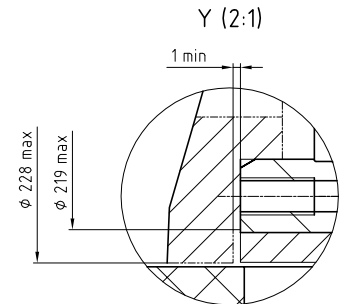
TML0291-###-3###-###
Lug at the opposite side of output cables



Mounting condition



Detail : Y
Magnets safety clearance

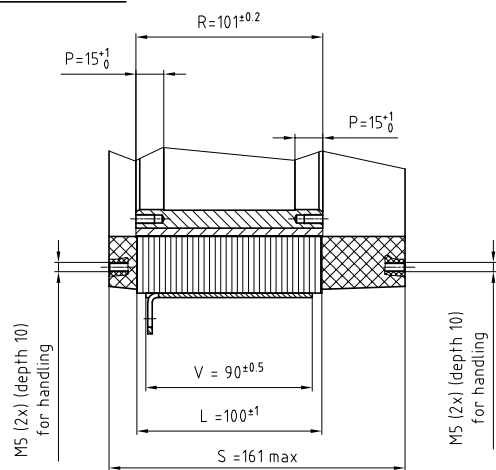


Power cable connection

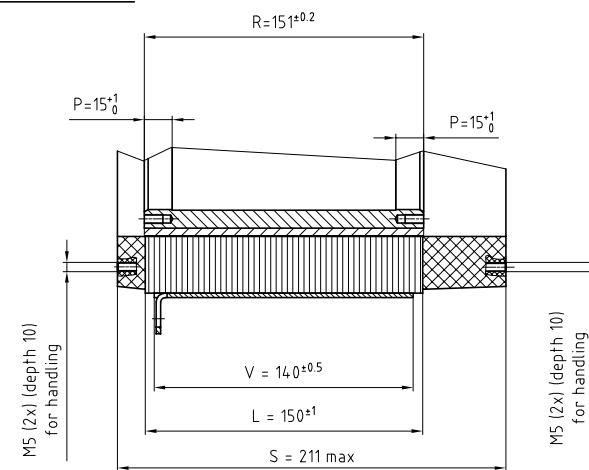
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

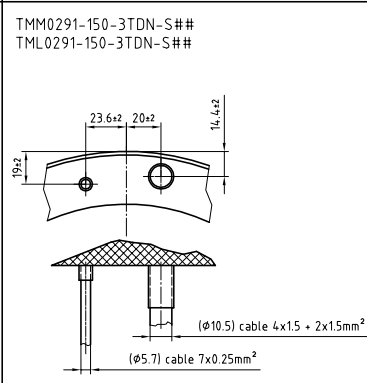
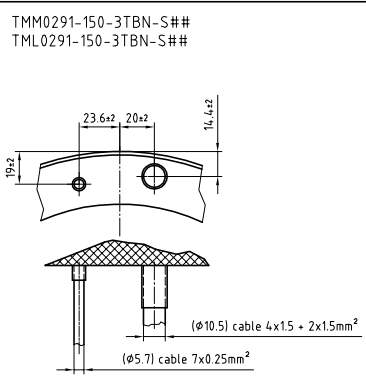
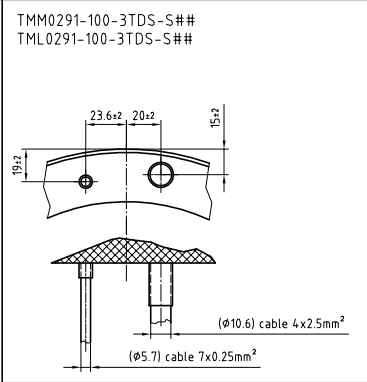
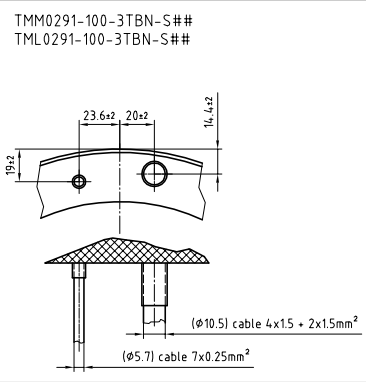
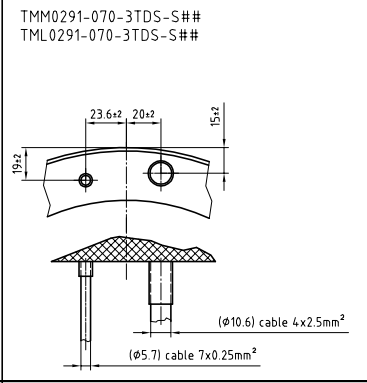
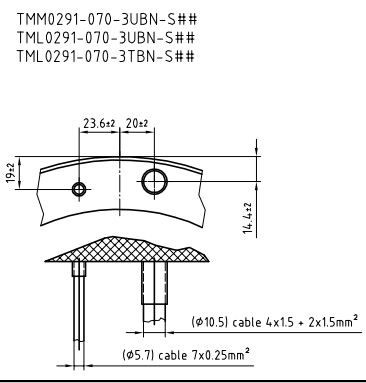
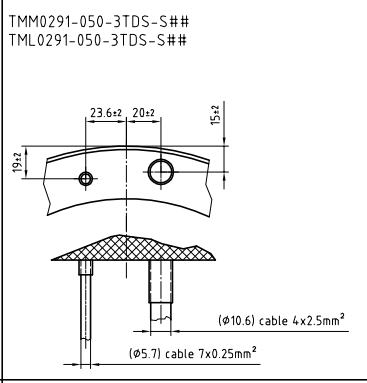
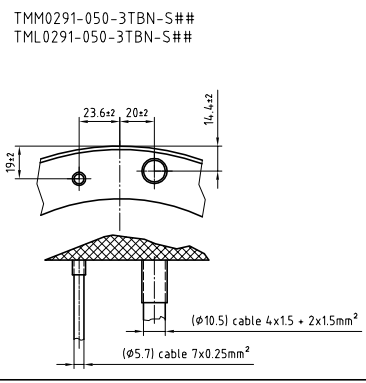
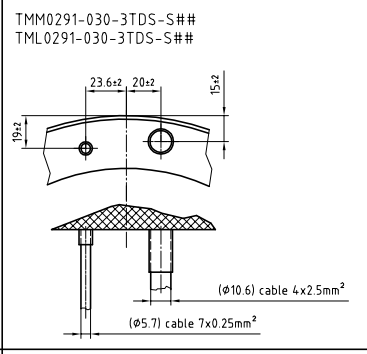
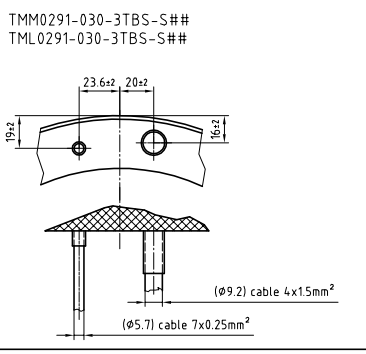
TML0291-100



TML0291-150



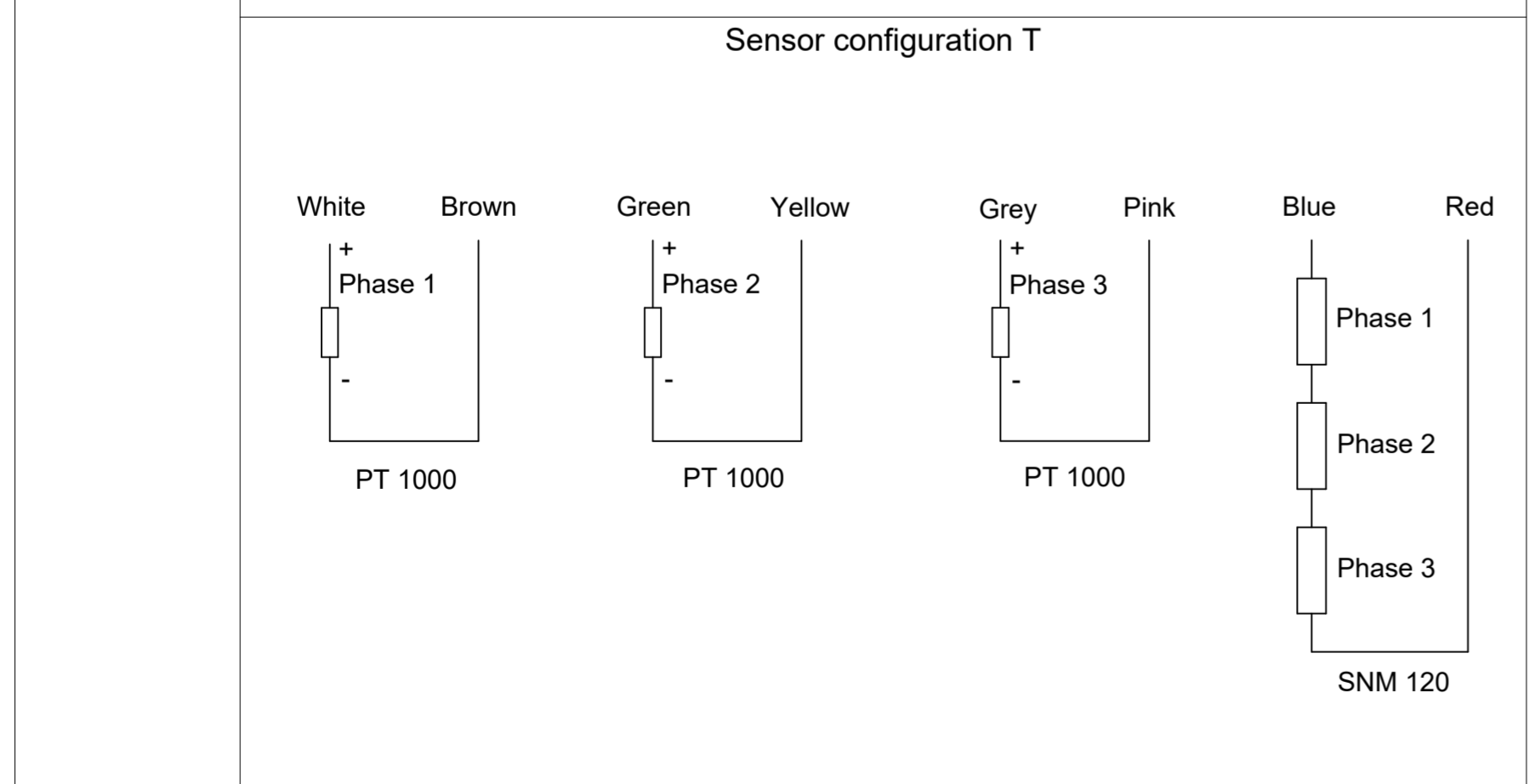
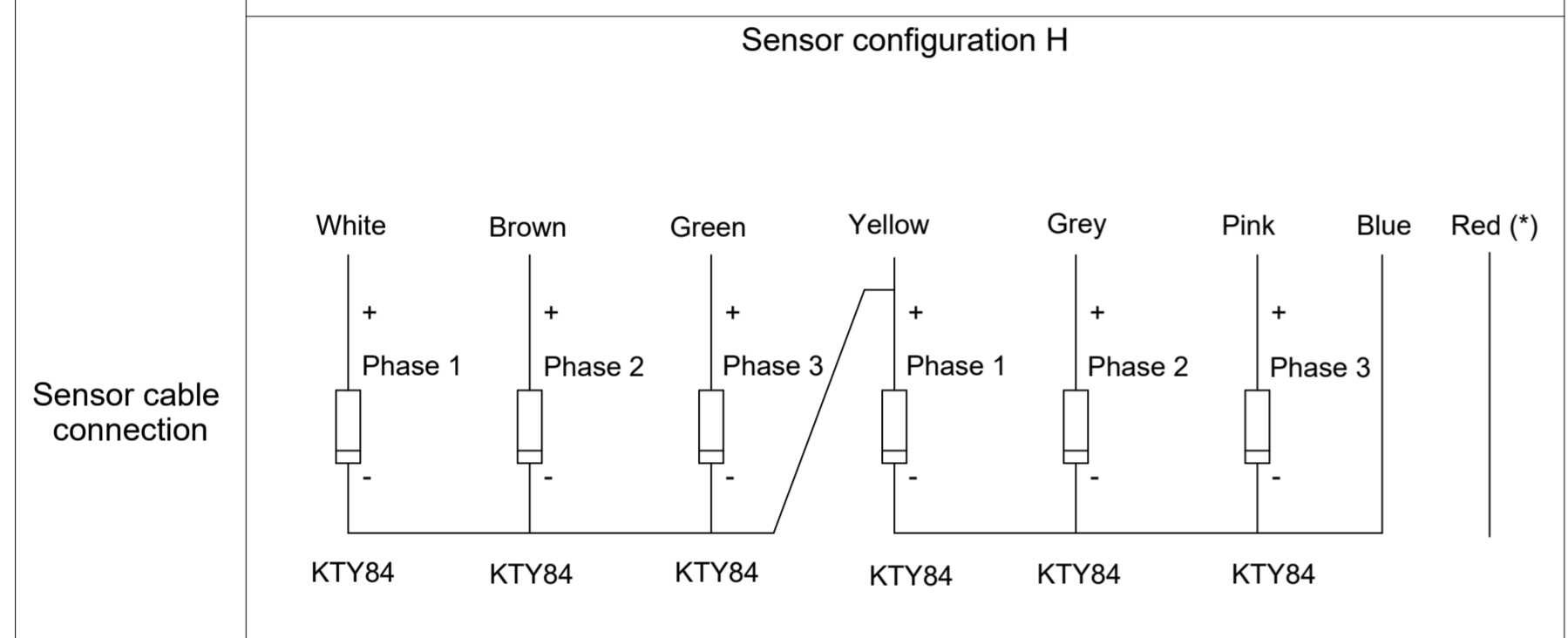
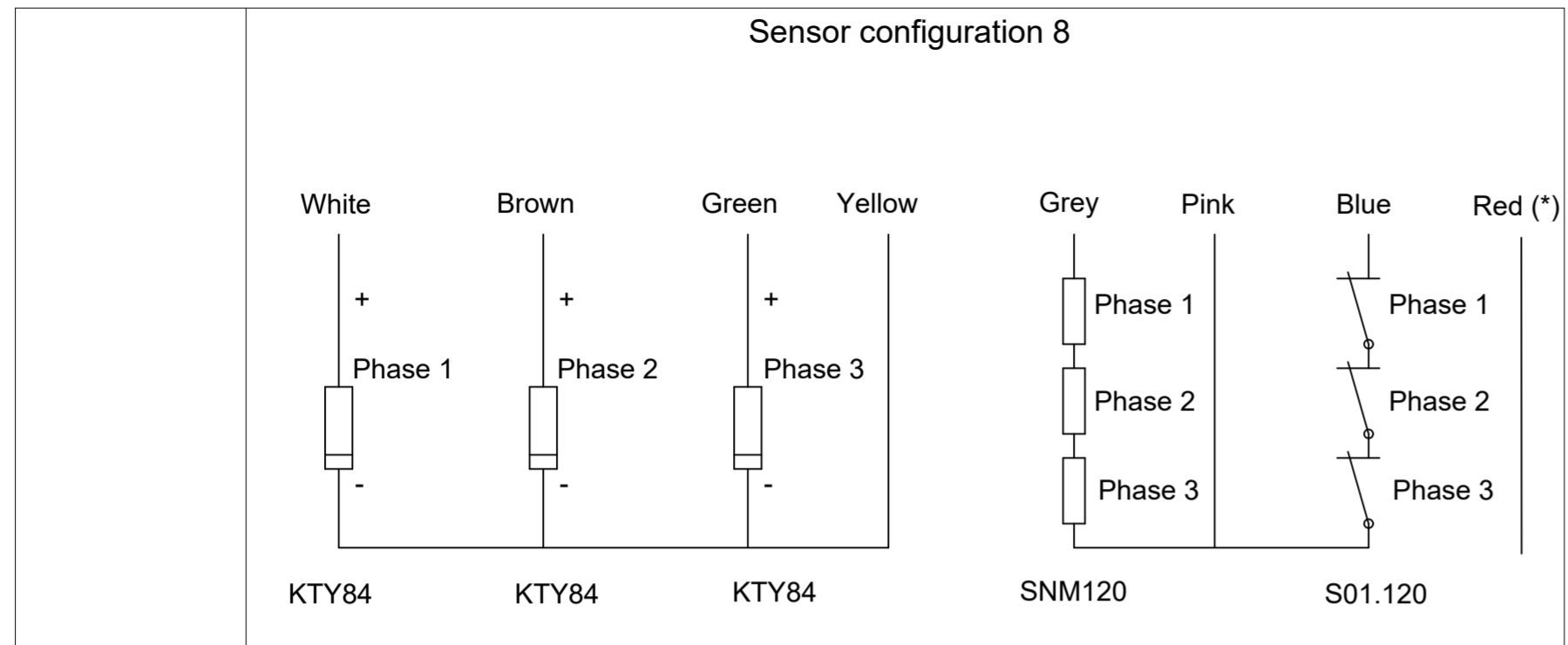
ECO N°	Nom	Date	Description
C80258-22	GRO	05.06.2016	
Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mk			
Matière	Dimension nominale	Linéaire	Rayon
			Chairé
Remarque	0.5 - 3	± 0.1	± 0.2
	3 - 6	± 0.1	± 0.5
	6 - 30	± 0.2	± 1
	30 - 120	± 0.3	± 2
	120 - 400	± 0.5	± 4
	400 - 1000	± 0.8	
	1000 - 2000	± 1.2	
Annexe			
	10	± 1°	
	10 - 50	± 20'	
	50 - 120	± 20'	
	120 - 400	± 10'	
Équivalence rugosité			
	50	N12	
	25	N10	
	6.3	N9	
	3.2	N8	
	1.6	N7	
	0.8	N6	
	0.4	N5	
	0.2	N4	
	0.1	N3	
	0.05	N2	
	0.025	N1	
Arêtes de formes ISO 13715			
Interface drawing			
Torque motor TML0291-100 / 150			
Auteur Vérificateur Libérateur			
S. Iervolino			
25.10.05			
Cote Ajustement			
Projection Format Echelle			
A1 1:2			
Ancien n° : 0516m-14.0-03d (Version) Revision Feuille Page			
576155 - 04 - A-01 1/1			



