

ТУ на маркировку, паспортные таблички и цветовую идентификацию /  
Specification for Marking, Name Plate, and Color Identification  
标记、铭牌和颜色识别规范

**КОМПАНИЯ / COMPANY** : АО «ГАЗПРОМНЕФТЬ-МНПЗ» /  
JSC GAZPROMNEFT-MOSCOW REFINERY

**ПРОЕКТ / PROJECT** : Строительство Установки гидрокрекинга вакуумного  
газойля и тяжелого газойля коксования (УГК ВГО), Установка  
производства водорода (УПВ), Система закрытого факела  
УГК и УПВ / Construction of Vacuum Gasoil and Heavy Coker  
Gasoil Hydrocracking Unit (VGO HCU), Hydrogen Production  
Unit (HPU), Closed Flare System of HCU and HPU

**№ ДОГОВОРА ПОДРЯДЧИКА /  
No CONTRACTOR  
AGREEMENT DOCUMENT** : Contract No. МНЗ-21/00000/00506/P


**ПОДРЯДЧИК / CONTRACTOR** : DL E&C

**КОД ПОДРЯДЧИКА /  
CONTRACTOR CODE** : DLEC

**ТИТУЛ ПРОЕКТА / PROJECT  
TITLE** : Установка гидрокрекинга (УГК) / Hydrocracking Unit (HCU),  
Установка производства водорода (УПВ) / Hydrogen Production  
Unit (HPU), Система закрытого факела УГК и УПВ / Closed Flare  
System of HCU and HPU

**№ ДОК-ТА ПОДРЯДЧИКА /  
No CONTRACTOR DOCUMENT** : НЕ ПРИМЕНИМО/ NOT APPLICABLE

**№ ДОК-ТА ЗАКАЗЧИКА /  
No COMPANY CLIENT** : MNPZ-HCU-RD-4137.00-000-PI-TK-TSP-0007

						
0	IFC	Issue for Construction	20.10.2021	K.H.SEONG	J.W.SUK	20.10.2021
C	IFR	Issued for Review	02.09.2021	K.H.SEONG	J.W.SUK	02.09.2021
B	IFR	Issued for Review	30.07.2021	K.H.SEONG	J.W.SUK	30.07.2021
A	IFR	Issued for Review	26.05.2021	K.H.SEONG	J.W.SUK	26.05.2021
Ред. / Rev.	Код выпуска / Issue code	Цель выпуска / Issue purpose	Дата выпуска / Issue date	Проверил / Checked	Утвердил / Approved	Дата / Date



**Перечень документов / List of documents (VDDL)**


1. ТУ на маркировку, паспортные таблички и цветовую идентификацию / Specification for Marking, Name Plate, and Color Identification

Строительство Установки гидрокрекинга вакуумного газойля и тяжелого газойля коксования (УГК ВГО), Установка производства водорода (УПВ), Система закрытого факела УГК и УПВ /

Construction of Vacuum Gasoil and Heavy Coker Gasoil Hydrocracking Unit (VGO HCU), Hydrogen Production Unit (HPU), Closed Flare System of HCU and HPU

ТУ на маркировку, паспортные таблички и цветовую идентификацию

Specification for Marking, Name Plate, and Color Identification

Взам. инв. №	0	FOR CONSTRUCTION / Для строительства	20.10.2021	C.M.PARK	<del>C.U.KIM</del> K.H.SEONG	J.U.CHOI	J.W.SUK
	C	FOR REVIEW / Для рассмотрения	02.09.2021	C.M.PARK	<del>C.U.KIM</del> K.H.SEONG	J.U.CHOI	J.W.SUK
Подп. и дата	B	FOR REVIEW / Для рассмотрения	30.07.2021	C.M.PARK	<del>C.U.KIM</del> K.H.SEONG	J.U.CHOI	J.W.SUK
	REV	Issue Purpose / Цель выпуска	Date / Дата	DRWN / Разработал	CHKD / Проверил	RVWD / Рассмотрел	APPD / Согласовал
Инв. № подл.	<b>MNPZ-HCU-RD-4137.00-000-PI-TK-TSP-0007</b>						
	АО «Газпромнефть-МНПЗ» Комплекс глубокой переработки нефти (КГПН) JSC "Gazpromneft-MNPZ" Advanced Oil Refinery Complex (AORC)						
	Rev. Изм.	Rev.чл. Копуч	Sheet Лист	DocNo. Недж	Sign Подп.	Date Дата	
	Разраб. Prepared	C.M.PARK			<i>[Signature]</i>	20 Oct. 2021	Установка гидрокрекинга (УГК) / Hydrocracking Unit (HCU), Установка производства водорода (УПВ) / Hydrogen Production Unit (HPU), Система закрытого факела УГК и УПВ / Closed Flare System of HCU and HPU
	Проверил Checked	<del>C.U.KIM</del> K.H.SEONG			<i>[Signature]</i>	20 Oct. 2021	
	Утвердил Appr'd	J.U.CHOI			<i>[Signature]</i>	20 Oct. 2021	
	Утвердил Appr'd(PM)	J.W.SUK			<i>[Signature]</i>	20 Oct. 2021	
	Н. Контр. EXD						ТУ на маркировку, паспортные таблички и цветовую идентификацию / Specification for Marking, Name Plate, and Color Identification
	Зам. тех. дир. DEP.ENG.DIR						
							Phase / Стадия: P Sheet / Лист: 1 Total / Листов: 18
							

**Таблица регистрации изменений /Changes Record tables**

Изм. Change	Номера листов (страниц) / Number of Sheet (Page)				Всего листов (страниц) в док. Total number of sheets in the doc.	Номер док. Doc. Number	Подп. Signature	Дата Date
	Измененных Changed	Замененных Replaced	Новых New	Анули- рованных Cancelled				

Взам. инв. № Repl. Inv. No.	
Подп. и дата Sign. and date	
Инв. № подл. Orig. Inv. No.	