FSM N°		Non	Date	Description	Elaboré output cable removed	
C664366-5		REV	05.10.17			
Matière:						
Remarque:						
Annexe:						
Arêtes de formes ISO 9315						
Torque motor TMM & TML0291 cables outputs				Auteur	Vérificateur	Libérateur
S. Bernini						
Meilleur coupleur pour TMM & TML0291 sorties de câbles						
Access n° 05.16m-14.0-01				Version	Revision	Feuille
22.09.2005						
Echelle				A1		
576154 -06 -A -01						



Les plans sont réservés à l'usage interne de la division. Toute réimpression sans autorisation écrite est formellement interdite. Toute utilisation non autorisée est formellement interdite. ETIL S.A.



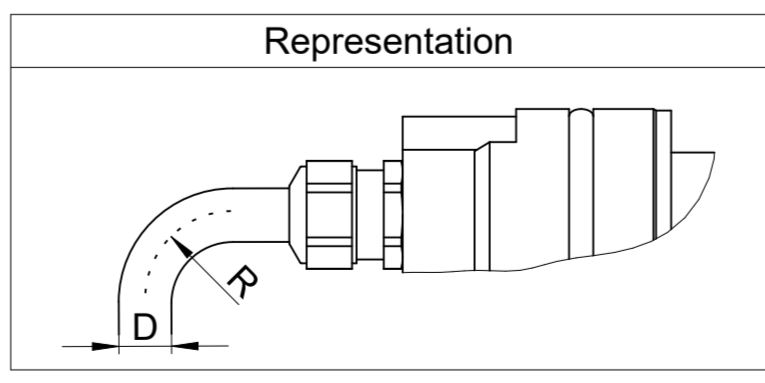
Power cable connection

Color and wire number	Function	Drawing
Black wire with number 1 or U	Phase 1 (PH1)	
Black wire with number 2 or V	Phase 2 (PH2)	
Black wire with number 3 or W	Phase 3 (PH3)	
Yellow and green wire	Ground (GND)	
Black wire with number Br1 or 5 or white cable	Neutral point wire (present only on some motor types)	
Black wire with number Br2 or 6 or black wire without label	None(**)	

(**): This wire is automatically present when the neutral point wire (which is an option) is added in the motor as it is a 2 x 1.5 mm² cable.

Wire section (mm²)

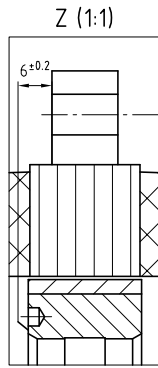
Characteristics	4 x 1.5	4 x 1.5 + 2 x 1.5	4 x 2.5	4 x 2.5 + 2 x 1.5	4 x 4	4 x 4 + 2 x 1.5	4 x 10	4 x 10 + 2 x 1.5	Sensor cable
Applicable motors: TMM / TML	0140 0175 0210 0291 0360 0450	0175 0210 0291 0360 0450 0530	0291 0360	0360 0530	0360 0450 0530	0360 0450 0530	0450 0530	0530	All TMM / TML
Minimum bend radius for fixed cable	R = 4 X D	R = 5 X D	R = 4 X D	R = 5 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 6 X D
Minimum bend radius for moving cable	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 12 X D



(*): Red wire (if present) is not connected on the motor side and cutted flush on cable extremity.

Text:		ID number:	
Original drawing		Change No. C145178-05	
Scale		Released: 20-Sep-22	
Format		TMM / TML sensor config. and cables prop. (interface)	
Dimensions in mm		TMM / TML config. capteur et prop. câbles (interface)	
1:1		A2	
		Mating Dimensions / Cotes d'encombrement	
		Tolerances as per ISO 8015 : 2011	
		Tolérances selon ISO 8015 : 2011	
		Dimensions without tolerance ± 0,2	
		Dimensions sans tolérances	
The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)			
ETEL		ETEL S.A. 2112 Môtiers SWITZERLAND	
		Version Revision Sheet Page	
		1389869-00 - A-01	
		1 of 1	
		Document number	

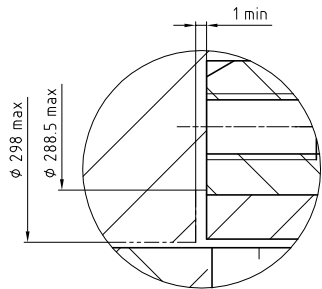
Mounting condition



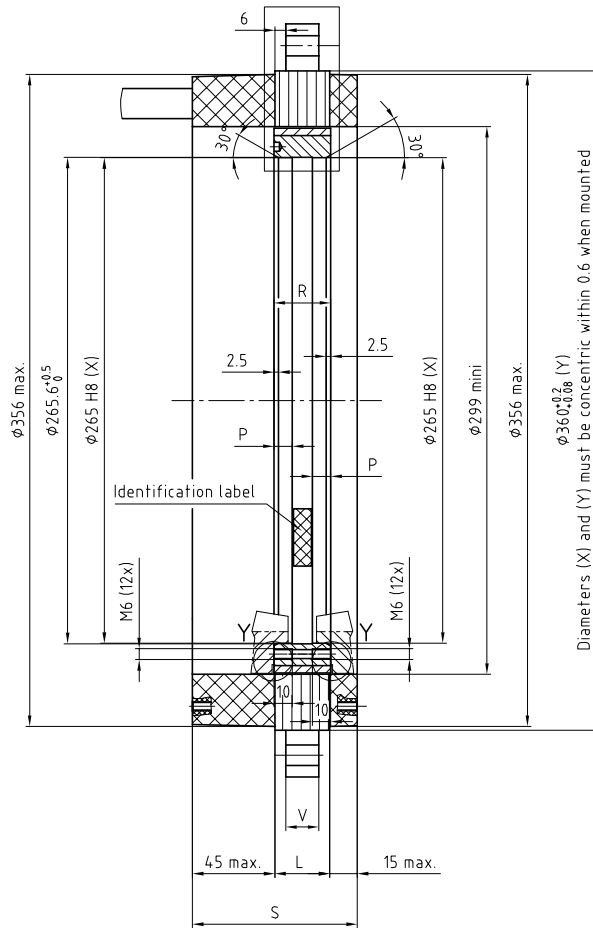
Detail: Y

Magnets safety clearance

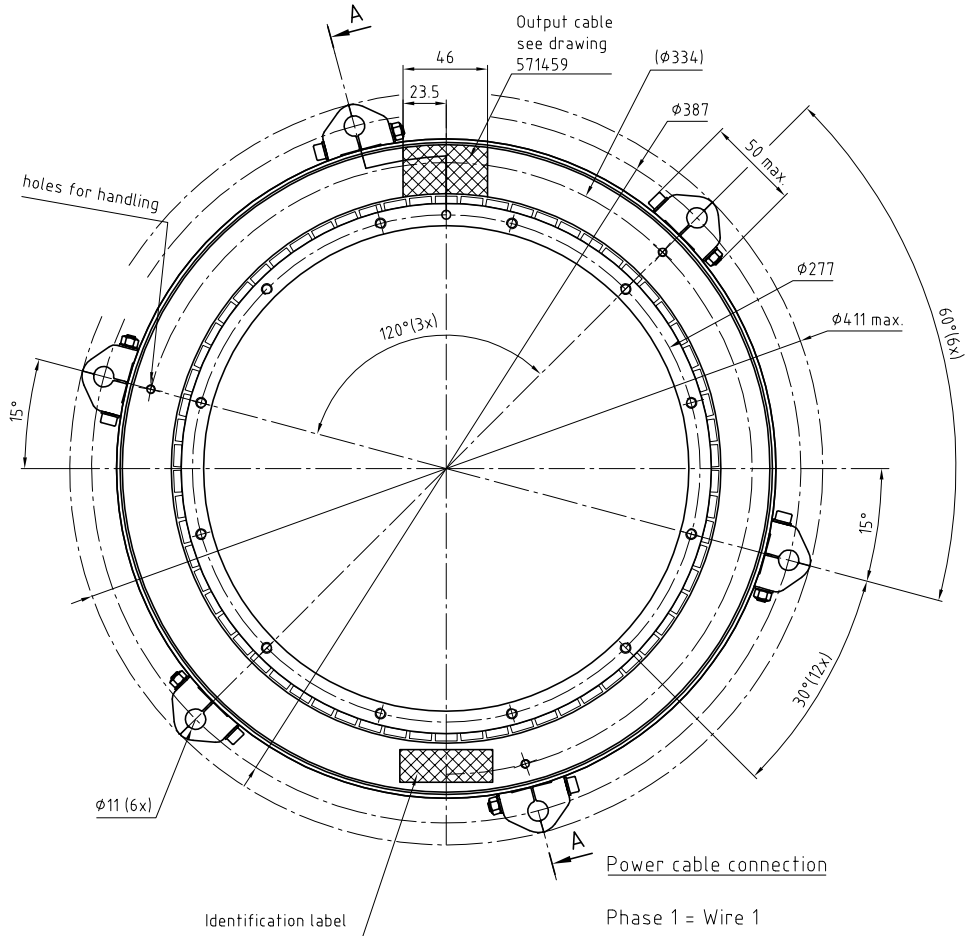
Y (3:1)



A-A



Diameters (X) and (Y) must be concentric within 0.6 when mounted

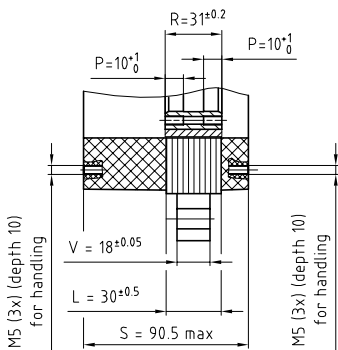


Power cable connection

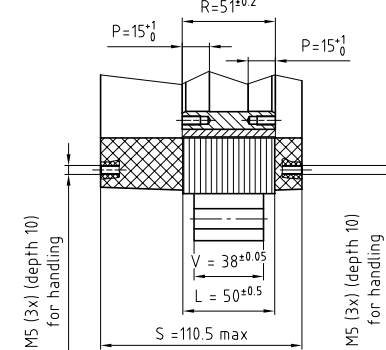
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

Ø 265	H8	^{+0.001} ₀	^{+0.001} ₀
Cote	Ajustement		

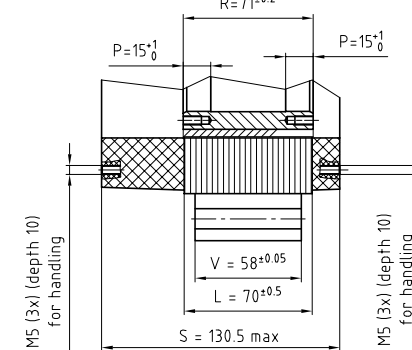
TML0360-030



TML0360-050



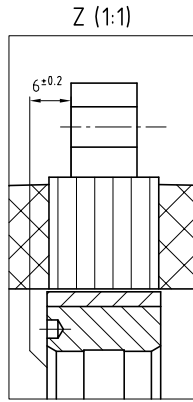
TML0360-070



For temperature sensor configuration, see Handbook

ECO	ECO N°	Nom	Date	Description	Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mK		Equivalence rugosité				
	C047288	GR0	29.11.2016		Dimension nominale	Linéaire	Rayon (Chanfrein)	Dimension nominale	Ra µm	Classe	
Matière: -					0.5 ... 3	±0.1	±0.2	... 10	0.05	0.4	0.6
Remarque: -					3 ... 6	±0.1	±0.5	> 10 ... 30	0.1	0.4	0.6
Annexe: -					> 6 ... 30	±0.2	±1	> 30 ... 100	0.2	0.4	0.6
					> 30 ... 120	±0.3	±2	> 100 ... 300	0.4	0.6	0.6
					> 120 ... 400	±0.5	±4	> 300 ... 1000	0.6	0.8	0.8
					> 400 ... 1000	±0.8		> 1000 ... 3000	0.8	1	1
					> 1000 ... 2000	±1.2					
Arêtes de formes ISO 13715					Torque motor TML0360-030 / 050 / 070			Auteur		Vérificateur	Libérateur
-0.3								S. Perrot		C. Locatelli	
+0.3								13.04.06		01.12.2016	
Interface drawing TML0360-030 / 050 / 070					Projection			Format		Echelle	
ETEL					A2			1:2		Ancien n°: 0521m-i4.0-01e	
ETEL S.A. CH-2102 Môtiers SWITZERLAND					Ces plans sont notre propriété et ne doivent pas, sans notre autorisation écrite être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.			Version		Revision	
					A2			1:2		588769 - 06- A-01	
								01.12.2016		0.05	
										1/1	

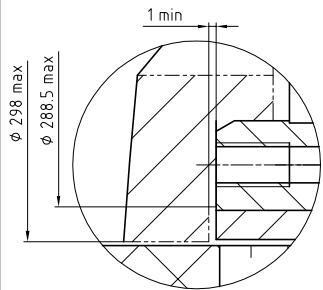
Mounting condition



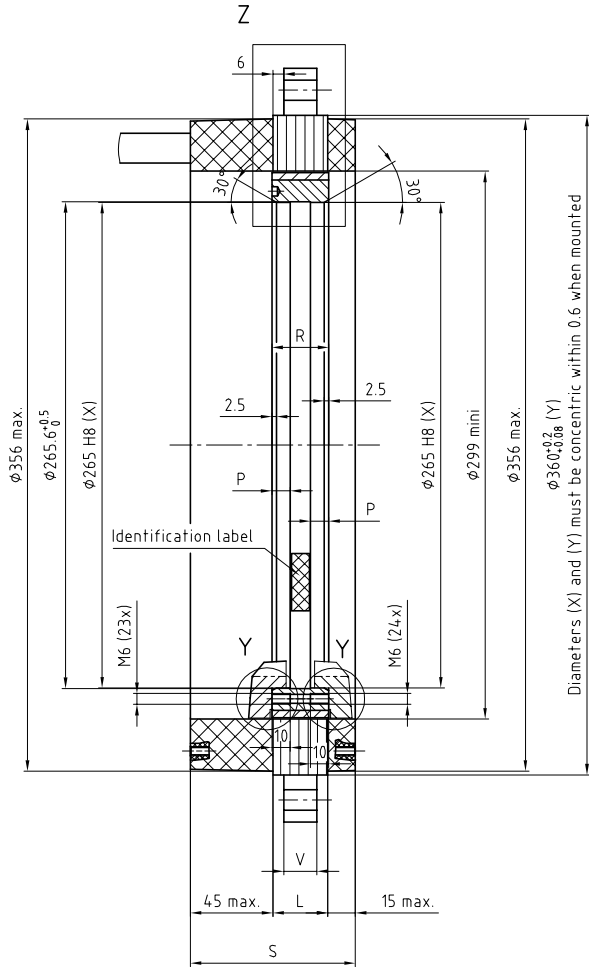
Detail: Y

Magnets safety clearance

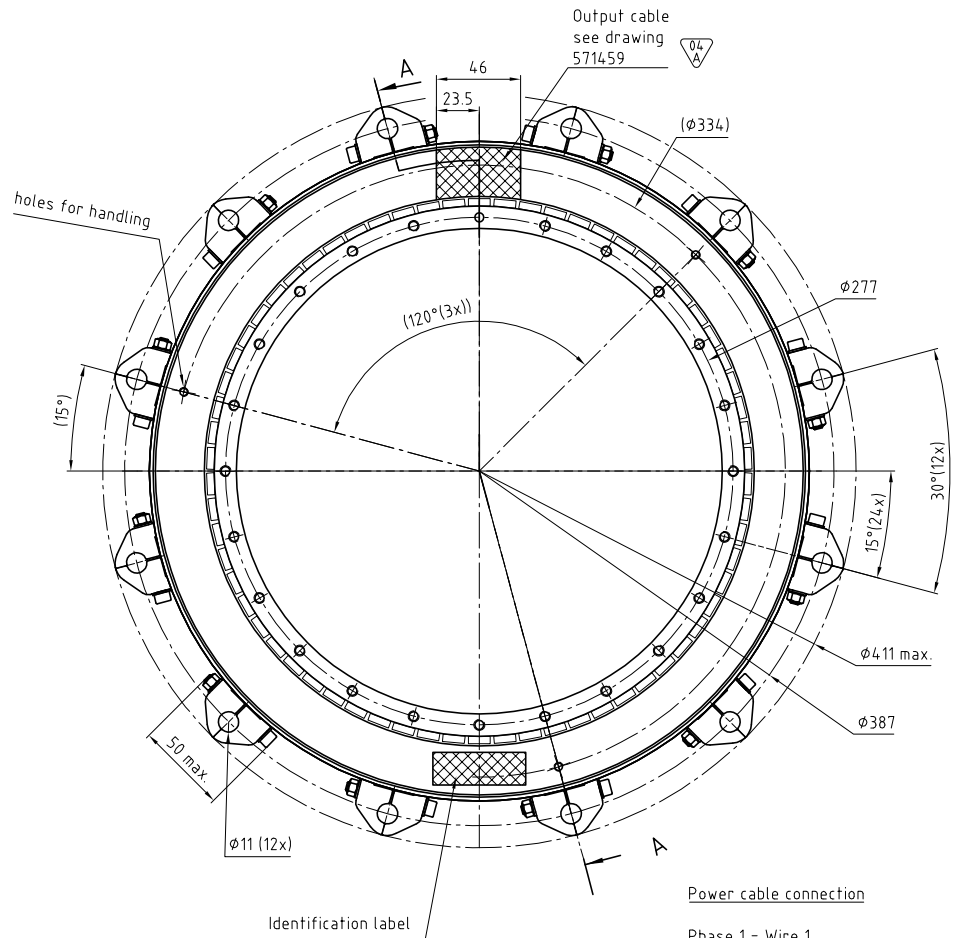
Y (2:1)



A-A



Diameters (X) and (Y) must be concentric within 0.6 when mounted

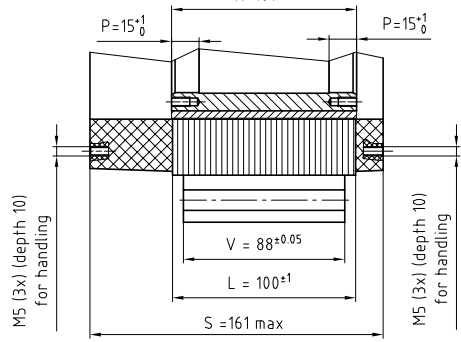


Output cable see drawing 571459

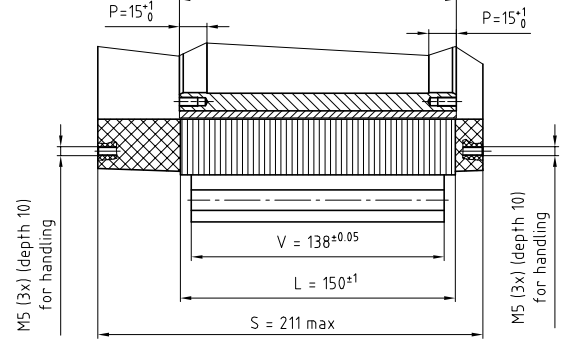
Power cable connection

- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

Tml0360-100

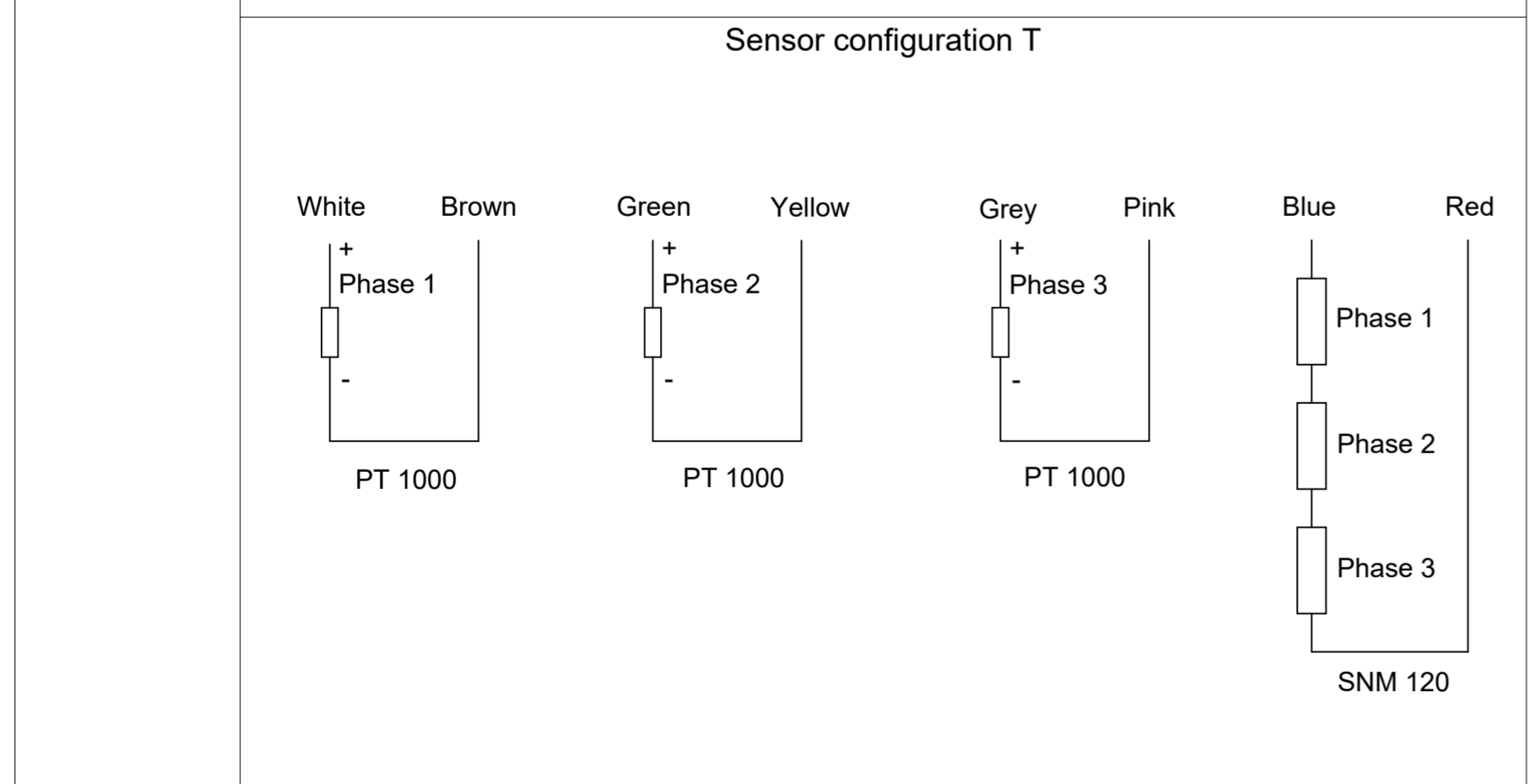
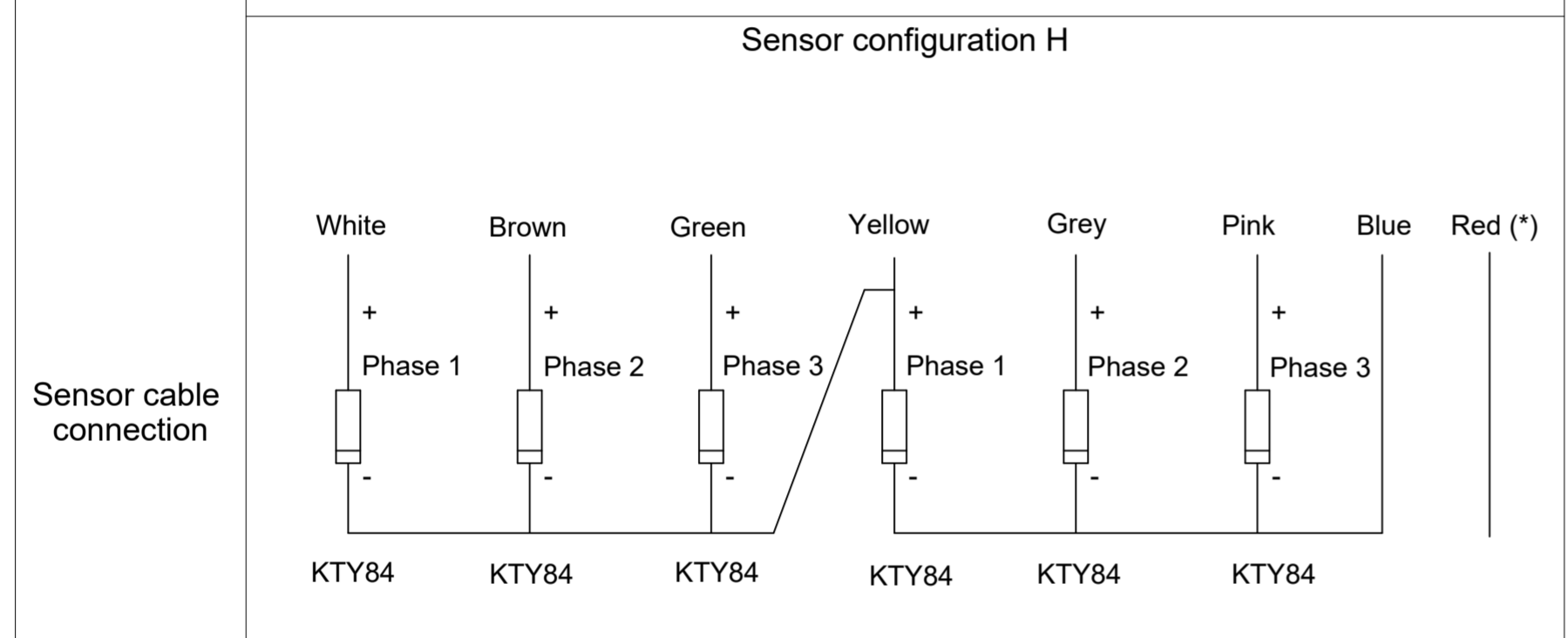
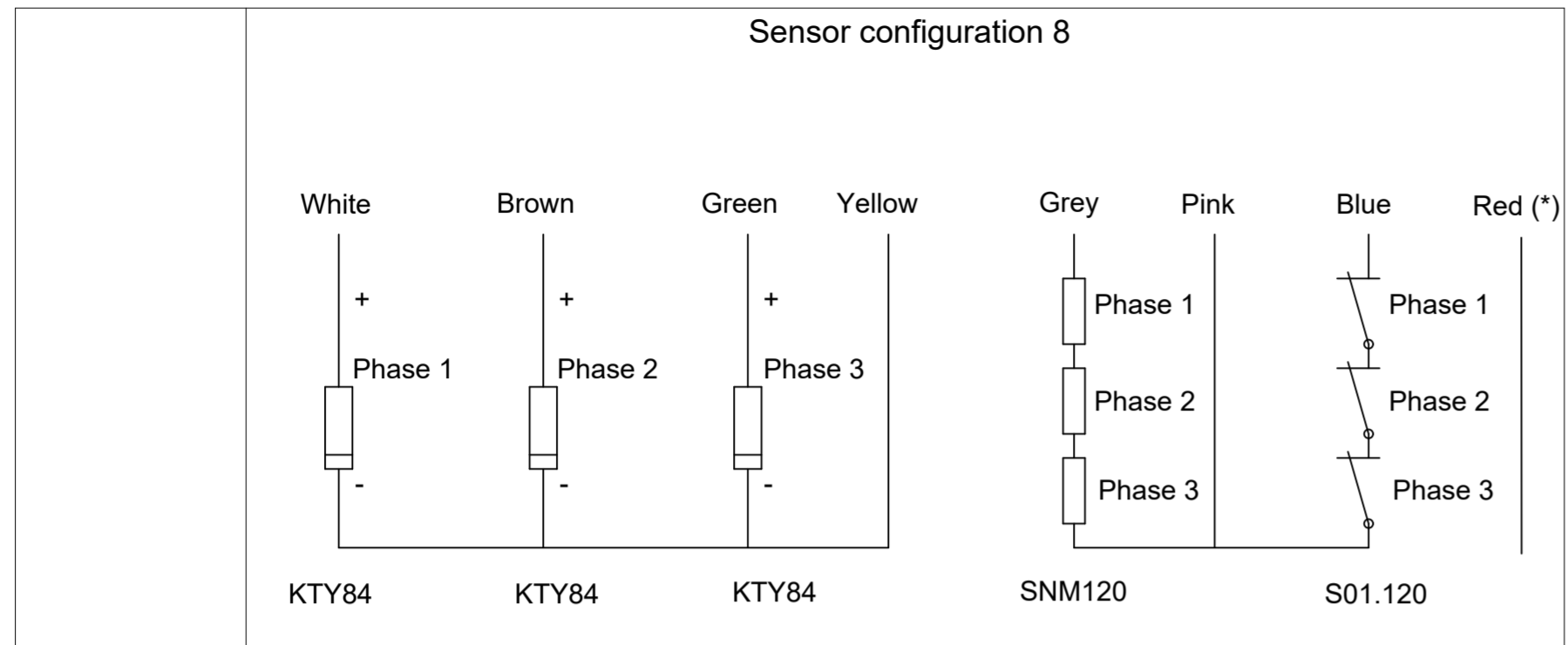