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## APPENDIX (IDENTIFICATION MARKS AND DISCRIMINATION COLORS)

附录（识别标记和识别颜色）

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# 1. GENERAL

## 1.1. PURPOSE

This specification together with the referenced documents defines the minimum requirement for the traceability, marking and color coding of piping materials for JSC Gazpromneft Moscow AORC HCU and HPU Project in Moscow, Russia.

## 1.2. SCOPE

This specification shall be applied to piping materials such as pipes, fittings, flanges, valves, gaskets, bolts and nuts.

## 1.3. STANDARD AND CODES

The following codes or standards are referenced to this specification.

Where a conflict between this specification and the following Standards and Codes is existing, company shall be requested to provide guidance.

MSS SP-25	Standard Marking System for Valves, Fittings, Flanges and Unions.
ASME (B 16 Series)	American Society of Mechanical Engineers (B16 Series)
ASTM	American Society for Testing and Materials
API series	American Petroleum Institute
GOST series	Russian Federation Norms
TR-CU	Technical Regulation of the Customs Union

## 1.4. APPLICATION TABLE

Table 1-1

	Marking	Name Plate	Tagging	Color Identification
Pipe	V (Para.3.1)	As required in TR-CU 032 根据 TR-CU 032 的要求		V (Para.3.3)
Fitting	V (Para.4.1)			V (Para.4.2)
Flange	V (Para.5.1)	As required in TR-CU 032	V (Para.9 & As required in TR-CU 032)	V (Para.5.2)
Valve	V (Para.6.1 & 6.2)	V (Para.6.2)	V (Para.9 & 9.1)	NA
Bolt & Nut	V (Para.7.1)	NA	As required in TR-CU 032	V (Para.7.1 & 7.3)
Gasket	V (Para.8.1 & 8.2)	NA	NA	V (Para. 8.3)

V : Required / NA : Not Applicable

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## 1.5. DEFINITIONS

The specific words used in this Technical Specification have the following meaning:

COMPANY:	JSC Gazpromneft – Moscow Refinery, Moscow city, Russian Federation
CONTRACTOR:	DL E&C
PROJECT:	Moscow AORC HCU
VENDOR (MANUFACTURER/VENDOR):	Party that manufacture, supplies equipment, packages and service to perform the duty specified.

## 2. MARKING GENERAL

### 2.1. MARKING FOR IDENTIFICATION

2.1.1. Marking shall generally be accomplished by either one or a combination of casting out, forging out, punching, stenciling, tagging, labelling, and taping. 标记一般应通过浇铸、锻造、冲压、钢印、标记、标签和胶带中的一种或组合来完成。

2.1.2. Punching depth by Vendor (Manufacturer) shall not exceed 1 mm unless otherwise specified. Punching shall be done using low stress dies. Die stamp digits shall be ringed with white paint for ease of identification. 除非另有规定，供应商（制造商）的冲压深度不得超过 1 毫米。应使用低应力模具进行冲压。为了便于识别，模具印章数字应涂上白色油漆。

2.1.3. Stenciling color shall be black, however for piping components whose surfaces are black or dark, it shall be white waterproof ink unless otherwise specified. 喷印颜色应为黑色，但对于表面为黑色或深色的管道部件，除非另有规定，否则应为白色防水油墨。

2.1.4. Color coding paints for austenite stainless steel shall be free of chloride, sulfide, heavy metal, zinc, aluminum etc. All paint for color coding and stencil marking shall be applied to a clean, dry, oil free surfaces, shall be able to resist weathering for at least six months.

2.1.5. When material substitution has been approved, the color coding of the substituting material shall be identified with the color of the originally required material. 材料替代经批准后，替代材料的颜色编码应与原要求材料的颜色相识别。

### 2.2. MATERIAL DISCRIMINATION COLOR 材质区分颜色

2.2.1. Basic colors shall be used for material discrimination and the same shall be as indicated in the table below conforming to the nearest Munsell notation applicable.

基本颜色应用于材料区分，应如下表所示，符合最接近的适用孟塞尔符号。

Table 2-1

Color Name 颜色名称	Munsell	Notation 符号	Color Name	Munsell	Notation
White 白色	N	9.5	Yellow	2.5 Y	8/12
Black 黑色	N	1.0	Light green 浅绿色	7.5 GY	7/4.5
Silver 银色	-	-	Green	5 G	5.5/6
Pink 粉红色	5 R	7/5	Sky blue	10 B	6/7
Red 红色	5 R	4/13	Blue	2.5 PB	5/6
Orange 橙色	2.5 YR	6/13	Purple	2.5 RP	4.5/12
Brown 棕色	7.5 YR	5/6			

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用于奥氏体不锈钢的色标涂料应不含氯化物、硫化物、重金属、锌、铝等。所有用于色标和钢网标记的涂料应涂在清洁、干燥、无油的表面上，并应能够抵抗风化至少六个月。

2.2.2. Brands of paint used for material discrimination shall be selected by vendor of piping materials. For all materials, paints containing materials which adversely affect the quality of the steel shall not be used. 用于材质区分的油漆品牌应由管道材料供应商选择。对于所有材料，不得使用含有对钢材质量有不利影响的材料的涂料。

2.2.3. Discrimination color shall be painted in one line, and in case of two discrimination colors, it shall be painted in two parallel lines. 区分色涂在一条线上，如果是两种区分色，则涂成两条平行线

### 3. PIPES

#### 3.1. MARKING OF PIPES 管道标记

The following items shall be indicated as a minimum on all pipes. Marking shall normally be done in the following order. The reference standard is GOST 10692-2015.