Tml0360-150



For temperature sensor configuration, see Handbook

	ECD N°	Nom	Date	Description - Update drawing		Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mK Equivalence rugosité
	C29035	GRO	15.03.2013			
Matière:						Dimension nominale Linéaire Rayon (Chanfrein) Lks α
Remarque:						Dimension nominale Ra μm Classe
Annexe:						Dimension nominale Ra μm Classe
Arêtes de formes ISO 13175	Torque motor					Auteurs Vérificateur Libérateur
	Interface drawing Tml0360-100 / 150					S. Perrot 13.04.06
Ces plans sont notre propriété. Ils ne doivent pas, sans notre autorisation écrite être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.						Projection Format Echelle Ancien n°: 0521m-i40-02d Version Revision Feuille Page
φ265 H8 0 -0.001 265.001 265.001 Cote Ajustement						588770 - 04- A-01 1/1 Numéro de document



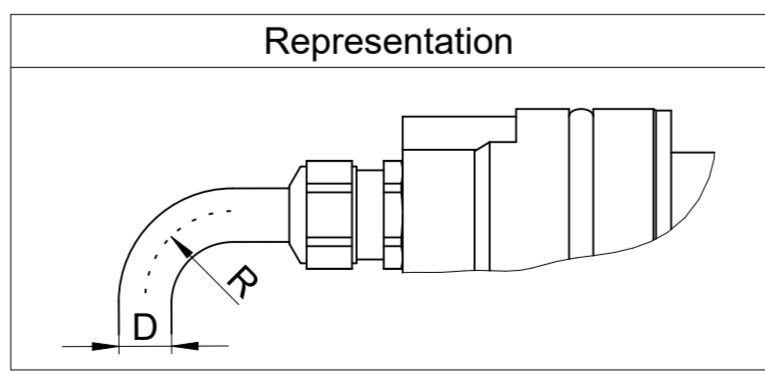
Power cable connection

Color and wire number	Function	Drawing
Black wire with number 1 or U	Phase 1 (PH1)	
Black wire with number 2 or V	Phase 2 (PH2)	
Black wire with number 3 or W	Phase 3 (PH3)	
Yellow and green wire	Ground (GND)	
Black wire with number Br1 or 5 or white cable	Neutral point wire (present only on some motor types)	
Black wire with number Br2 or 6 or black wire without label	None(**)	

(**): This wire is automatically present when the neutral point wire (which is an option) is added in the motor as it is a 2 x 1.5 mm² cable.

Wire section (mm²)

Characteristics	4 x 1.5	4 x 1.5 + 2 x 1.5	4 x 2.5	4 x 2.5 + 2 x 1.5	4 x 4	4 x 4 + 2 x 1.5	4 x 10	4 x 10 + 2 x 1.5	Sensor cable
Applicable motors: TMM / TML	0140 0175 0210 0291 0360 0450	0175 0210 0291 0360 0450 0530	0291 0360	0360 0530	0360 0450 0530	0360 0450 0530	0450 0530	0530	All TMM / TML
Minimum bend radius for fixed cable	R = 4 X D	R = 5 X D	R = 4 X D	R = 5 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 6 X D
Minimum bend radius for moving cable	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 12 X D

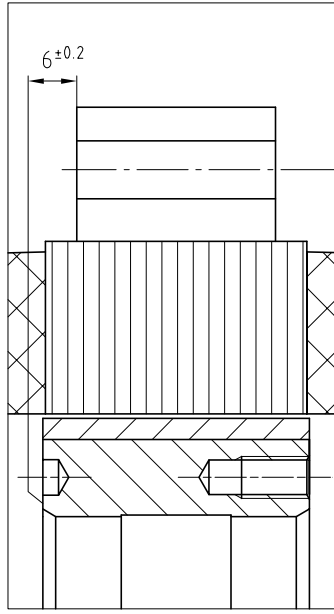


(*): Red wire (if present) is not connected on the motor side and cutted flush on cable extremity.

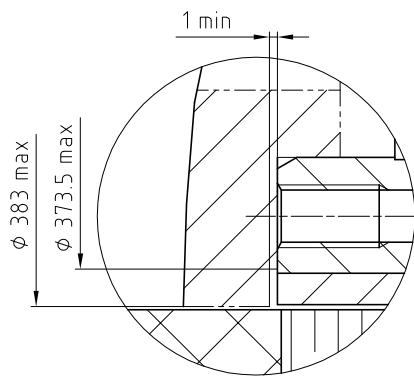
Text:		ID number:	
Original drawing		Change No. C145178-05	
Scale		Released: 20-Sep-22	
Format		Tolerances as per ISO 8015 : 2011	
Dimensions in mm		Tolerances selon ISO 8015 : 2011	
1:1		Dimensions without tolerance ± 0,2	
A2		Dimensions sans tolérances	
Mating Dimensions / Cotes d'encombrement			
The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)			
ETEL		ETEL S.A. 2112 Môtiers SWITZERLAND	
Version		Revision	
Sheet		Page	
1389869-00 - A-01		1 of 1	
Document number			

Mounting condition

Z (1:1)



02 A Detail: Y
Magnets safety clearance
Y (1.5:1)



φ446 max.

φ345.6^{+0.5}

φ345 H8 (X)

φ345 H8 (X)

φ384 mini

φ446 max.

φ450 k10 (Y)

Diameters (X) and (Y) must be concentric within 0.6 when mounted

Identification label

M8 (23x)

2.5

2.5

M8 (24x)

13

13

45 max

L

15 max

S

Y

V

R

P

P

Z

D

C

B

A

holes for handling

(φ420)

Output cable
see drawing
576236

02 A

φ 502 max.

50 max.

120°(3x)

15°(24x)

φ360

11.25°

22.5°(16x)

φ 477.5

φ 11 (16x)

Power cable connection

- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

02 A

Identification label

For temperature sensor configuration, see Handbook

Tml0450-100

R=101±0.2

P=15⁺¹₀

P=15⁺¹₀

M5 (3x) (depth 10)
for handling

M5 (3x) (depth 10)
for handling

V = 88±0.05

L = 100±1

S = 161 max

Tml0450-150

R=151±0.2

P=15⁺¹₀

P=15⁺¹₀

M5 (3x) (depth 10)
for handling

M5 (3x) (depth 10)
for handling

V = 138±0.05

L = 150±1

S = 211 max

02 A	ECO N° C29035	Nom GRO	Date 15.03.2013	Description : Update drawing
Matière : -				
Remarque : -				
Annexe : -				
Arêtes de formes ISO 13715 -0,3 +0,3				
Torque motor Tml0450-100 / 150				
Interface drawing				
Auteur : S. Perrot				
Vérificateur : -				
Libérateur : -				
Date : 25.04.06				
Principe de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mK				
Dimension nominale	Linéaire	Rayon	Chanfrein	Equivalence rugosité
0,5 ... 3	±0,1	±0,2		50 N12
> 3 ... 6	±0,1	±0,5		25 N11
> 6 ... 30	±0,2	±1		12,5 N10
> 30 ... 120	±0,3	±2		6,3 N9
> 120 ... 400	±0,5	±4		3,2 N8
> 400 ... 1000	±0,8			1,6 N7
> 1000 ... 2000	±1,2			0,8 N6
				0,4 N5
				0,2 N4
				0,1 N3
				0,05 N2
				0,025 N1
Projection : A2				
Format : A2				
Echelle : 1:2				
Ancien n° : 0526m-i4.0-03b				
Version : 02				
Revison : A				
Feuille : 01				
Page : 1/1				
Numéro de document : 589169 - 02 - A - 01				

φ450	k10	+0.25	450	25
φ345	H8	+0.089	345	089
Cote Ajustement				

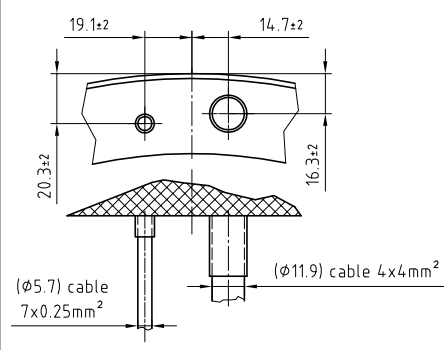
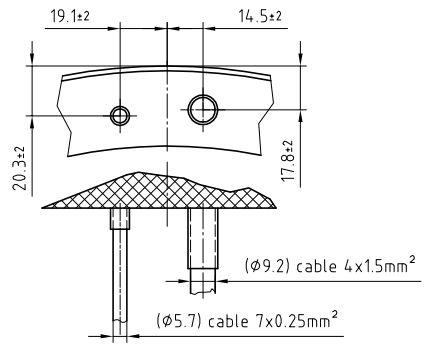
ETEL
ETEL S.A.
CH-2112 Möhlers
SWITZERLAND
Ces plans sont notre propriété.
Ils ne doivent pas, sans notre
autorisation écrite être copiés,
reproduits, communiqués à des
tiers. Leur utilisation est
strictement réservée à ETEL S.A.

Projection	Format	Echelle	Ancien n°	Version	Revison	Feuille	Page
A2	A2	1:2	0526m-i4.0-03b	02	A	01	1/1

TMM0450-030-3VBS-S##
TML0450-030-3VBS-S##

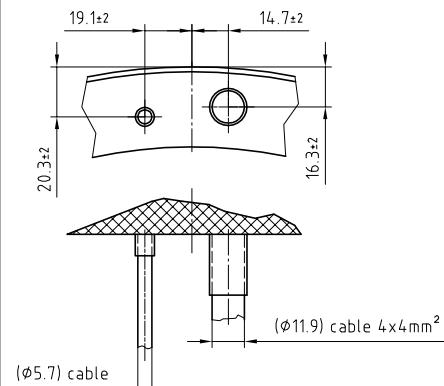
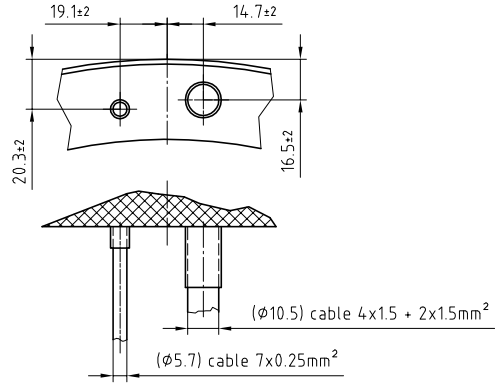
TMM0450-030-3VDS-S##
TML0450-030-3VDS-S##

07
A



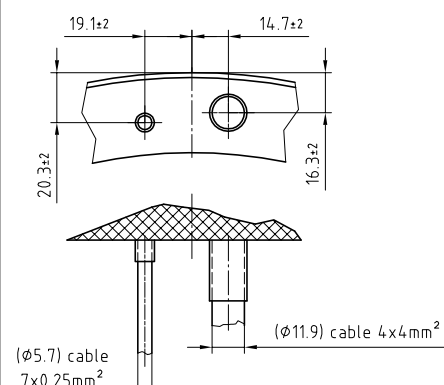
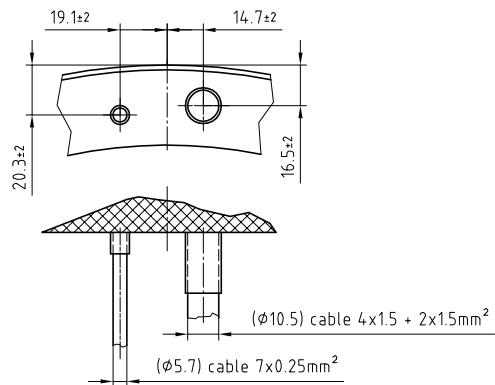
TMM0450-050-3VBN-S##
TML0450-050-3VBN-S##

TMM0450-050-3VDS-S##
TML0450-050-3VDS-S##



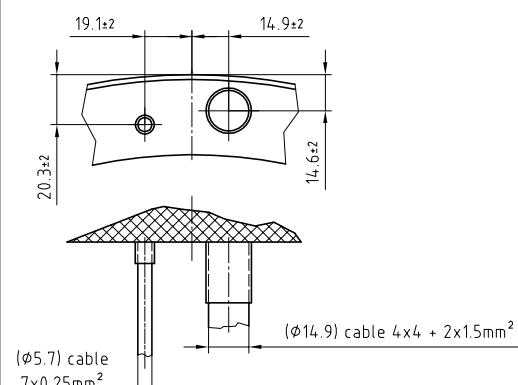
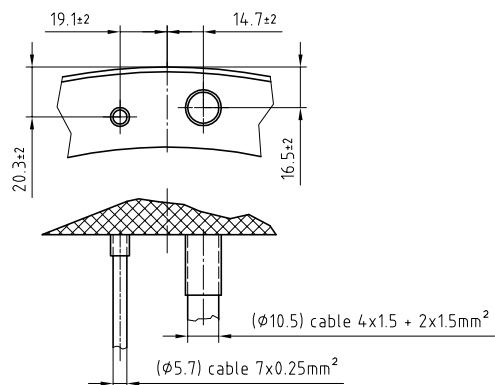
TMM0450-070-3VBN-S##
TML0450-070-3VBN-S##

TMM0450-070-3VDS-S##
TML0450-070-3VDS-S##



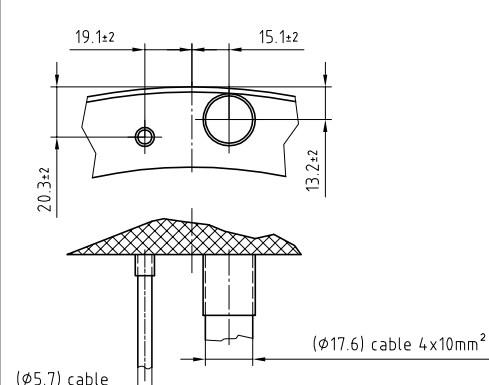
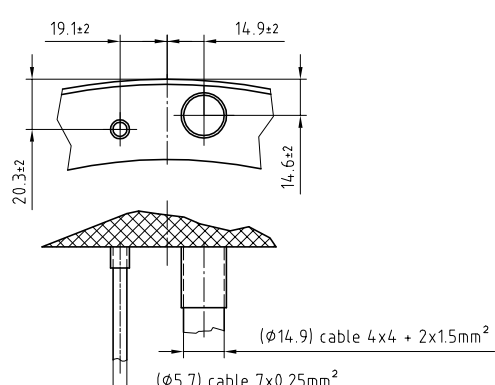
TMM0450-100-3VBN-S##
TML0450-100-3VBN-S##

TMM0450-100-3VDN-S##
TML0450-100-3VDN-S##

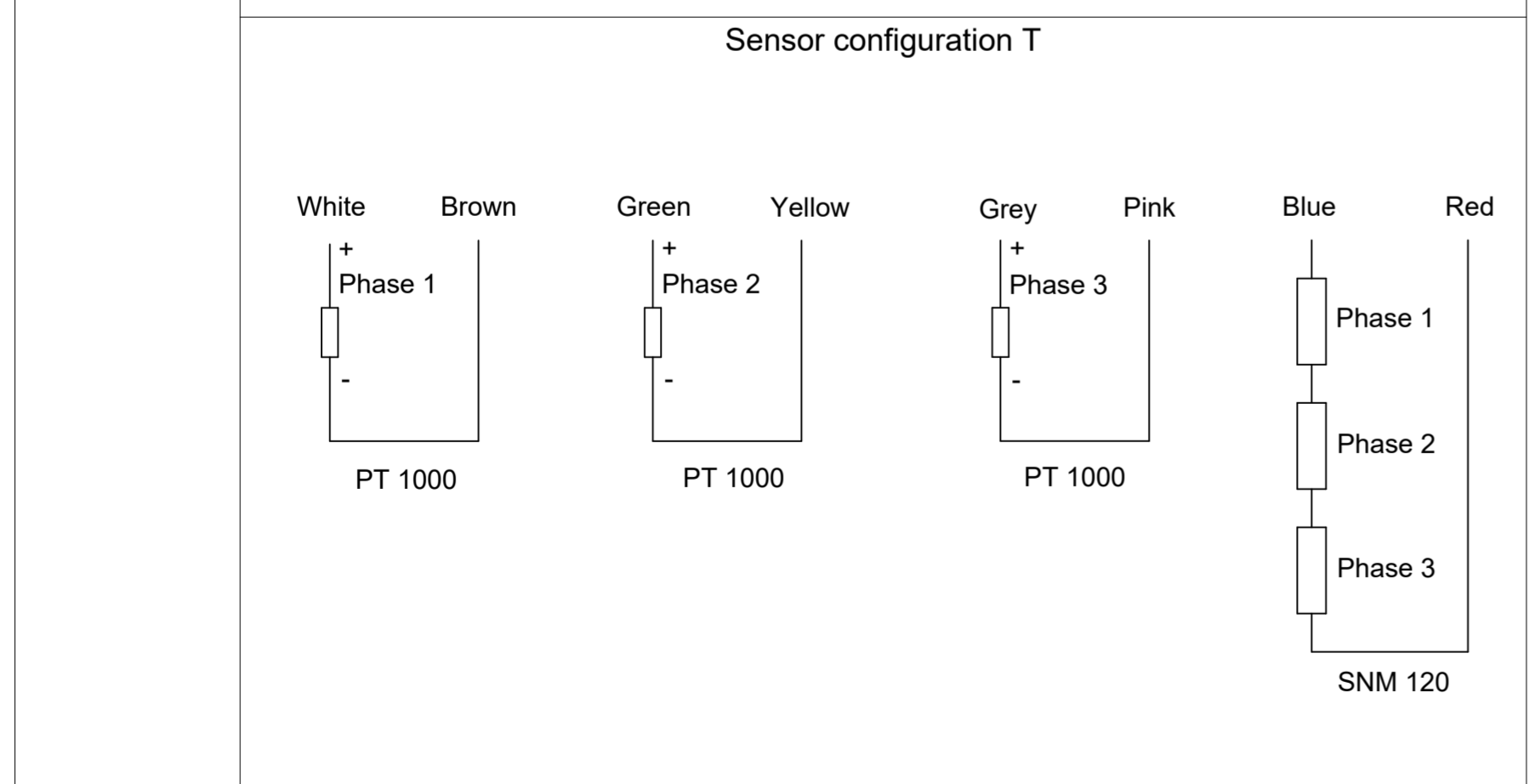
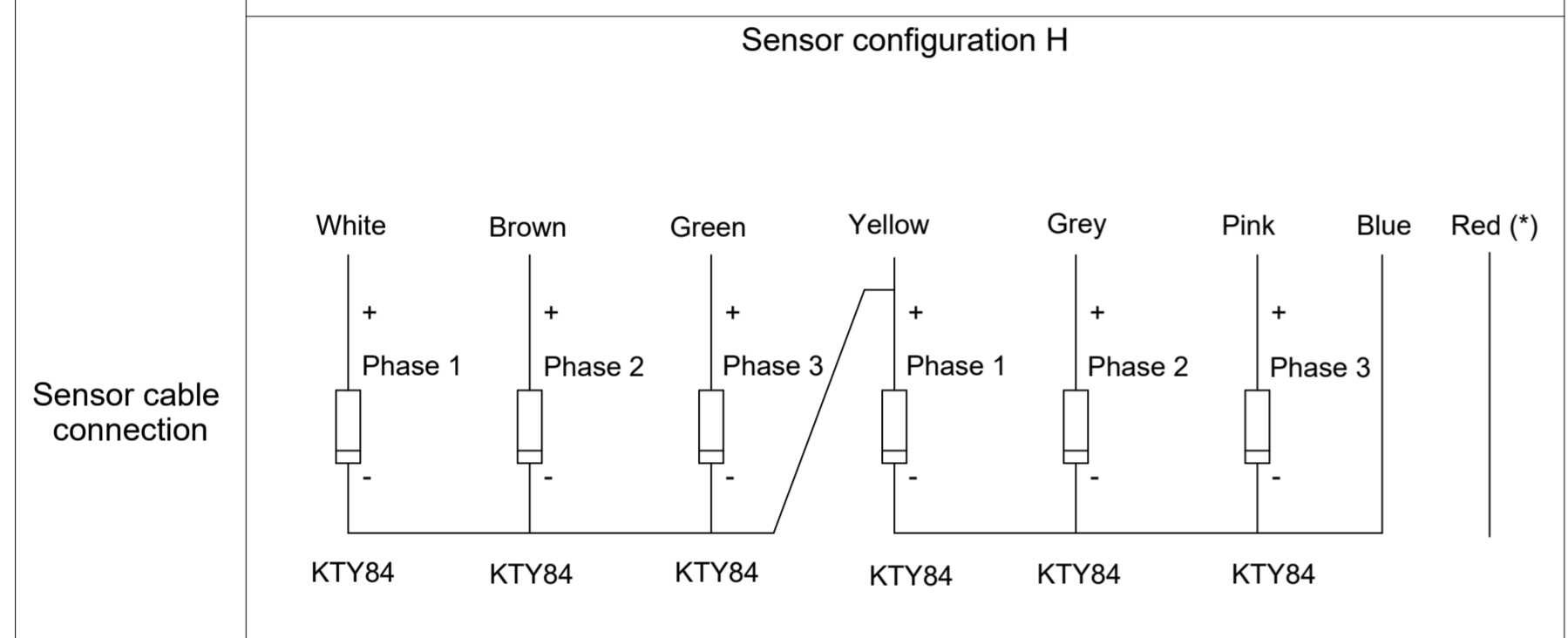
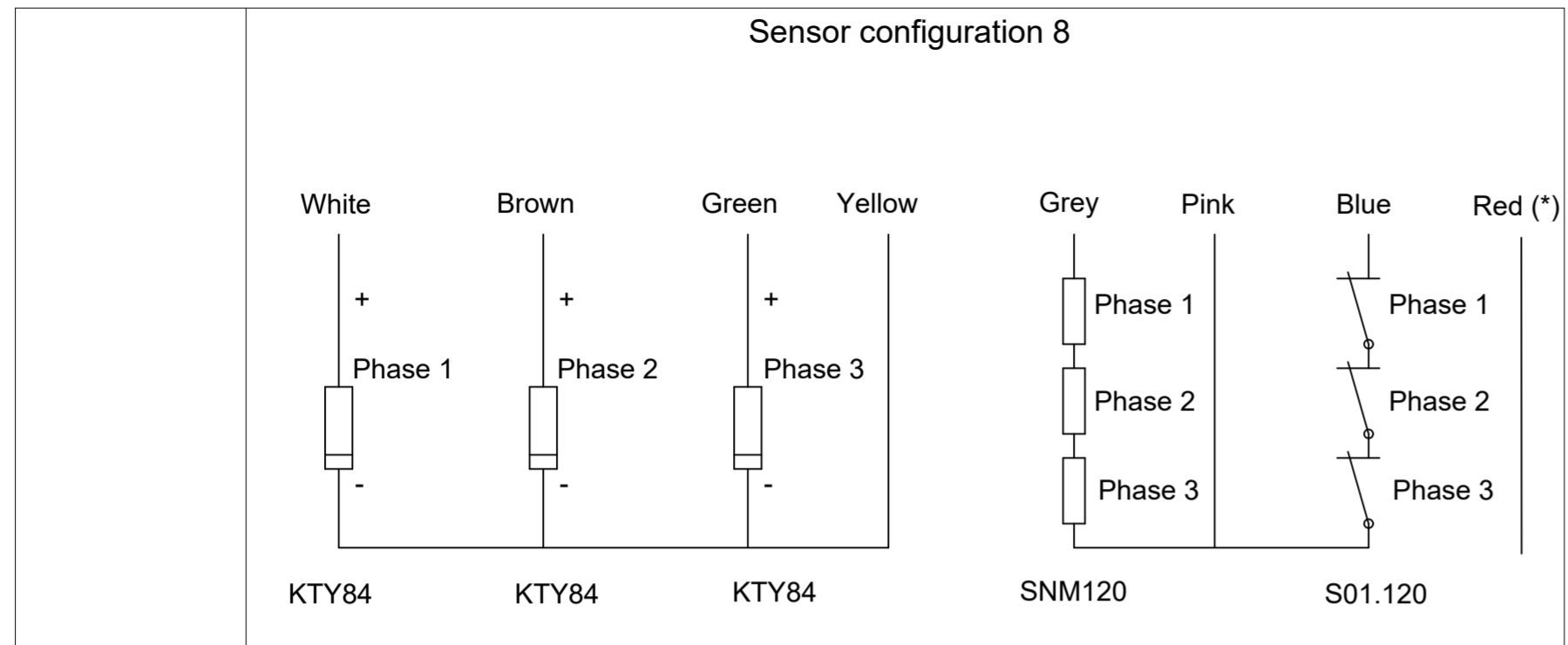