- a) Dimension (2) 尺寸 (2) 以下项目应在所有管道上至少标明。标记通常应按以下顺序进行。参考标准为 GOST 10692-2015。
- b) Material specification or Steel grade 材料规格或钢级
- c) Manufacturer's name or trade mark 制造商名称或商标
- d) Codes or standards (ASME, API, ASTM, GOST etc.) 规范或标准 (ASME、API、ASTM、GOST 等)
- e) Batch no. (Charge no. or Lot no.) 批号。 (货号或批号)
- f) Manufacturing method (Not obligatory) 制造方法 (非强制性)
- g) Date of manufacture (1) (Not obligatory) 生产日期 (1) (非强制性)  
内衬管道应注明内衬工作日期

Notes:

- 1) For lined pipes, the date of lining work shall be indicated.
- 2) Dimensions shall be indicated in "Nominal size x Schedule no. (or thickness in mm) x Length" for ASME pipes, and "Outside diameter x Thickness x Length" for GOST pipes.  
对于 ASME 管，尺寸应以“公称尺寸 x 表号 (或以 mm 为单位的厚度) x 长度”表示，对于 GOST 管，应以“外径 x 厚度 x 长度”表示

#### 3.2. MARKING LOCATION

3.2.1. For pipes of DN40 (NPS 1-1/2) and smaller, a stiff tag on which all items in para. 3.1 are indicated, shall be attached to each bundle of pipes. However, material specification shall be marked on the outer surface of individual pipe. 对于 DN40 (NPS 1-1/2) 和更小的管道，一个坚硬的标签，上面的所有项目都在上面。3.1 均注明，应附在每束管子上。但是，材料规格应标在单根管子的外表面上。

3.2.2. For pipes of DN25 (NPS 1) and larger, all items in para. 3.1 shall be marked on the outer surface of each pipe. 对于 DN25 (NPS 1) 及更大的管道，第 3 段中的所有项目。3.1 应在每根管道的外表面上标明。

3.2.3. In case the outside marking is not practical, all items in para. 3.1 shall be marked on the inner surface of one end of each pipe. Any item which cannot be marked on the inner surface, shall be indicated on a tag, which shall be attached to the pipe.

如果外部标记不实用，第 3 段中的所有项目。3.1 应在每根管子一端的内表面作标记。任何不能在内表面标记的项目，应在标签上注明，并附在管道上。

#### 3.3. MATERIAL DISCRIMINATION COLOR 材质区分颜色

3.3.1. Discrimination colors indicated in Table 1 of appendix (at the end of this document) shall be painted on the outer surface of all pipes, except for coated pipes and galvanized pipes. 除涂层管和镀锌管外，所有管材外表面均应涂上附录表 1 (本文件末尾) 中的识别色。

3.3.2. Discrimination color shall be painted all through the longitudinal length of pipe. 识别颜色应涂在整个管道的纵向长度上。

3.3.3. In case of mill production without stockist, one or two (2) color rings at each pipe end shall be applied considering the mill's marking (such as stenciling) equipment.

在没有库存的工厂生产的情况下，考虑到工厂的标记 (例如钢印) 设备，应在每个管端应用一或两 (2) 个色环。

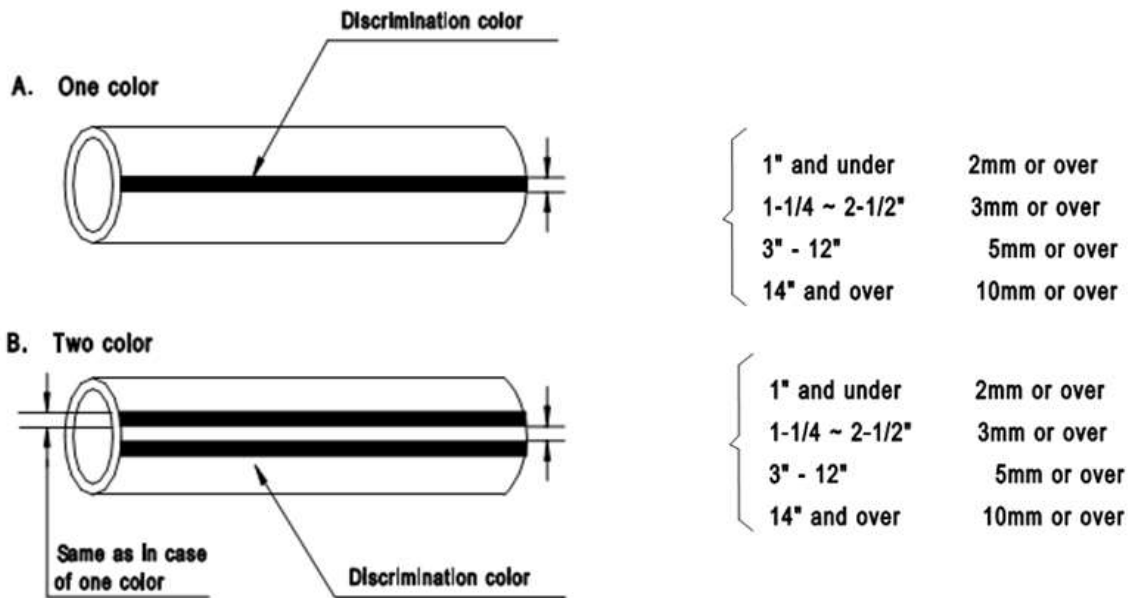
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3.3.4. The width of color shall be in accordance with the Fig.1. In case of mill production without stockist, the width of color shall be mill's equipment and possibilities. 颜色的宽度应符合图1。在没有库存商的工厂生产的情况下，颜色的宽度应是工厂的设备和可能性。

3.3.5. Painting on outer surface shall generally be as shown in Fig.1. 外表面涂漆一般如图1所示。

Fig.1 Painting of discrimination color for unpainted pipes  
未上漆管道的辨别颜色涂装



#### 4. FITTINGS

##### 4.1. MARKING OF FITTINGS 管件标识

The following items shall be indicated on all fittings, and marking for fittings shall generally be accomplished by stenciling and/or punching, or labeling. The reference standard is GOST 17380-2001. 以下项目应在所有配件上标明，配件的标记通常应通过钢印和/或冲压或贴标签来完成。参考标准是 GOST 17380-2001。

Table 4-1

No.	Items	Butt (4) Welding	Socket (6) Welding	Screwed Type (7)
1	Manufacturer's name or Trade mark 制造商名称或商标	0	0	0
2	Steel grade (1) 钢种 (1)	0	0	0
3	Size (2) 尺寸 (2)	0 (3)	0 (5)	0
4	Thickness / Schedule no. (2)	0	0	0
5	Batch no. 批号 (货号或批号) (Charge no. or Lot no.)	0	0	0
6	Code or Technical specification(TU) (Only for GOST Material) 代码或技术规范 (TU) (仅适用于 GOST 材料)	0	-	-
7	Letter, "n", at parts for piping under the control of supervisory agencies (Only for GOST Material) 字母 "n", 在监管机构控制下的管道部件处 (仅适用于 GOST 材料)	0	-	-

For fittings of the type other than those indicated above, marking shall be made in the same manner as shown for the similar type among the three. 对于上述类型以外的其他管件，其标记方式应与三者中类似类型的相同。

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Note;

- 1) Identification marks in Table 1 of appendix may be used as material specification, if permitted. 如果允许, 附录表 1 中的识别标记可用作材料规格。
- 2) Actual outside diameter and actual thickness shall be applied for GOST material, while actual outside diameter and Schedule no. shall be applied for ASTM material GOST材料以实际外径和实际厚度为准, 而实际外径和附表编号则以实际外径为准, 应适用于 ASTM 材料
- 3) In case of elbows, symbols indicating long radius (1.5D) or short radius (1D) type shall be included. 对于弯头, 应包括表示长半径 (1.5D) 或短半径 (1D) 类型的符号。
- 4) For small fittings on which all marking items cannot be fully indicated, the following items, 对于不能完全标明所有标记项目的小型管件, 可按以下顺序全部或部分省略下列项目。
  - i) Symbols indicating long radius or short radius type. 表示长半径或短半径类型的符号。
  - ii) Nominal sizes (In case of reducing type, double sizes to be marked.)
  - iii) Schedule no. 时间表编号 公称尺寸 (如为变径型, 需标注双倍尺寸。)
- 5) In case of reducing type, double sizes shall be indicated. 如为缩小型, 应注明双倍尺寸。
- 6) For small fittings on which all marking items cannot be fully indicated, the following items 对于不能完全标明所有标记项目的小型管件, 以下项目可按以下顺序省略。
  - i) Nominal sizes 标称尺寸
  - ii) Schedule no. 时间表编号
- 7) Where marking items cannot be fully indicated, marking for each fitting may be omitted, but, in this case, a stiff tag on which all items are indicated shall be attached to each package of fittings. 如果标记项目不能完全标明, 则可以省略每个配件的标记, 但在这种情况下, 应在每个配件包上附上一个标明所有项目的硬标签。

4.2. MATERIAL DISCRIMINATION COLOR AND MARKING LOCATION 材料识别颜色和标记位置

4.2.1. Material Discrimination colors in Table 1 of appendix shall be painted on the outer surface of each fitting. 附件表 1 中的材料识别颜色应涂在每个配件的外表面上。

4.2.2. Discrimination color paint shall be accomplished as indicated in Fig.2. 区分色漆应按图2所示完成。

Fig.2 Painting of discrimination color 辨别颜色的绘画

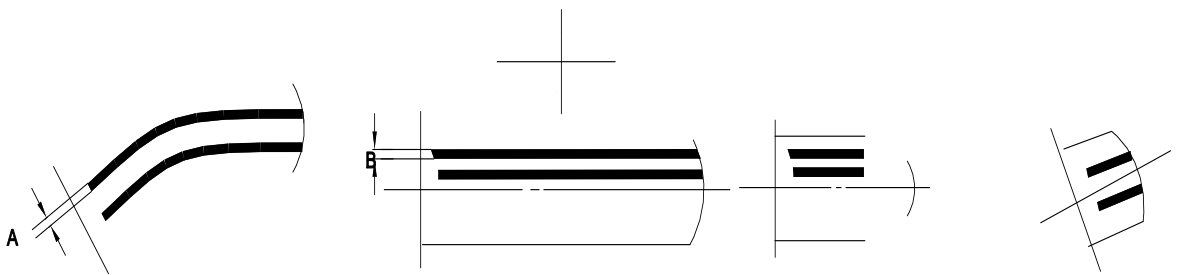


Table 4-2

Type	Size Range	Dimension
Dimension A	DN25 and under	2mm or over
	DN40 ~ DN50	3mm or over
	DN80 and over	5mm or over

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Dimension B	DN25 and under	2mm or over
	DN40 ~ DN50	3mm or over
	DN80 and over	4mm or over

## 5. FLANGES 法兰

### 5.1. MARKING OF FLANGES 法兰标记

5.1.1. The marking shall be in accordance with ASME B16.5 except as specified in the followings. The following items shall be punched on the outer surface (rim) of flange and stub ends. Items which cannot be indicated on the outer surface of stub end, may be marked on the outer surface of pipe by stenciling or painting. The reference standard is GOST 33259-2015.

- 标记应符合 ASME B16.5, 但以下规定除外。应在法兰和短管端的外表面 (边缘) 上冲压以下项目。不能在短管端外表面标示的项目, 可采用钢印或喷漆在管子外表面标出。参考标准为 GOST 33259-2015。
- a) Manufacturer's name or trade mark 制造商名称或商标
  - b) Normal size (1) 正常尺寸 (1)
  - c) Rating (4) 等级 (4)
  - d) Flange type no. (2) 法兰型号
  - e) Schedule no. (1) 时间表编号 (1)
  - f) Material specification or Steel grade (3) 材料规格或钢级 (3)
  - g) Ring-groove no. 环槽号
  - h) Charge no. or lot no. 批号。

Notes;

- 1) Dimensions shall be indicated in "Nominal size x Schedule no. (or thickness in mm) x Length" for ASME flanges, and "Outside diameter x Thickness x Length" for GOST flanges.
- 2) As defined in GOST 33259 for GOST flanges, and ASME B16.5 for ASME flanges  
根据 GOST 33259 中 GOST 法兰的定义和 ASME B16.5 中 ASME 法兰的定义
- 3) Material specifications may be in accordance with Table 1 of appendix.  
材料规格可按附录表 1
- 4) Class shall generally be indicated by using the following abbreviations.  
等级一般用下列缩写表示。