TMM0450-150-3VDN-S##
TML0450-150-3VDN-S##

TMM0450-150-3VHS-S##
TML0450-150-3VHS-S##



FSM N°	Nom	Date	Description: Elbowed output cable removed	
C064986-5	JGU	05.10.17		
Matière:	-			Equivalence rugosité
Remarque:	-			Ra µm Classe
Annexe:	-			50 N12
	-			25 N11
	-			12.5 N10
	-			6.3 N9
	-			3.2 N8
	-			1.6 N7
	-			0.8 N6
	-			0.4 N5
	-			0.2 N4
	-			0.1 N3
	-			0.05 N2
	-			0.025 N1
Arêtes de formes ISO 13715	Torque motor TMM & TML0450 cables outputs		Auteur	Vérificateur
←-0.3	←+0.3	Moteur coupleur fer TMM & TML0450 sorties de câbles	S. Iervolino	-
			22.09.2005	-
ETEL	ETEL S.A. CH-2102 Mülheim SWITZERLAND	Ces plans sont notre propriété. Ils ne doivent pas, sans notre autorisation écrite, être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.	Projection	Format
			↖	A1
			Echelle	Ancien n°
				0526m-14.0-01
			Version	Revision
			Feuille	Page
			576236 -07- A-01	1/1
			Nombre de documents	



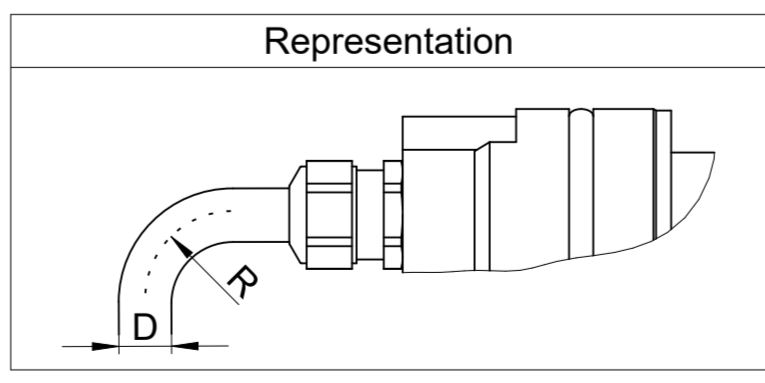
Power cable connection

Color and wire number	Function	Drawing
Black wire with number 1 or U	Phase 1 (PH1)	
Black wire with number 2 or V	Phase 2 (PH2)	
Black wire with number 3 or W	Phase 3 (PH3)	
Yellow and green wire	Ground (GND)	
Black wire with number Br1 or 5 or white cable	Neutral point wire (present only on some motor types)	
Black wire with number Br2 or 6 or black wire without label	None(**)	

(**): This wire is automatically present when the neutral point wire (which is an option) is added in the motor as it is a 2 x 1.5 mm² cable.

Wire section (mm²)

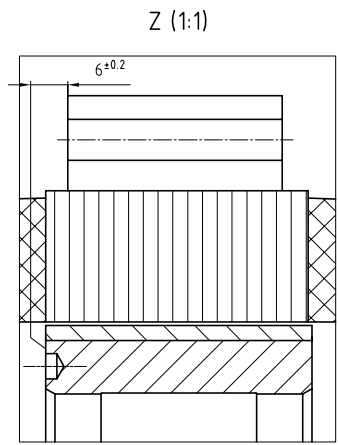
Characteristics	4 x 1.5	4 x 1.5 + 2 x 1.5	4 x 2.5	4 x 2.5 + 2 x 1.5	4 x 4	4 x 4 + 2 x 1.5	4 x 10	4 x 10 + 2 x 1.5	Sensor cable
Applicable motors: TMM / TML	0140 0175 0210 0291 0360 0450	0175 0210 0291 0360 0450 0530	0291 0360	0360 0530	0360 0450 0530	0360 0450 0530	0450 0530	0530	All TMM / TML
Minimum bend radius for fixed cable	R = 4 X D	R = 5 X D	R = 4 X D	R = 5 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 6 X D
Minimum bend radius for moving cable	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 12 X D



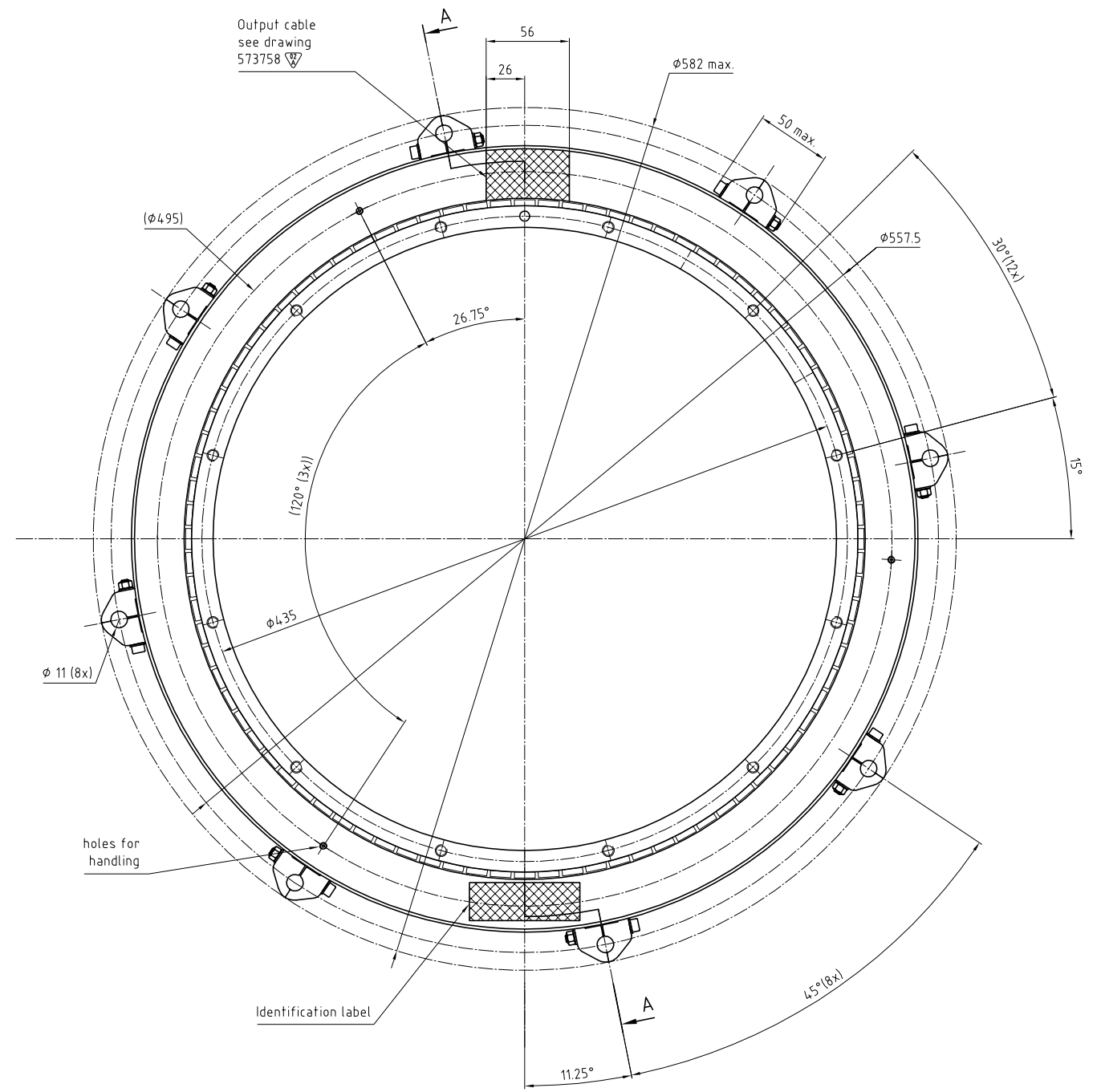
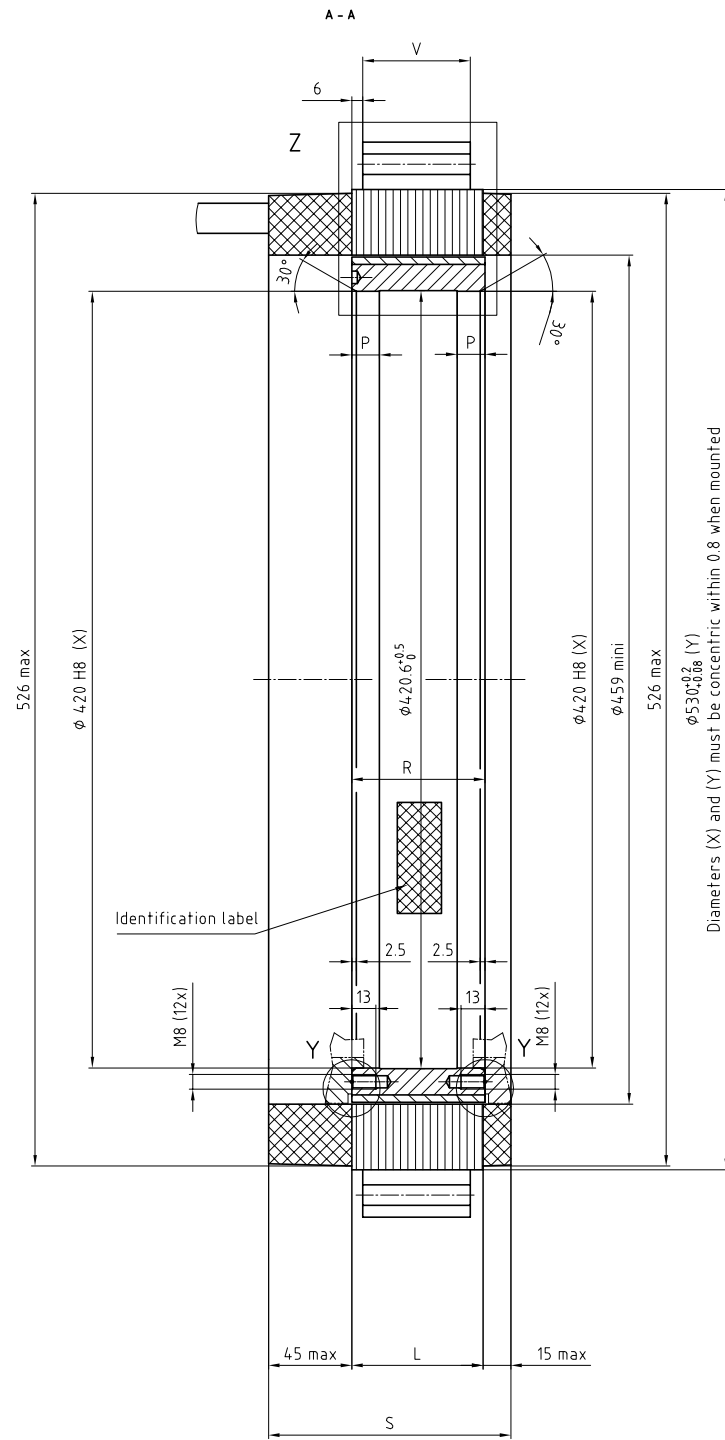
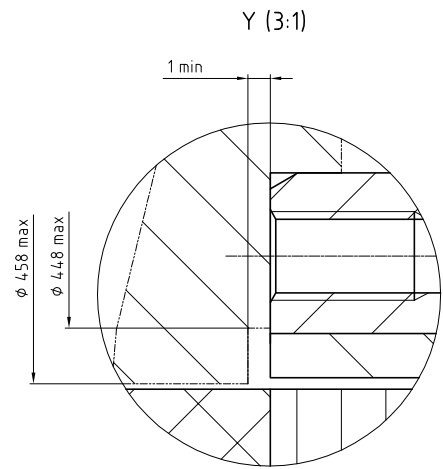
(*): Red wire (if present) is not connected on the motor side and cutted flush on cable extremity.

Text:		ID number:	
Original drawing		Change No. C145178-05	
Scale		Released: 20-Sep-22	
Format		Tolerances as per ISO 8015 : 2011	
Dimensions in mm		Tolerances selon ISO 8015 : 2011	
1:1		Dimensions without tolerance ± 0,2	
A2		Dimensions sans tolérances	
Mating Dimensions / Cotes d'encombrement			
The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)			
ETEL		ETEL S.A. 2112 Môtiers SWITZERLAND	
Version		Revision	
Sheet		Page	
1		1	
Document number		1389869-00-A-01	

Mounting condition



Detail: Y
Magnets safety clearance

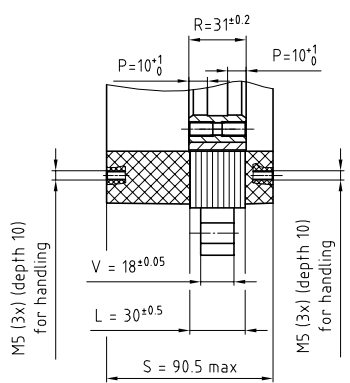


Power cable connection

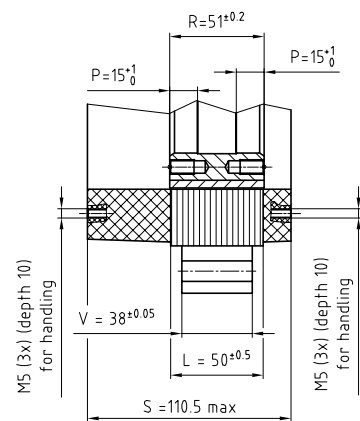
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or Br1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