Table 5-1

ASME Class (Rating)	Abbreviations
ASME Class 150	150
ASME Class 300	300
ASME Class 600	600
ASME Class 800	800
ASME Class 900	900
ASME Class 900 / 1500	900/1500
ASME Class 1500	1500
ASME Class 2500	2500
PN16	PN16
PN40	PN40
PN63	PN63

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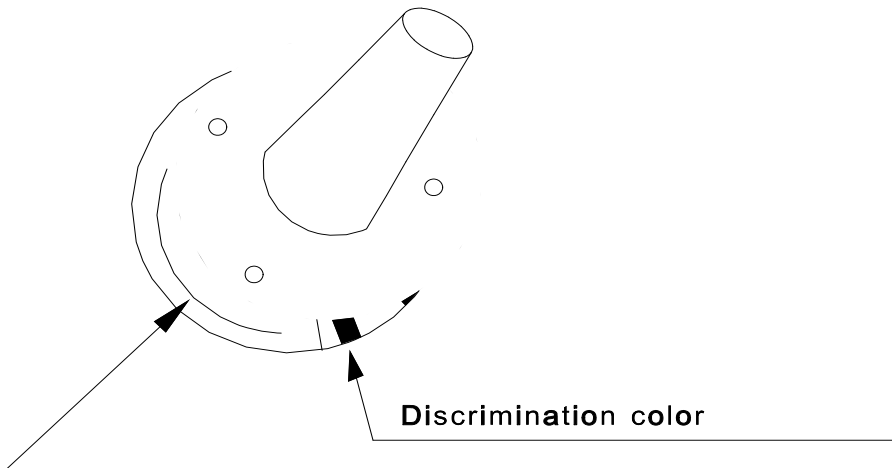
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## 5.2. MARKING LOCATION

Marking location shall generally be as indicated in Fig.3.

标记位置一般应如图 3 所示。图 3 法兰和短管端的冲孔和涂漆位置

Fig.3 Punching and painting location of flanges and stub ends



Punching location

Note;

1) Dimension for painting of discrimination color shall be in accordance with para. 3.3.5.

区分颜色的涂装尺寸应符合第 1 款的规定。3.3.5。

## 5.3. MATERIAL DISCRIMINATION COLOR 材质区分颜色

5.3.1. Material discrimination colors in Table 1 of appendix shall be painted on the outer surface of flanges. 附录表 1 中的材料识别颜色应涂在法兰的外表面上。

5.3.2. Discrimination colors shall be painted on the outer surface of flanges and stub ends, but not on the punched portion. Painting shall generally be accomplished as indicated in Fig.3.

识别色应涂在法兰和短管端的外表面上，但不能涂在冲孔部分。涂漆一般应按图 3 所示完成。

## 6. VALVES

### 6.1. MARKING OF VALVES 阀门标识

6.1.1. Marking of valves shall comply with GOST 4666-2015. Obligatory signs must be applied to the housing itself and the nameplate, securely attached to it. 阀门的标记应符合 GOST 4666-2015。强制性标志必须贴在外壳本身和铭牌上，并牢固地固定在上面。

6.1.2. All items indicated in para. 6.2 shall be marked on all valves. 段落中指出的所有项目。6.2 应在所有阀门上标明。

6.1.3. Marking of valves shall be made on valve body, handwheel and name plate.

在阀体、手轮和铭牌上应做阀门标记。

6.1.4. Marking on valve body shall be made on body or bonnet by casting-out, forging-out or punching. 阀体上的标记应在阀体或阀盖上通过铸造、锻造或冲压制成

6.1.5. Marking on hand wheel shall be made by casting-out, forging-out or punching. When marking items cannot be fully indicated on hand wheels, marking may be made adequately by alternative method. 手轮上的标记应采用铸造、锻造或冲压的方法。当手轮上不能完全显示标记项目时，可以通过替代方法充分标记

6.1.6. Name plates which shall be generally attached on the upper side of handwheels, shall have marking by etching, press or punching. 铭牌一般应贴在手轮的上侧，应有蚀刻、冲压或冲切的标记。

6.1.7. Marking on bolt & nut shall be made on the end face (bolt), or on the upper or side face (nut) by punching. 螺栓和螺母的标记应在端面（螺栓），或通过冲压在上面或侧面（螺母）上

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6.1.8. All contents on name plate or tag shall be marked in dual language with Russian and English.

Ex) Kопныс / Housing 铭牌或吊牌上的所有内容均应以俄文和英文双语标示。例) Kопныс / 住房

6.2. MARKING ITEMS AND MARKING LOCATION 标记项目和标记位置

Table 6-1

No.	Marking Items	Location		
		Housing 壳体	Name Plate (1) 铭牌 (1)	Bonnet Bolt/Nut 阀盖螺栓/螺母
1	Nominal size 标称尺寸	Front	○	
2	Nominal Pressure (3) 公称压力 (3)	Front	○	
3	Material of Housing (2) 外壳材料 (2)	Front	○	
4	Manufacturer's name or trade mark 制造商名称或商标	Back	○	
5	Feed direction for valve operating medium (4) 阀门工作介质的进给方向 (4)	Front		
6	Designation for valve flange gaskets (Bonnet Gasket) 阀门法兰垫片名称 (阀盖垫片)	DD		
7	Maximum allowed temperature or temperature range for operating medium t 最高允许温度或工作介质温度范围 t...	Front	○	
8	Designation of fitting threads 配合螺纹的名称	DD		
9	Letters or Symbols and Arrow head to indicate "OPEN" and "CLOSE" 字母或符号和箭头表示 "打开" 和 "关闭"	Handwheel (5)		
10	Material of lining 内衬材质	DD	○	
11	Tag Number (Item Number) 标签编号 (项目编号)	DD	○	
12	Material of bonnet bolt and nut 阀盖螺栓和螺母材料	DD		○
13	Valve End Type (Flanged (Type B), Threaded, Ring Joint (Type J), etc.) 阀端类型 (法兰 (B型)、螺纹、环形接头 (J型) 等)		○	
14	Trim No. Or Wedge & Seat Material 装饰编号或模块和阀座材料	DD	○	
15	Heat No. 热号		○	

Notes;

- 1) Obligatory signs must be applied to the housing itself and the nameplate, securely attached to it. Requirements to nameplate manufacture and installation must be specified in DD (Design Document) on particular product. 铭牌制造和安装的要求必须在特定产品的 DD (设计文档) 中指定。
- 2) When housing material differs from bonnet material, marking shall be individually made on each of them. If both are same, marking may be made on housing. 当外壳材料与阀盖材料不同时, 应分别在每个材料上做标记。如果两者相同, 可以在外壳上做标记。
- 3) The sign consists of the nominal pressure designation by GOST 26349. Example - For 12.5 MPa pressure valves (125 kgf/cm<sup>2</sup>): PN 125 该标志由 GOST 26349 的标称压力名称组成。示例 - 对于 12.5 MPa 压力阀 (125 kgf/cm<sup>2</sup>): PN 125
- 4) Arrow of flow direction shall be indicated, only when required by the valve structure. 仅在阀门结构要求时标明流向箭头

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5) Open and closed handwheel marking must comply with the requirements of GOST12.2.063. 打开和关闭手轮标记必须符合要求  
GOST12.2.063

## 7. BOLTS AND NUTS

### 7.1. MARKING OF BOLTS AND NUTS 螺栓和螺母的标记

Material identification marks shown in the below table shall be punched on bolts and nuts separately. 下表所示材料识别标记应分别打在螺栓和螺母上

#### 7.1.1. Uncoated Bolt and Nuts 无涂层螺栓和螺母

Identification Marks and Discrimination Colors for materials of uncoated bolts and nuts shall be in accordance with following table and the color shall be applied at the end of bolt.

Table 7-1 无涂层螺栓和螺母材料的识别标志和识别颜色应符合下表，颜色应涂在螺栓末端。

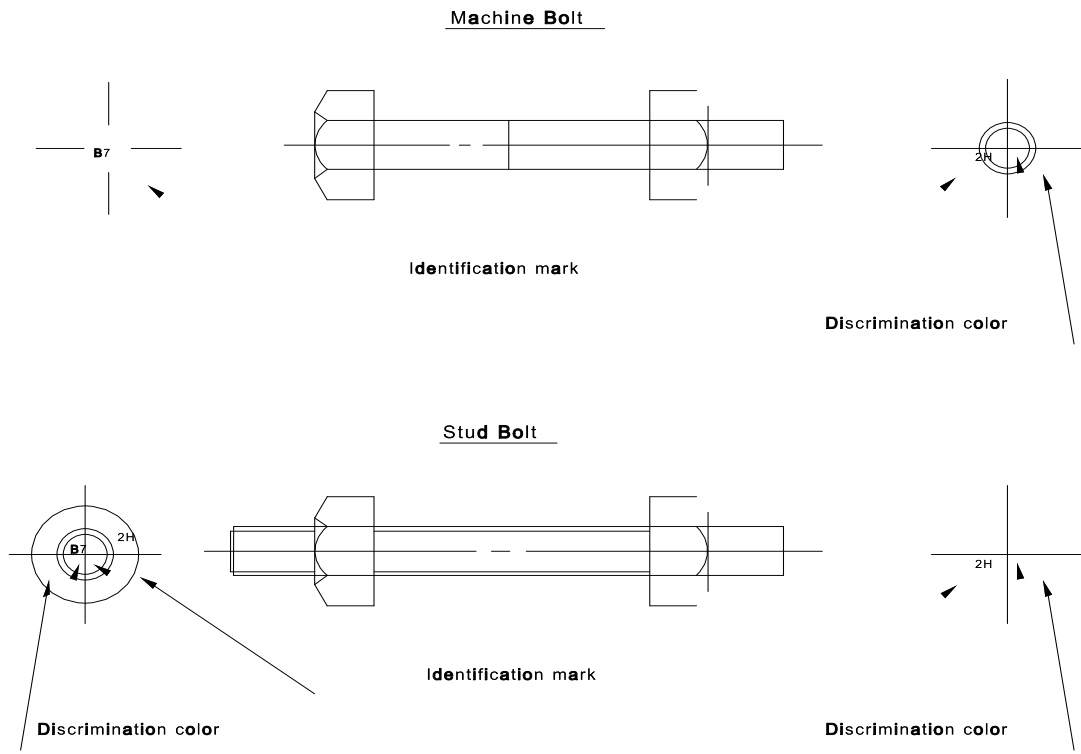
Material and Combination 材质与组合		Identification Mark 识别标志		Discrimination Color 色标
Bolt 螺栓	Nut 螺帽	Bolt	Nut	
Сталь 09Г2С	Сталь 09Г2С	09Г2С	09Г2С	-
A193-B7M	A194-7M	B7M	7M	YELLOW 黄色
A193-B16	A194-7	B16	7	RED 红色
A193-B8T CL.2	A194-8C	B8T CL.2	8C	BLUE 蓝色
A320-L7	A194-7	L7	7	-
A320-L7M	A194-7M	L7M	7M	ORANGE 橙色
A453-660-A	A453-660-A	660	660	GREEN 绿色

### 7.2. MARKING LOCATION 标记位置

Marking location shall generally be as indicated in Fig.4. 标记位置一般应如图4所示。

Fig.4 Marking location of bolts and nuts 图4 螺栓和螺母的标记位置

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7.3. MATERIAL DISCRIMINATION COLOR 材质区分颜色

Material discrimination colors shown in Table 7-1 which indicate the combinations of bolt and nut materials, shall be painted on bolts and nuts.  
 表 7-1 中表示螺栓和螺母材料组合的材料识别颜色，应涂在螺栓和螺母上

8. GASKET

Marking and material discrimination color code shall comply with ASME B16.20 "Metallic Gaskets for Pipe Flanges" and ASME B16.21 "Non Metallic Flat Gaskets for Pipe Flanges" respectively for ASME material, or GOST R 52376-2005 "Heat-resistant spiral-wound gaskets. Types. Main dimensions" for high temperatures and pressure up to PN40 and OST 26.260.454-99 "Spiral wound gasket. Types and dimensions. General specifications." for pressure over PN40 respectively for Russian GOST material.