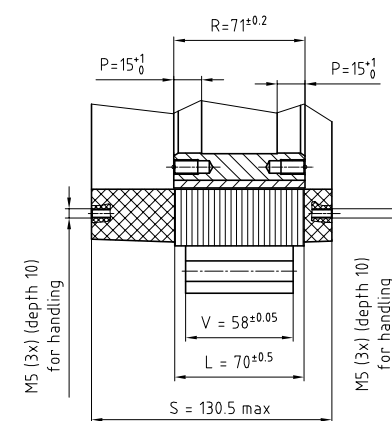
Tml0530-030



Tml0530-050



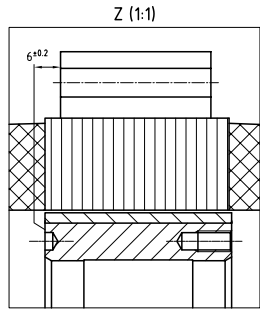
Tml0530-070



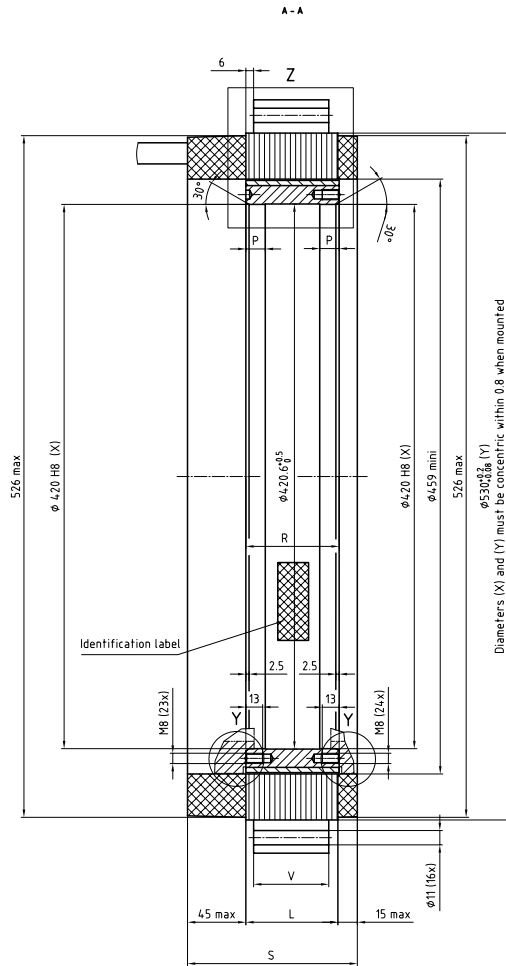
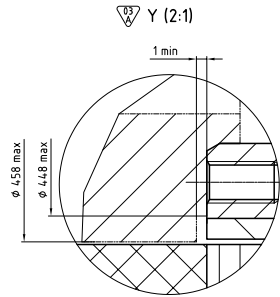
$\phi 420$	H8	+0.097	420.097
Cote	Ajustement	0	420

FSM [®]	Nom	Date	Description
C29035	MBO	23.10.2012	
Matière: Procédé de tolérancement de base ISO 8015 et tolérance générale selon ISO 2768-mk			
Remarque:	Dimension nominale	Linéaire	Rayon Chanfrein
Annexe:	Linéaire	Linéaire	Linéaire
Arêtes de formes ISO 13715			
Torque motor Tml0530-030/050/070			
Interface drawing			
Ces plans sont notre propriété. Ils ne doivent pas, sans notre autorisation écrite, être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.			
Projetion	Format	Echelle	Ancien n°: 0531m-140-02b
1st	A1	1:2	Version
589164 -02- A-01			Revison
Feuille			Page
1/1			025

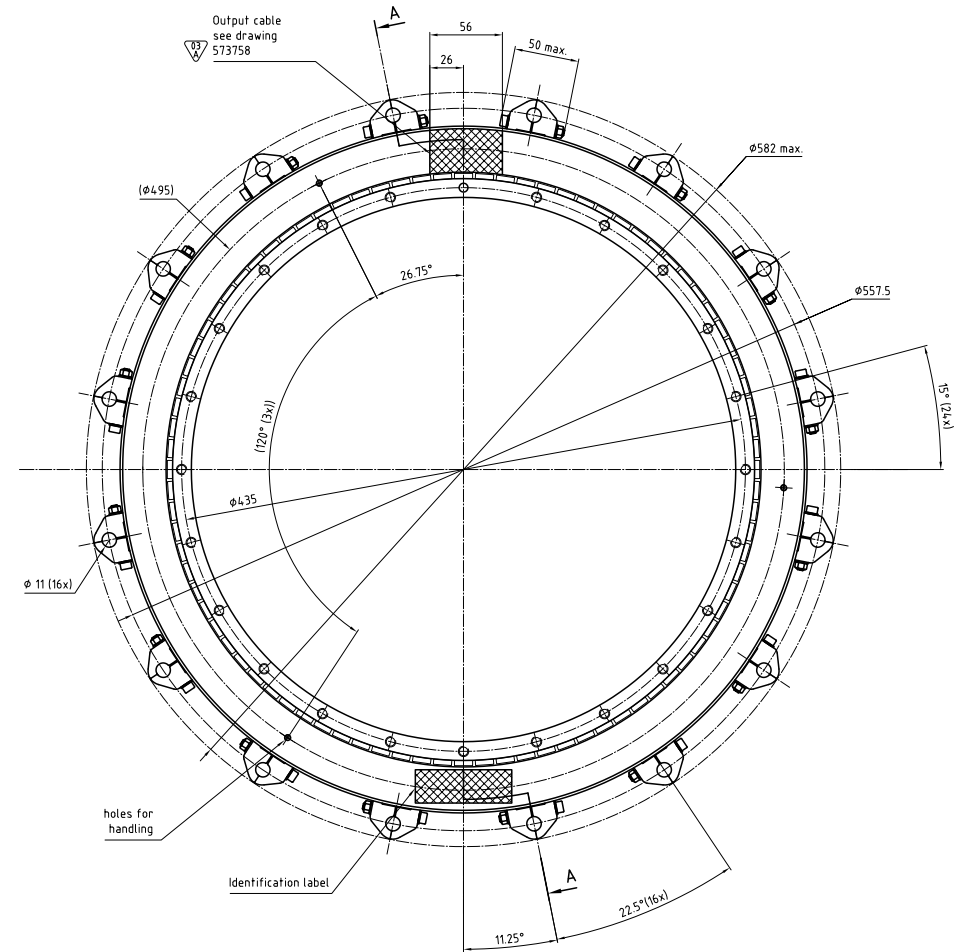
Mounting condition



Detail: Y
Magnets safety clearance



Diameters (X) and (Y) must be concentric within 0.8 when mounted

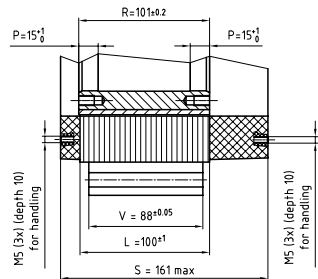


Power cable connection

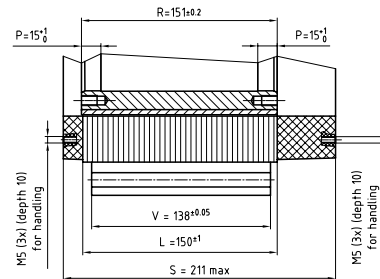
- Phase 1 = Wire 1
- Phase 2 = Wire 2
- Phase 3 = Wire 3
- Ground = Wire yellow-Green
- Neutral = Wire 5 or BR1 or White
- Not connected = Wire 6 or Br2 or Black

For temperature sensor configuration, see Handbook

Tml0530-100

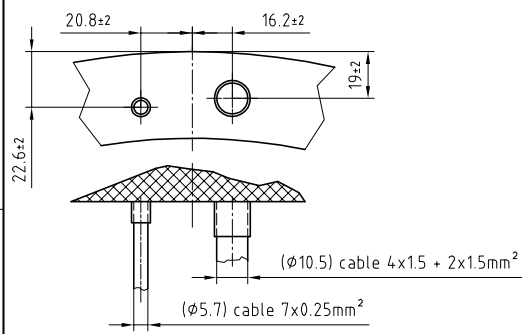


Tml0530-150

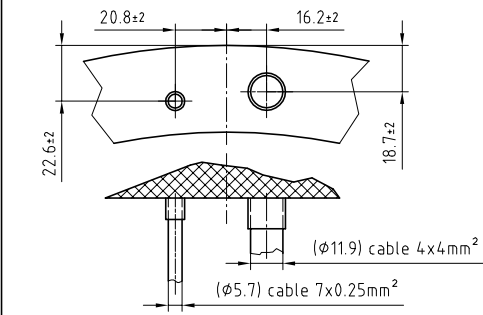


FSH N°	Rev	Date	Description
C2905	G00	22.11.12	
Principe de fabrication de base ISO 875 et tolérance générale selon ISO 2768-mS			
Matériau: C2905			Équivalence mécanique
Remarque: -			Re µm Classe
Ajouts: -			50 M2
			25 M3
			12.5 M4
			6.3 M5
			3.2 M6
			1.6 M7
			0.8 M8
			0.4 M9
			0.2 M10
			0.1 M11
			0.05 M12
			0.025 M13
			0.01 M14
			0.005 M15
Archives de formes ISO 10175			Auteur
Torque motor Tml0530-100/150			Vérificateur
			Libraire
			S. Lavrova
			219105
Interface drawing			
φ420	H8	+0.097	420 097
Cote	Ajustement	0	420
ETEL S.A. CH-2101 Mülheim SWITZERLAND Ces plans sont notre propriété. Ils ne doivent pas être répliqués, reproduits, copiés, ni utilisés sans l'autorisation écrite de ETEL S.A. Toute réimpression sans autorisation écrite est formellement interdite.			
Projection	Format	Echelle	Acier n° (0531m-i40-03) (Version) Revision
1	A1	1:2	573760 -03- A-01
Feuille Page			

TML0530-030-3VBN-S##
TMM0530-030-3VBN-S##

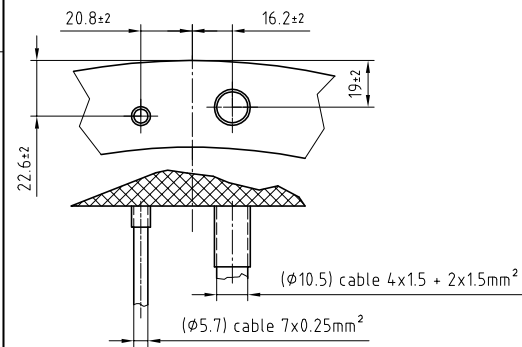


TML0530-030-3VDS-S##
TMM0530-030-3VDS-S##

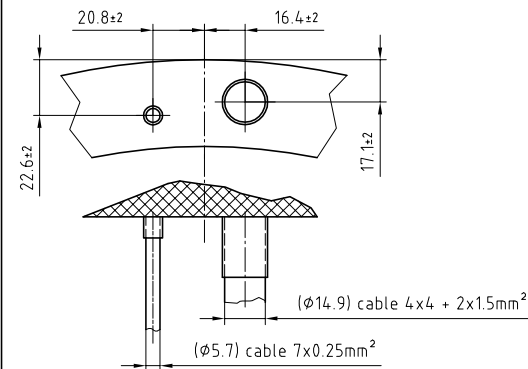


08
A

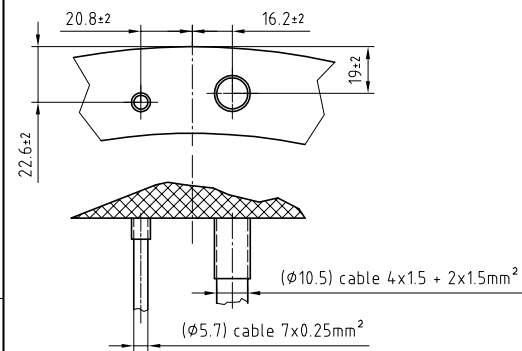
TML0530-050-3VBN-S##
TMM0530-050-3VBN-S##



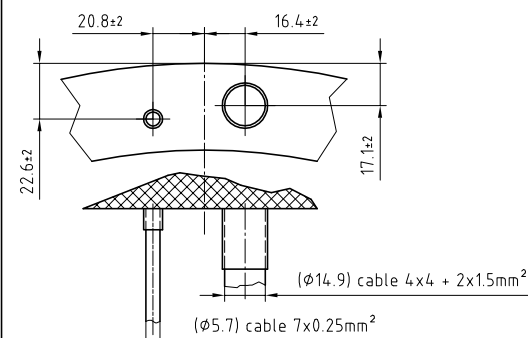
TML0530-050-3VDN-S##
TMM0530-050-3VDN-S##



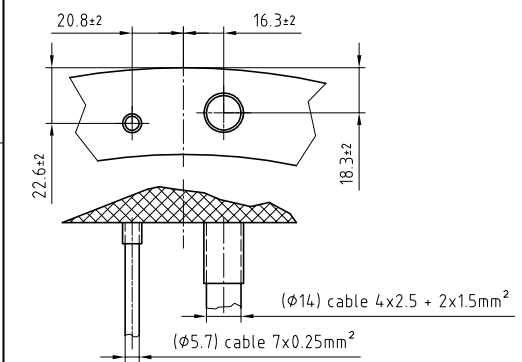
TML0530-070-3VBN-S##
TMM0530-070-3VBN-S##



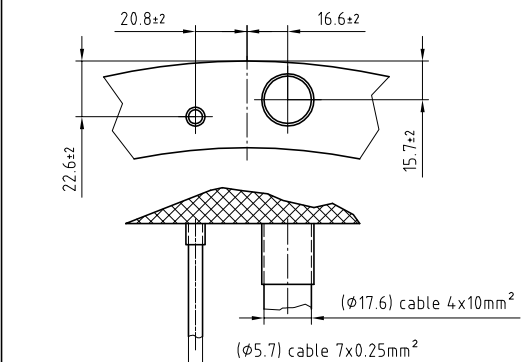
TML0530-070-3VDN-S##
TMM0530-070-3VDN-S##



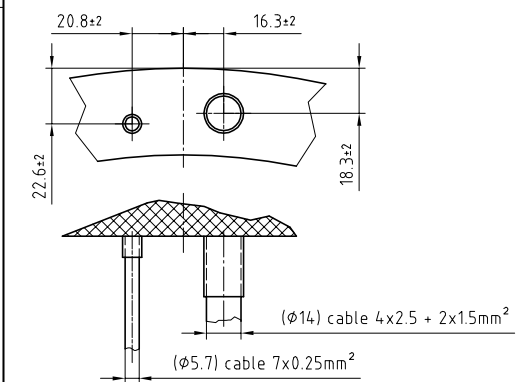
TML0530-100-3VDN-S##
TMM0530-100-3VDN-S##
TMM0530-100-3VBN-S##



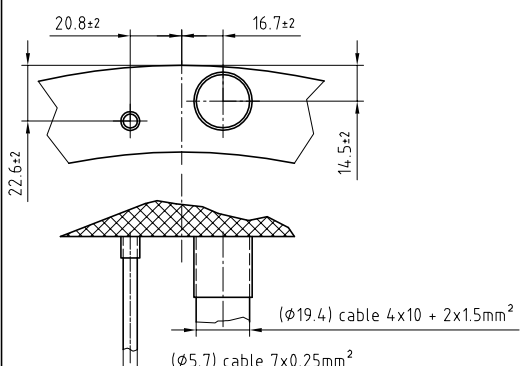
TML0530-100-3VHS-S##
TMM0530-100-3VHS-S##



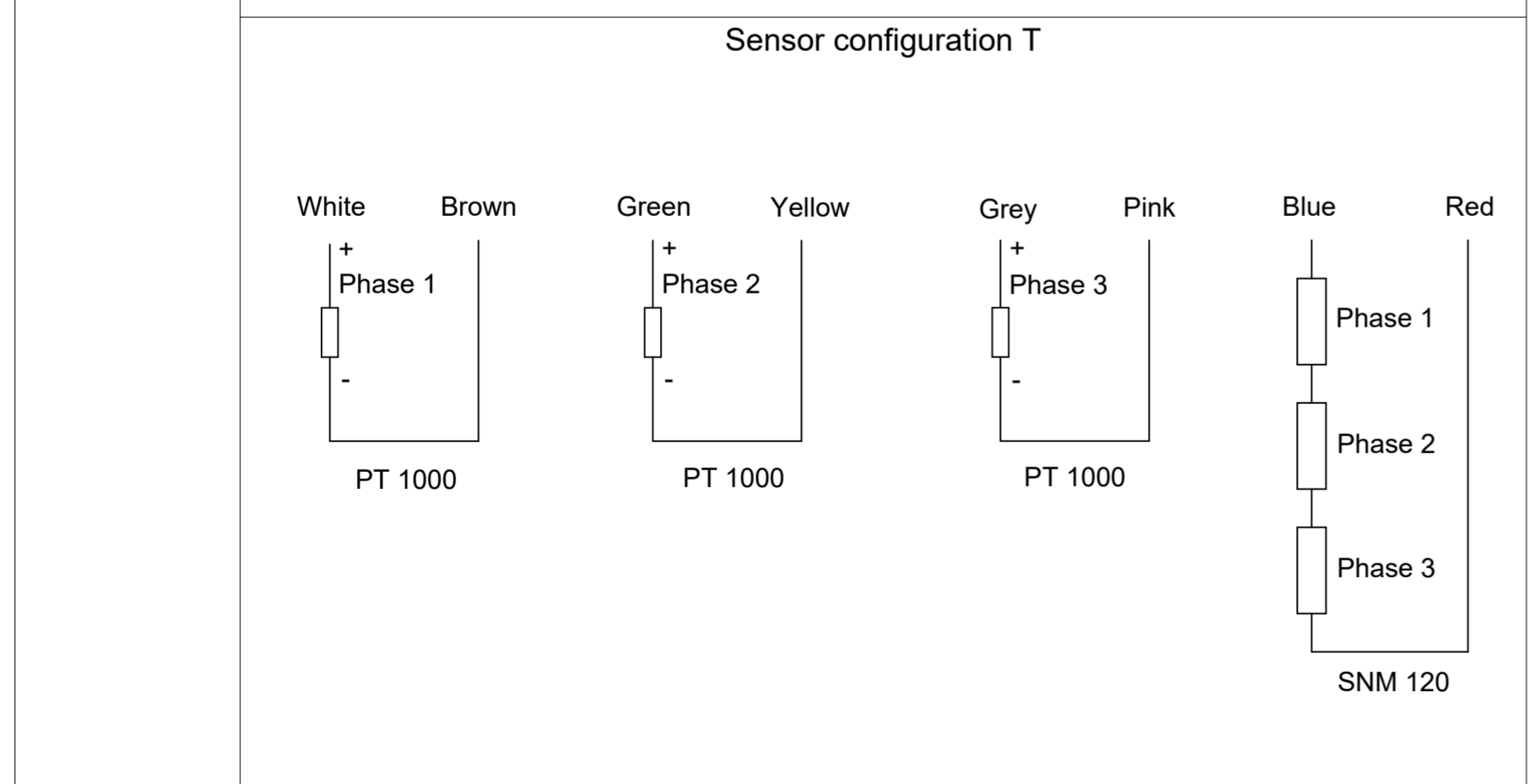
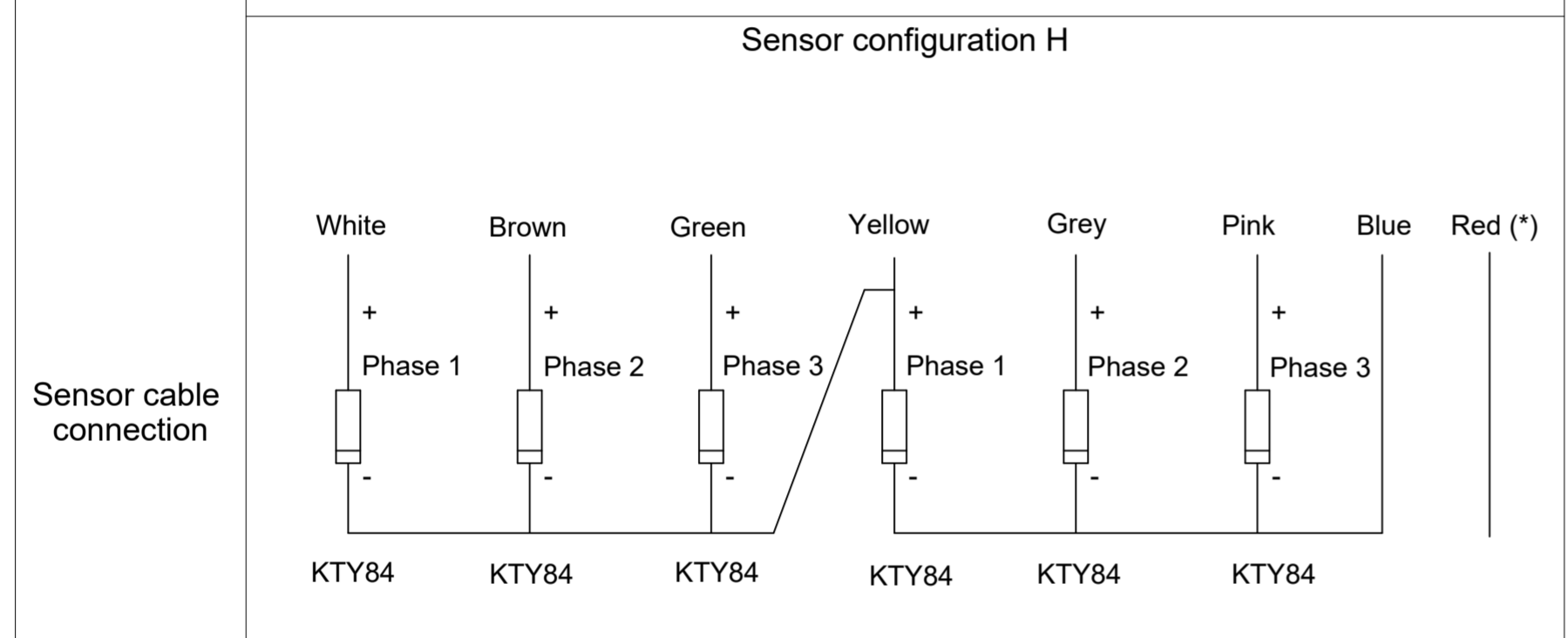
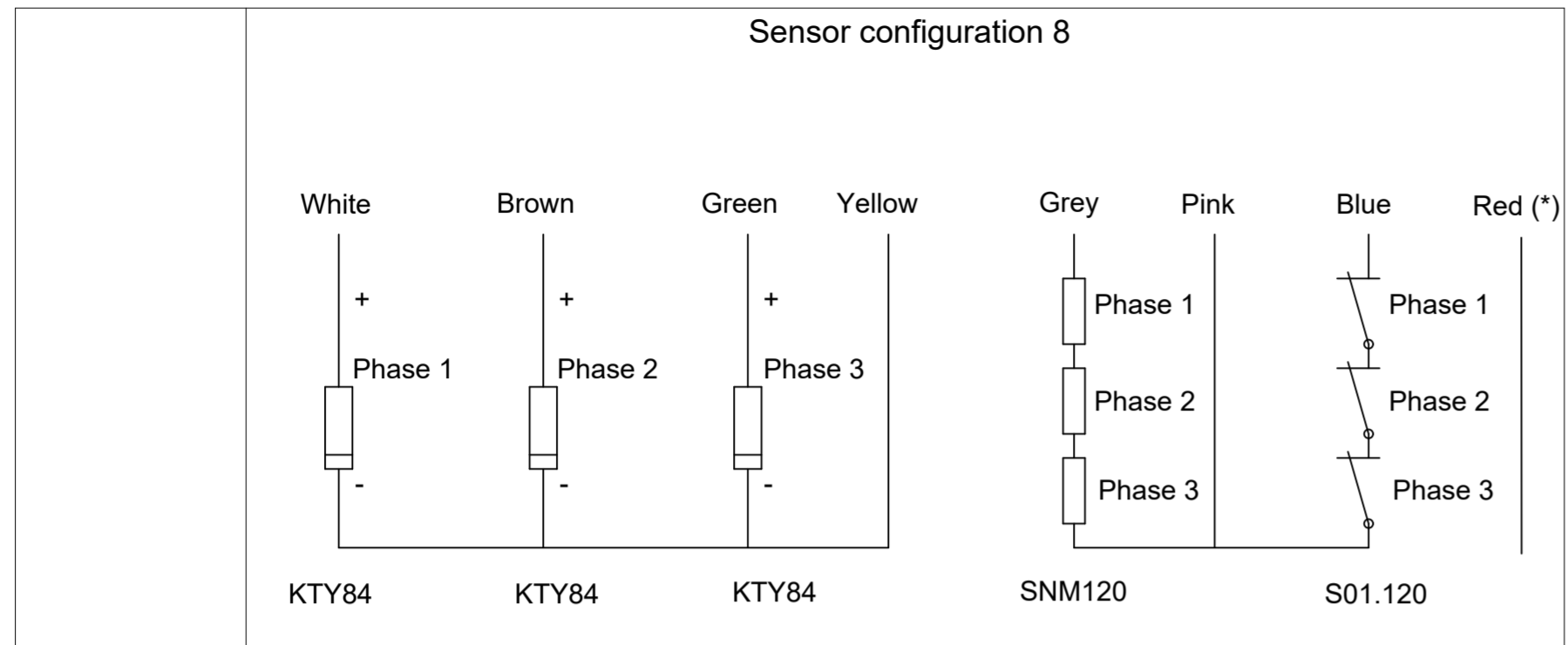
TML0530-150-3VDN-S##
TMM0530-150-3VDN-S##



TML0530-150-3VHN-S##
TMM0530-150-3VHN-S##



FSM N°	Nom	Date	Description	Elbowed output cable removed		
C064986-5	JGU	05.10.17				
Matière					Equivalence rugosité	
Remarque					Ra µm Classe	
Annexe					50 N12	
					25 N11	
					12.5 N10	
					6.3 N9	
					3.2 N8	
					1.6 N7	
					0.8 N6	
					0.4 N5	
					0.2 N4	
					0.1 N3	
					0.05 N2	
					0.025 N1	
Arêtes de formes ISO 13715	Torque motor TMM & TML0530 cables outputs			Auteur	Vérificateur	Libérateur
← -0.3 → +0.3	Moteur couple fer TMM & TML0530 sorties de câbles			S. Nervolino	-	-
				22.09.2005	-	-
ETEL	ETEL S.A. CH-2102 Môtiers SWITZERLAND	Ces plans sont notre propriété. Ils ne doivent pas, sans notre autorisation écrite, être copiés, reproduits, communiqués à des tiers. Leur utilisation est strictement réservée à ETEL S.A.	Projection	Format	Echelle	Ancien n° : 0531m-14.0-01 Version Revision Feuille Page
			↖	A1		573758 -08- A-01 1/1



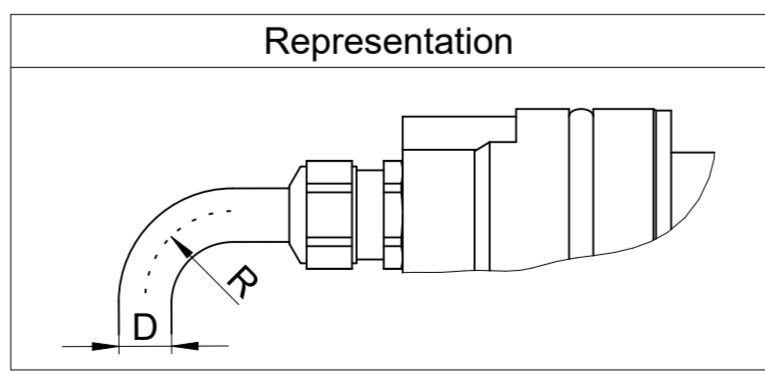
Power cable connection

Color and wire number	Function	Drawing
Black wire with number 1 or U	Phase 1 (PH1)	
Black wire with number 2 or V	Phase 2 (PH2)	
Black wire with number 3 or W	Phase 3 (PH3)	
Yellow and green wire	Ground (GND)	
Black wire with number Br1 or 5 or white cable	Neutral point wire (present only on some motor types)	
Black wire with number Br2 or 6 or black wire without label	None(**)	

(**): This wire is automatically present when the neutral point wire (which is an option) is added in the motor as it is a 2 x 1.5 mm² cable.

Wire section (mm²)

Characteristics	4 x 1.5	4 x 1.5 + 2 x 1.5	4 x 2.5	4 x 2.5 + 2 x 1.5	4 x 4	4 x 4 + 2 x 1.5	4 x 10	4 x 10 + 2 x 1.5	Sensor cable
Applicable motors: TMM / TML	0140 0175 0210 0291 0360 0450	0175 0210 0291 0360 0450 0530	0291 0360	0360 0530	0360 0450 0530	0360 0450 0530	0450 0530	0530	All TMM / TML
Minimum bend radius for fixed cable	R = 4 X D	R = 5 X D	R = 4 X D	R = 5 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 4 X D	R = 6 X D
Minimum bend radius for moving cable	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 7.5 X D	R = 12 X D



(*): Red wire (if present) is not connected on the motor side and cutted flush on cable extremity.

Text:		ID number:	
Original drawing		Change No. C145178-05	
Scale		Released: 20-Sep-22	
Format		TMM / TML sensor config. and cables prop. (interface)	
Dimensions in mm		TMM / TML config. capteur et prop. câbles (interface)	
1:1		Mating Dimensions / Cotes d'encombrement	
A2		Tolerances as per ISO 8015 : 2011	
		Tolérances selon ISO 8015 : 2011	
		Dimensions without tolerance ± 0,2	
		Dimensions sans tolérances	
The reproduction, distribution and utilization of this document as well as the communication of its contents to others without express authorization is prohibited. Offenders will be held liable for the payment of damages. All rights reserved in the event of the grant of a patent, utility model or design. (ISO 16016)			
ETEL		ETEL S.A. 2112 Môtiers SWITZERLAND	
		Version Revision Sheet Page	
		1389869-00 - A-01	
		Document number	
		1 of 1	