标记和材料区分颜色代码应分别符合 ASME B16.20 "管法兰用金属垫片" 和 ASME B16.21 "管法兰用非金属扁平垫片", 或 GOST R 52376-2005 "耐热螺旋" 缠绕垫片。类型。主要尺寸", 适用于高达 PN40 的高温 and 高压和 OST 26.260.454-99 "螺旋缠绕垫片。类型和尺寸。一般规格。" 压力超过 PN40 分别用于俄罗斯 GOST 材料

8.1. MARKING OF GASKETS 垫片标记

The following items shall be indicated on gaskets. Marking shall generally be made by one or combination of punching, stenciling, tags or tapes. 垫片上应标明下列项目。标记通常应通过冲压、模板、标签或胶带中的一种或组合进行。

- a) Manufacturer's name or trade mark 制造商名称或商标
- b) Product's name (Manufacturing no. and material) 产品名称 (制造编号和材料)
- c) Dimension (Nominal size and ring-groove no.) 尺寸 (公称尺寸和环槽号)
- d) Code (rating) \* 代码 (评级) \*

Note;

\* Ratings shall be as indicated in note (4) in para.5.1. Capital letters may be substituted for full letters if the letter cannot be indicated. (for example: 9 in place of 900)  
 额定值应如第 5.1 段注释 (4) 中所示。 如果无法指明字母，可以用大写字母代替全字母。 (例如：9 代替 900)

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8.2. MARKING LOCATION 标记位置

8.2.1. For non-asbestos (Graphite etc.) sheet gaskets, a stiff tag on which all items are indicated shall be attached to each package. 对于非石棉（石墨等）垫片，应在每个包装上贴上标示所有物品的硬质标签。

8.2.2. For spiral wound gaskets of standard type and those with inner ring, tags or tapes on which all items are indicated shall be attached. 对于标准型和带内圈的缠绕垫片，应附上标明所有项目的标签或胶带。

8.2.3. For spiral wound gaskets with outer guide ring and those with outer guide ring and inner ring, all items shall be indicated on surface of outer guide ring by punching or stenciling. 对于带外导环和带外导环和内环的缠绕垫片，所有项目均应在外导环表面通过冲孔或钢印标明。

8.2.4. For ring joint gaskets, all items shall be marked on the circumference of ring by punching. A tag on which all items are indicated shall also be attached. 对于环形接头垫片，所有项目都应在环形圆周上打孔标记。还应附上标明所有物品的标签

8.2.5. For other types of gaskets, all items shall be adequately indicated with the above methods. 对于其他类型的垫片，所有项目均应以上述方法充分表明

8.3. MATERIAL DISCRIMINATION COLOR 材质区分颜色

8.3.1. For spiral wound gaskets, the following discrimination colors for outer and inner rings shall be painted on the surfaces of outer ring at each 90°. 对于缠绕垫片，应在外圈表面每隔 90° 涂上以下外圈和内圈区分颜色。

Table 8-1

Filler Material 填充材料	Hoop Material 缠绕材料	Inner Ring 内圈材料	Outer Ring 外圈材料	Discrimination Color 色标
GRAFLEX 石棉	08X18H10T	08X18H10T	08X18H10T	-
GRAPHITE 石墨	SS 316L	SS 316L	CS	GREEN 绿色
GRAPHITE 石墨	SS 321	SS 321	CS	RED 红色
GRAPHITE 石墨	SS 347	SS 347	CS	BLUE 蓝色

Note;

1) The above color code precedes the color code for spiral wound gasket materials indicated in ASME B16.20. 上述颜色代码在 ASME B16.20 中指示的缠绕垫片材料颜色代码之前

8.3.2. For ring joint gaskets, the following discrimination colors shall be painted on the outer surface of ring at each 90°. 对于环形接头垫片，应在每 90° 的环外表面涂上以下区别颜色。

Table 8-2

Ring Material 环形垫片材料	Discrimination Color 色标
5Cr-1/2Mo ALLOY STEEL	BROWN 棕色
UNS N08825	BLACK 黑色
SOFT IRON	-
SS 304L	ORANGE 橙色
SS 316L	GREEN 绿色
SS 321	RED 红色
SS 347	BLUE 蓝色

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## 9. PROCUREMENT TAGGING

Each valve and some flanges shall be fitted with a rust-resistant procurement tag securely attached with no fewer than six twists of stainless steel wire. Paper or plastic tags are unacceptable. 每个阀门和一些法兰都应贴有防锈采购标签，并用不少于六捻的不锈钢丝牢牢固定。不接受纸质或塑料标签

Flanges tagging is required for companion flange. The purpose of flange tagging is for dicrimination with other custromized flange. 配对法兰需要法兰标记。法兰标记的目的是为了与其他定制法兰进行区分

### 9.1. TAG DIMENSION AND DESIGN

9.1.1. Each procurement tag shall be clearly stamped with the; 每个采购标签应清楚地加盖

- a) Purchase order number 订购单号码
- b) Item code number (of the PO) 项目代码编号 (采购订单)
- c) Unique valve tag number (Commodity code) 唯一的阀门标签号 (商品代码)

9.1.2. Ink or paint is not acceptable for marking. 不能使用墨水或油漆进行标记

9.1.3. Procurement tags shall normally be attached to the gland bolting. Tags on valves that do not have gland bolting may be attached to the hand wheel or other appropriate location. Attachment of tags through bolt holes of end flanges is not permitted. 采购标签通常应附在压盖螺栓上。没有压盖螺栓的阀门上的标签可以连接到手轮或其他适当的位置。不允许通过端部法兰的螺栓孔粘贴标签。

9.1.4. If the item description specifies that the valve is for a specific service, the supplier shall attach an additional tag spelling out this requirement. 如果项目描述指定阀门用于特定服务，则供应商应附加一个附加标签，说明此要求

9.1.5. The minimum dimensions for tags and wire shall be in accordance with the following; 标签和电线的最小尺寸应符合以下规定

- a) Size of round tag: 40 mm diameter 圆形标签尺寸：直径40毫米
- b) Size of rectangular Tag: 12 mm x 70 mm 矩形标签尺寸：12 mm x 70 mm
- c) Thickness of tag: 1.2 mm 标签厚度：1.2毫米
- d) Lettering height: 6 mm 刻字高度：6 毫米
- e) Wire diameter: 1.2 mm 线径：1.2毫米

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# APPENDIX – IDENTIFICATION MARKS AND DISCRIMINATION COLORS

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# APPENDIX

## IDENTIFICATION MARKS AND DISCRIMINATION COLORS 识别标记和识别颜色

TABLE 1 表格1

MATERIAL	MATERIAL DESIGNATION (GOST & ASME) 材质名称 (GOST & ASME)			IDENTIFICATION 识别			DISCRIMINATION COLOR 辨别颜色
	PIPE 管子	WROUGHT FITTING 锻造配件	FORGING 锻造	PIPE 管子	WROUGHT FITTING 锻造配件	FORGING 锻造	
CARBON 碳钢	Сталь 20	Сталь 20	Сталь 20	Ст20	Ст20	Ст20	N/A WHITE 白色
	Сталь 09Г2С	Сталь 09Г2С	Сталь 09Г2С	09Г2С	09Г2С	09Г2С	WHITE N/A 无
	Сталь 17Г1С-У	Сталь 17Г1С-У		17Г1С-У	17Г1С-У		
	A333-6	A420-WPL6 (SMLS)	A350-LF2 CL.1	A333G6	WPL6S	LF2CL1	BLUE 蓝色
	A671-CC60 CL.22	A420-WPL6 (WELDED)		A671CC60CL22	WPL6W		
	A333-6 (NACE)	A420-WPL6 (SMLS + NACE)	A350-LF2 CL.1 (NACE)	A333G6N	WPL6SN	LF2CL1N	BLUE – RED 蓝红色
	A671-CC60 CL.22 (NACE)	A420-WPL6 (WELDED + NACE)		A671CC60CL22N	WPL6WN		
A671-CC60 CL.22 (NACE + HIC+UT)	A420-WPL6 (WELDED + NACE + HIC+UT)	A671CC60CL22NH		WPL6WNH	RED 红色		
1-1/4CR - 1/2MO	A335-P11	A234-WP11 CL.2 (SMLS)	A182-F11 CL.2	A335P11	WP11CL2S	F11CL2	ORANGE 橙色
	A335-P11 (NACE)	A234-WP11 CL.2 (SMLS + NACE)	A182-F11 CL.2 (NACE)	A335P11N	WP11CL2SN	F11CL2N	ORANGE – RED 橙红色
2-1/4CR - 1MO	A335-P22	A234-WP22 CL.3 (SMLS)	A182-F22 CL.3	A335P22	WP22CL3S	F22CL3	YELLOW 黄色
5CR - 1/2MO	A335-P5 (NACE)	A234-WP5 CL.1 (SMLS + NACE)	A182-F5 (NACE)	A335P5N	WP5CL1SN	F5N	WHITE – RED 白红
9CR - 1MO	A335-P9	A234-WP9 CL.1 (SMLS)	A182-F9	A335P9	WP9CL1S	F9	BROWN 棕色
	A691-9CR CL.22	A234-WP9 CL.1 (WELDED)		A6919CRCL22	WP9CL1W		

# APPENDIX

## IDENTIFICATION MARKS AND DISCRIMINATION COLORS

TABLE 1

MATERIAL	MATERIAL DESIGNATION (GOST & ASME)			IDENTIFICATION			DISCRIMINATION COLOR
	PIPE	WROUGHT FITTING	FORGING	PIPE	WROUGHT FITTING	FORGING	
18CR - 8NI	A312-TP304/304L	A403-WP304/304L (SMLS)	A182-F304/304L	A312TP304304L	WP304/304LS	F304/304L	BLACK 黑色
	A358-304/304L CL.1	A403-WP304/304L (WELDED)		A358304/304LCL1	WP304/304LW		
16CR - 12NI - 2MO	A312-TP316/316L	A403-WP316/316L (SMLS)	A182-F316/316L	A312TP316316L	WP316/316LS	F316/316L	N/A
	A358-316/316L CL.1	A403-WP316/316L (WELDED)		A358316/316LCL1	WP316/316LW		
18CR - 8NI - TI	A312-TP321 (NACE)	A403-WP321 (SMLS + NACE)	A182-F321 (NACE)	A312TP321N	WP321SN	F321N	PURPLE – RED 紫红色
	A358-321 CL.1 (NACE)	A403-WP321 (WELDED + NACE)		A358321CL1N	WP321WN		
18CR - 8NI - NB	A312-TP347	A403-WP347 (SMLS)	A182-F347	A312TP347	WP347S	F347	GREEN 绿色
	A358-347 CL.1	A403-WP347 (WELDED)		A358347CL1	WP347W		
18CR - 8NI - NB	A312-TP347 (NACE)	A403-WP347 (SMLS + NACE)	A182-F347 (NACE)	A312TP347N	WP347SN	F347N	GREEN – RED 绿红
	A358-347 CL.1 (NACE)	A403-WP347 (WELDED + NACE)		A358347CL1N	WP347WN		
NICKEL ALLOY	B423-(N08825) (NACE)	B366-WPNICMC (N08825) (SMLS + NACE)	B564 (N08825) (NACE)	B423N08825N	B366N08825SN	B564N08825N	BLACK - RED 黑红
	B705-(N08825) CL.2 (NACE)	B366-WPNICMC (N08825)-WX (WELDED + NACE)		B705N08825CL2N	366N08825WN		